PUBLIC LIBRARY
&
DIGITAL DIVIDE

Editor
Abhaya Kumar Padhi

PUBLIC LIBRARY AND DIGITAL DIVIDE OPPORTUNITIES & CHALLENGES

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ODISHA STATE OPEN UNIVERSITY
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PUBLIC LIBRARY AND DIGITAL DIVIDE: OPPORTUNITIES & CHALLENGES

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FOREWORD

This book is the result of a two-day National Seminar on the theme 'Public Library and Digital Divide: Opportunities and Challenges' held at Sambalpur. Many teachers and practitioners of library science from various universities and institutions of national repute participated and presented papers in the Seminar bringing out the professional nuances and current trends in library management in the digital milieu. This slender volume is an attempt to collate some chosen papers for the benefit of teachers, students, library and information science enthusiasts, and general readers who evince interest in books and libraries.

The theme strongly underlines the 'Digital Divide', otherwise, perceived as a 'digital split' that has become a fundamental social issue signifying the sense of the different genre and quantum of information between those who have access to the Internet, especially broadband access, and those who are deprived of it for various reasons. The phrase is also indicative of the gap between the demographics and the regions having access to Information and Communication Technology (ICT) and those who are deprived of such essential facilities. The primary objective of the Seminar was to cater value-added services through ICT to the educators and the learners both in-house and in distant mode. Librarians amidst globalization of education, availability of huge corpus of literature in the cyber-space, prevalence of multidimensional research have reshaped the resource collection to meet the varied demands of the patrons. The current trend and practice in providing information by the public libraries in a knowledge-based society powerfully linked to decision making, strategic planning, structured management, competitive advantages, innovation, and research and development are of paramount importance.

In an age driven by ever-emerging technology, only the accumulation of resources does not count. Rather, there is a need for a mechanism to organize with the help of proper technology for accelerating services, seamless access on the web by the end-users, make successful the true notion of digital India, and obliterating the gap between the resources and the users. Emergence, growth, development, and popularity of the internet in information society has an immediate effect on transformation to a knowledge-society which has posed several challenges for the library professionals to change their management operations and service delivery which will truly justify the library service.

The discussions, deliberations, expressions of thoughts, sharing of experiences and expertise including panel discussions on the current issues by the resource persons in the Seminar not only enhanced the knowledge domain of the participants and others present in the Seminar but also provided a means to excel the functioning of the public library using ICT in a more dignified manner and these exertions have proved to be a viable gateway and contributed new insights for the development of the profession. It, also, added value to the professional communities of Odisha and the learning platform as well to the entire Library and Information Science communities.

The true value of learning and the untiring performance of the librarian in the present context has shifted from that of a document manager to an information manager and which in turn has been reshaped into information and knowledge

disseminator and facilitator. This has been possible due to the desired prevalence of ICT in every stage of its operation like acquisition, organization, dissemination, and preservation of knowledge leading thereby to a new horizon in the service domain. Therefore, tomorrow's organizations will only thrive if they recognize the uncertainty that faces them and actively imagine the possible threats and opportunities that will emerge under different circumstances.

The theme and concept of the Seminar were mooted by the Sambalpur Public Library, and Odisha State Open University (OSOU) readily agreed to be the joint host. The main architect in this project was Prof. Aditya Prasad Padhi, a former Vice-Chancellor of Berhampur University who is the incumbent President of the Sambalpur Public Library. OSOU is not only engaged in the process of 'distant learning' (DL) but also is a champion of 'Digital Learning' (DL). The subject of the Seminar was in sync with the vision and mission of OSOU. The Union Ministry of Human Resource Development; Pandit Madam Mohan Malvia National Mission on Teachers and Training, National Resource Centre Teaching-Learning; Ramanujan College, University of Delhi and the Department of Culture, Government of Odisha stepped in and offered much-needed help in holding the Seminar in a befitting manner. Odisha State Open University expresses gratitude to all participating institutions and the participants for their generous help and scholarly contribution

This volume is an aggregate of twenty number of papers submitted and presented by teachers, students, and practitioners of Library and Information Science. They deal with various aspects of the theme of the Seminar, "Public Library and Digital Divide: Opportunities and Challenges'. The focus in most of the papers are on the public library, technology applications in library management, digital drive, institutional repositories, use electronic devices like mobile phones in the library and library websites along with case studies. The book will be instrumental for both the library professionals and the end-users to enhance the effective library services using the technology. It also will be the gateway to the professionals to reach the information at the grassroots level.

I thank Abhaya Kumar Padhi, a former senior executive of Prasar Bharati, and a bibliophile for having agreed to organise and edit the book to make it presentable. Thanks are due to Prof R N Mishra, Organizing Secretary of the Seminar, and all those who are associated directly or indirectly with the publication of the book.

The opinions expressed in the papers are that of the authors and the editor and publisher of the book are not responsible for the content. However, any error and omissions in print are humbly owned by us and necessary corrections will be carried out in the next edition.

Dr. Srikant Mohapatra
Sambalpur   **Vice-Chancellor**
Dated the 10th June 2020   **Odisha State Open University**

EDITOR'S NOTE

Books are sacrosanct repositories of knowledge. However, to believe books are forever is a misnomer. Or else the primitive books with heliographic patterns in the form of clay tablets would have outlived all civilizations. The Hebrew psalms, written on animal hide, the words of wisdom recorded on papyrus, palm-leaf, or bhoja-patra would have remained intact in their hordes in our times too; but that was not to be. Books got destroyed and reasons were many. There are several enemies and agents for destroying books. They are fire, water, weather and insects like termite, moth, silverfish, etc. Above all, intolerance by man and lack appreciation for the otherness in others too was a major factor of destruction of books. Certain archaeological finds in Persia have indicated that books in large libraries were engulfed by fire. Other recorded occurrences of books consigned to fire are the Epang Palace and State Archives in Western Xian in China in 206 BCE and the destruction of the Library of Alexandria in Ancient Egypt. And with them were obliterated ancient wisdom of our past masters. In this context, "Fahrenheit 451", the British science-fiction film directed by François Truffaut comes to mind. The focal theme of the film was 'biblioclastism' and the atrocious behaviour of an autocratic regime intolerant of books.

Despite all such intolerance towards books, they have survived and libraries have flourished. States have sponsored the establishment and growth of libraries not only in the academic domain but also in the larger public sphere. Initiatives by bibliophiles also have set up libraries with personal effort and contribution. One such iconic library is the "Khuda Bakhsh Oriental Library" in Patna (Bihar). Named after Khan Bahadur Khuda Bakhsh who had donated close to 1500 invaluable manuscripts from his family collection way back in 1891 has now acquired the hallowed status of a national institution. Likewise, there are several libraries of stature in India.

But are they accessible to all seekers of knowledge? Let us not wait for an answer because it is obvious. In this backdrop, it is also a fact that academics, elites, library professionals, and above all bibliophiles have always strived to collect, retain and conserve books to expand the domain of a knowledge society. Books in their physical form that we call 'hardcopy' occupy a space in a library. It can be used by a user per volume at a time which is a limiting factor. Besides, the user has to visit the library irrespective of the distance involved at a time in a day when the library is open and accessible to the users. These are restrictive ways and do not enable the sharing of knowledge resources.

In Sambalpur Public Library, of which I am a member, these issues have been discussed with persons adequately exposed to library and information management. As a consequence of such an exercise, the Library management thought of digitalisation of the Library. That further led to organising a seminar on digitalization. The Seminar was organised in collaboration and association with various organisations, the premier among them being the Odisha State Open University (OSOU). The two-day Seminar attracted many academicians, students, and library professionals who presented papers on the set theme: 'Public Library and Digital Divide: Opportunities and Challenges'. The focus was on the 'digital divide' aspect as because of various constraints cyber connectivity and internet access are yet to become universal in India. This is more pronounced in the hinterland and to some extent in the North-Eastern states. Participants with hands-on experience in library

management expressed their views and put forth ideas on how to bridge the divide. There was a surfeit of papers that needed sifting. This book is the consequence of that exercise of siftin

To say that this book has been edited would be a misnomer. It has only been organised by me at the request of my esteem friend and the first Vice-Chancellor of Odisha State Open University, Prof. Srikanta Mohapatra. I have just given the content a printable and presentable form. In achieving this I have been assisted by Ms. Prashansa Das, Academic Consultant and Mr. Abhinandan Tripathy, Jr Executive, both staff of the University. I thank them all.

Hope, this book attracts the desired readership. In the end, this is again a hardcopy and not a digital one that you are holding. The challenge of breaking the digital divide remains. Let us strive to break it.

Sambalpur   **Abhaya Kumar Padhi**
June 10, 2020

#1
PUBLIC LIBRARIES AND BRIDGING DIGITAL DIVIDE IN INDIAN PERSPECTIVE

Prof. Pravakar Rath

Introduction

The emerging information and knowledge society divides two sets of countries commonly known as "Information Rich" and "Information Poor". The major dividing factor among these countries is the use and application of ICT in general and the Internet in particular. Growth and development in education combined with latest and state-of-the-art technology can lead a nation towards global development and eliminate the digital divide to be at par with other developed nations. The major driving force for the growth and development of knowledge society is the penetration of ICT and Internet which will provide online access to information in all spheres of human activities. Technological developments will transcend geographical and remote barriers irrespective of their locations thereby allowing each citizen empowered with information which in turn contribute to socio, educational and economic development. For the last two decades, India has witnessed tremendous development in education and ICT infrastructure with great impact on large-scale computerisation of libraries and information centres, providing e-resources through library networks and consortia, training and capacity building with ultimate objective to minimise the gap between information rich and information poor countries what is called "Digital Divide".

Libraries in general and public libraries in particular as one of the important stakeholders' supplement in all educational development and nation building process. Public libraries in the changing information scenario support development through "Access to Information". A Statement from the Public Libraries Section, International Federation of Library Associations (IFLA) The public library, the local gateway to knowledge, provides a basic condition for lifelong learning, independent decision- making and cultural development of the individual and social groups. It is a living force for education, culture, and information, and as an essential agent for the fostering of peace and spiritual welfare through the minds of men and women. UNESCO, therefore, encourages national and local governments to support and actively engage in the development of public libraries. IFLA/UNESCO Public Library Manifesto (1994).United Nation's Sustainable Development Goals (SDG)-2030 also framed certain agendas and political policies that could transform the world by 2030. One such important agenda is "Quality Education" which says "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". In this context, public libraries plan an important role in lifelong learning thereby providing access to information and knowledge.

Public Library Scenario in India

Libraries in general, public libraries, in particular, provide access to information and knowledge to masses. Libraries have a very distinct role to serve as a local information and knowledge hub and serve a local gateway to national and global knowledge resources.

National Knowledge Commission recognized the importance of public libraries as "Knowledge Centres" and "Gateways to Knowledge". Development of public libraries could be viewed as an essential component to supplement all educational activities and developmental process as well. Library and information service are one of the service sectors which need to be developed so as to ensure that people from all walks of life and all parts of India have easy access to information as per their needs and aspiration and to overcome information poverty.

Beginning from Planning Commission with a Model Public Library Act with the first state enacted Tamil Nadu Public Libraries Act (1948), till today 19 states have enacted Public Libraries Act with the objective of providing public library services through a legal framework along with adequate financial support to run the public libraries smoothly and efficiently. Thereafter, the establishment of Raja Rammohun Roy Library Foundation (1972) under Ministry of Culture, National Policy on Library and Information System (1986), National Knowledge Commission (2008) and National Mission on Libraries launched by President of India (2014) made special emphasis on the development of public library system in the country. The provisions made in these Acts to develop an integrated public library system in each state in a more organized way starting 1) State Central Library at the apex of the state level public library system followed by 2) Regional/Divisional Library 3) District Library 4) Sub-Divisional Library 5) Block/ Town/Tehsil/Circle/Municipal Library 6) Village/Rural Library.

Public Libraries and Bridging Digital Divide

A) Provide Access to Information and Knowledge

In the increasingly digital society, access to information, content, and knowledge is vital to community growth. Public libraries facilitate and provide worldwide sources of information, learn new skills to be the most enlighten and informed citizen of a democratic knowledge society. It allows optimal use of knowledge by all sectors, such as government, industry, rural sector and civil society thereby ensuring that people from all sectors and all parts of the country have easy access to knowledge relevant to their needs and preferred language.

B) Emphasise on Digital Collections and Open Educational Resources

To enable equitable and universal access to knowledge resources, it is important to create more digital resources which can be shared. The concept of an "information commons" i.e. "resources shared by a community of producers and consumers in an open access environment" needs to be promoted. Let the users develop their information literacy skills to make optimum use of resources. Public libraries to be vibrant and visible need to emphasize on website development upload more contents and allow users to access more open educational resources. Technology, content, and services could bring visible changes in repositioning the public libraries by minimizing the gap between "information haves "and information have not-s".

C) Rural Libraries as Community Information Centres

Let rural libraries serve as the local center of information and a gateway to national and global knowledge providing fair access to knowledge and information to as many users as possible with special attention on the information needs of children, women senior citizens and the physically challenged. Rural/Village libraries as community hub can only cater the information needs of the local community for their socio-economic, cultural and educational development.

D) Social Inclusiveness and Citizenship

Participation and involvement in the community are central issues for social inclusion. Social participation and social inclusion in the information society presuppose information literacy and access to information resources In order to bridge the gap between the information poor and the information rich, an equitable access by all kinds of people of the community and addressing their information needs will full fill the aspirations of the people in general in a more democratic way.

Public Library scenario in India
(Source: Public Libraries in India: Present Scenario (2018) by K.K.Banerjee, Advisor-NML)

The present status of public libraries in each state and their number (1, 53,660) shows itself that there is a strong network of public libraries in the country and they need constant support and development from state and central government. If these public libraries can be integrated into to one system under the administrative control of one single department under each state government, there will be much impact on services. With the application of information and communication technology in these libraries, their services can be doubled which can lead to socio-economic, educational and cultural development and contribute to "Bridging the digital divide".

National Level Initiatives towards Development of Public Libraries

As a national apex body responsible for the development of public libraries in the country, Raja Rammohun Roy Library Foundation (RRRLF), under Ministry of culture provides financial support through matching and non-matching grants for development of infrastructure reading material. National Knowledge Commission through its Report "Towards a Knowledge Society- Three Years of National Knowledge Commission (2008)" recognized the fact that libraries play an important instrument of change for educational, cultural, social and economic development. Presently the world is undergoing a great deal of transformation due to the applications of ICT in the different sectors in the universe of knowledge. Libraries of different categories do exist in India but people at large have access to neither printed material nor digital resources available in the country as well as in the world.

The National Knowledge Commission while setting up the Working Group on "Libraries", it was felt necessary to review the library services in the country and examine the present standard of libraries. The Working Group felt that the majority of the people in India must be helped to overcome "Information Poverty". Libraries in India need to make a

paradigm shift from their present strategy of collection or acquisition of knowledge to a strategy of knowledge access. Keeping all these in view, the working group made some recommendations to ensure sustained attention to the development of libraries. On the recommendation of National Knowledge Commission and after a detailed discussion and deliberation the Ministry of Culture (MOC) finally notified the establishment of "National Commission on Libraries" on 4th May 2012 and constituted a High-Level Committee. The NML was formally launched by President of India on 3rd February 2014.

National Mission on Libraries (NML)

On the basis of recommendations of the Working Groups and after further deliberations in the High-Level Committee, NML decided to address the following core areas initially:

- Creation of National Virtual Library of India (NVLI).
- Setting up of NML model libraries
- Quantitative and Qualitative survey of libraries
- Capacity building

National Virtual Library of India.

Research, academics and also general users from various sectors are today depending more on digital information. Corresponding to this demand an increasing amount of digitized data and services based on such data are being initiated. Digital Information today serves as an important knowledge asset.

While the proliferation of digital data and information services heralds a new and exciting era, it also presents many issues and challenges. The common user is often clueless about the existence of resources that are useful. The problem is akin to having a large collection of printed materials in the form of books and journals but only when it is organized and services are provided, it is called a 'library'. In fact, the immense amount of information is digitized under several projects carried out by various Agencies and Govt. Departments like MOC, HRD, DIT, CDAC, Prasar Bharati, AIR, State Govts, etc. Most of them are available on the web but are dispersed. There is no comprehensive database built for all such resources. The true potential can only be exploited for use by the masses when it is usefully organized and presented in user-friendly services including multilingual services.

Digital era has also brought in 'digital divide' and has marked the society into digital haves and have-nots. It is no longer a matter of choice but rather a compulsion to find ways and means of bridging the gap between the two sections. Virtual library will go a long way in filling up the gap.

The target users of NVL will be: students, researchers, doctors, professionals, and novice users, including educationally, socially, economically, physically disadvantaged groups. They can be built incorporating many modules to cater to information needs.

Setting up of NML Model Libraries:

Under the constitution, "Library" is a State Subject. Among the nineteen States which have legislated on the subject, only eight have a reasonably good Public Library System and infrastructure facilities. According to the National Mission on libraries, its primary focus will

be to improve Library System services and infrastructure of the states, which are lagging behind.

In most of the public libraries in India, there is a shortage of infrastructure, lack of modernization and networking facilities, lack of fund to acquire the latest print and online resources. The ICT has given rise to the growth of more information and knowledge resources but these resources do not reach the public. While IT can be used for effective collection, storage and dissemination of information yet most of the public libraries are unable to make use of it. Hence there is a need to modernize the public libraries. Accordingly, National Mission on Libraries decided to develop 35 State Central Libraries, one District Library in each State and one school library in each state as model libraries under NML in phase I. It is envisaged that the networking issue will be resolved with the support of NKN and NIC.

Qualitative and Quantitative Survey of Libraries:

National Mission on Libraries recommended that a national census of libraries should be conducted by undertaking a nationwide survey. Collection of census data on libraries would provide baseline data for planning. NML has decided to conduct a representative survey (quantitative and qualitative) to understand the perception of the people regarding the services rendered by the libraries and what needs to be done to make public libraries vibrant institutions. A total of 5000 libraries will be surveyed to obtain descriptive statistics. These statistics will facilitate the study of the pattern of library usage in terms of average number of readers, a number of books issued, other services available, etc. The qualitative survey will study the level of satisfaction of library 'users' and 'non-users' about the role played by the libraries in terms of their traditional role as readership promoters as well as their new role as service and information providers and the impact of public libraries on the quality of life and economic gains of local people. A suitable questionnaire is being framed to generate data which can also be used to develop quality and performance indicators for the library system.

Capacity Building

National Knowledge Commission recommended that the proposed Mission on Libraries must assess as soon as possible the manpower requirements of the country in the area of library and information science management and take necessary steps to meet the country's requirement through Library and Information Science, education and training. Core competencies are necessary for library staff to serve the clientele in the changing scenario of library arena. Adaptable staff will allow libraries to serve this changing needs and expectations of the users. The library can recruit, hire and train library staff to make them responsive to the new and continuously changing library environment to cope with this phenomenon, NML has decided to initiate need-based training programmes for various categories of library professionals working in public and other libraries. These training/workshops, through well-designed training programmes (including training of trainers), will contribute towards the capacity building of library and information science professionals. It would also develop managerial skills and IT competencies in existing

personnel in public libraries. The capacity building programme will be conducted in collaboration with those 'universities and institutes which are already conducting programmes in Library and Information Sciences.

Issues Concerning Development of Public Libraries and Bridging the Digital Divide

Some of the issues that require the immediate attention of central/state governments and all stakeholders need to be addressed as stated below.

a) **Policy Issues:** Understanding the governance and maintenance of public libraries under state list, poor funding, inadequate manpower, and infrastructure need to be addressed by both state and central government as a National Policy of the central government to promote public libraries in the country. Although many initiatives have been undertaken by the central government, still a lot has to be done to improve the public library system.

b) **Develop ICT Infrastructure on Priority:** There is an absolute need to develop information and communication infrastructure including the speed of the Internet, increasing Bandwidth/ Use of Fiber Optics which will enable people to communicate fast and could eliminate many socio-economic and educational barriers and shall result in too many developmental activities through public libraries. All public libraries need to be covered under National Knowledge Network to increase the speed of the Internet which is the backbone of the present knowledge society.

c) **Promote Modernization of Libraries, Participate in Library Networks and Consortia:** The changing information scenario demands libraries of all categories need to be computerized with the help of integrated Library 2.0 software. This will enable its users to communicate easily, securely and cost-effectively. Each library should develop its own website which is dynamic, innovative and interactive. With the help of a computerized library and Internet connectivity, the libraries can join any library network to access the resources of other libraries and provide effective and efficient services to its clientele.

d) **Develop Digital Library and Optimal Use of E-resources:** With the help of a dedicated library website, public libraries can digitize very important and rare material and procure a number of e-resources and upload in the website for easy access by its own users. Digital libraries provide instant access to e-resources (24x7) with huge and variety of contents with least cost.

e) **Recognize the Importance of Social Media and its Application Libraries:** There is a sea change from the traditional method of library services to technology-enabled learning, web-enabled learning, mobile learning with the advent of modern tools like social media, smartphone, multimedia integration etc. Optimal use of social networking sites will increase technological competencies of the users in time management, access to the latest information, group collaboration, discussion, file sharing, instant messaging or chatting etc. Besides, libraries can easily reach out for marketing of their library products and services

f) **Creation of Indigenous Knowledge and Knowledge Specific to the Region:** Contribution to knowledge and society, knowledge creation, access, and knowledge dissemination are some of the mandates of libraries for which they are established. Indigenous knowledge which is unique and carries much educational and research importance, local databases on those areas can be developed and be uploaded in the

library website for greater dissemination of among the user group and bring visibility of the institution worldwide.

g) Recognize the Importance of "Libraries –As Gateways to Knowledge" and Contribute to National Development: Library authorities, educationists who are heading the academic institutions, state and central government should recognize the value and importance of information and knowledge which the libraries as knowledge centers can only provide. Libraries and knowledge resources can contribute to and supplement to all educational activities and national development. Only those nations lead which read more. Promoting reading habits, reading culture, providing reading material can only be possible if all stakeholders recognize the value and importance of libraries.

Conclusion

Planned and continuous development of ICT infrastructure along with uninterrupted Internet service is the basic backbone of the knowledge society. This is possible along with other necessities and components to provide access to a vast amount of knowledge resources through libraries and information centers. To begin with all public libraries need to initiate Library Automation, Networking and Digitization **,** Create an Independent Library Website/Portal, Initiate Digitization of Valuable Library Materials and Build a Repository to Preserve in a Phased Manner, Use an Open Source Library Software (e.g .Koha) compliance with International Metadata Standards **,** create Metadata of all Kinds including Technical Reports, Drawings and Images**,** allow Open access to all Institutional Repositories and use of social networks. Equally important is to create awareness among the users and Training and Capacity Building of library professionals. This will certainly bring dramatic developments in public libraries to eliminate the gap between the information rich and information poor in bridging the digital divide.

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#2

DIGITAL DIVIDE AND PUBLIC LIBRARIES: ROLE OF PROFESSIONALS IN SKILL DEVELOPMENT

Prof. S. Ravi

Introduction

Lack of access is believed to be a disadvantage to those on the disadvantaged side of the digital divide because of the huge knowledge base that can only be found online.

The digital divide appears in a number of different contexts, including:

- Differences between rural and urban Internet access
- Socioeconomic differences between people of different races, income, and education that affects their ability to access the Internet
- Differences between developed, developing and emerging nations in terms of the availability of Internet

The digital divide was once used to describe different rates of technology adoption by different groups. In recent times, however, Internet access has increasingly been seen as the primary advantage that many technologies can grant in that it represents a staggering store of knowledge and resources. In this sense, the digital divide may be shrinking as cheaper mobile devices proliferate and network coverage improves worldwide.

Almost all our socio-economic problems had links to the "digital divide", which had come to stay during the era of the digital revolution and then again during the era of internet revolution in India, and continues to stay with us even today. In order to remove the digital divide, specifically among public libraries, it is essential to enhance the skill among library professionals in order to educate and train the public in using the digital information through digital media.

The most persistent digital divides appear to separate in differing income and education levels, race, and language. Additional divides exist along lines of region, age, and disability. Furthermore, while digital divides seem to narrow over time, new gulfs open up as new technologies are introduced. There has not been one single digital divide, but rather a series of divides that attend each new technology: first computers, then dial-up Internet access, then broadband access, and now mobile access. In addition, divides appear to exist in terms of quality of access, although these are less frequently measured.

Digital Divide

The "digital divide" is referred to by a variety of other terms which have similar meanings, though may have a slightly different emphasis: digital inclusion, digital participation, basic digital skills, media literacy and digital accessibility.

Conceptualizations of the digital divide have been described as "who, with which characteristics, connects how to what": [(*Hilbert, 2011*)

- Who is the subject that connects: individuals, organizations, enterprises, schools, hospitals, countries, etc.?

- Which characteristics or attributes are distinguished to describe the divide: Income, education, age, geographic location, motivation, reason not to use, etc.?
- How sophisticated is the usage: mere access, retrieval, interactivity, intensive and extensive in usage, innovative contributions, etc.
- To what does the subject connect: fixed or mobile, Internet or telephone, digital TV, broadband, etc.

Factors that contribute to the digital divide

The factors thus contribute to the digital divides were Gender (Mutula 2002; Singh 2004); Physical disability (Cullen 2001); Physical access (Hardware and software): Lack of ICT skills and support (Salinas 2003, Ravi 2018a); Attitudinal factors (Cullen 2001, Ravi 2018b); Age (Singh 2004); Racial segregation and Relevant content (Cullen 2001; Salinas 2003). In the case of Indian Scenario, the other factors that poise for digital divide were Low *Literacy Rate* (India Online 2011)*; Education System* (Yajnik 2005, Ravi 2018c)*; and Language* (Mallikarjun 2004, Keniston 2002).

Initiatives in Bridging the Digital Divide

The few initiatives in bridging the digital divide were

- Kisan Call center
- Life Line India
- Bhoomi Project
- Gyandoot Project
- TDIL (Technology Development for Indian Languages)

Skills and digital literacy

However, research shows that the digital divide is more than just an access issue and cannot be alleviated merely by providing the necessary equipment. There are at least three factors at play: information accessibility, information utilization, and information receptiveness. More than just accessibility, individuals need to know how to make use of the information and communication tools once they exist within a community. Information professionals have the ability to help bridge the gap by providing reference and information services to help individuals learn and utilize the technologies to which they do have access, regardless of the economic status of the individual seeking help.

Second-level digital divide

The second-level digital divide also referred to as the production gap, describes the gap that separates the consumers of content on the Internet from the producers of content.

As the technological digital divide is decreasing between those with access to the Internet and those without, the meaning of the term digital divide is evolving. Previously, digital divide research has focused on accessibility to the Internet and Internet consumption. However, with more and more of the population with access to the Internet, researchers are examining how people use the Internet to create content and what impact socioeconomics are having on user behavior.

New applications have made it possible for anyone with a computer and an Internet connection to be a creator of content, yet the majority of user-generated content available

widely on the Internet, like public blogs, is created by a small portion of the Internet using population.

Web 2.0 technologies like Facebook, YouTube, Twitter, and Blogs enable users to participate online and create content without having to understand how the technology actually works, leading to an ever-increasing digital divide between those who have the skills and understanding to interact more fully with the technology and those who are passive consumers of it. Many are only nominal content creators through the use of Web 2.0, posting photos and status updates on Facebook, but not truly interacting with the technology.

Some of the reasons for this production gap include material factors like the type of Internet connection one has and the frequency of access to the Internet. The more frequently a person has access to the Internet and the faster the connection, the more opportunities they have to gain the technical skills and the more time they have to be creative.   Other reasons include cultural factors often associated with class and socioeconomic status. Users of lower socioeconomic status are less likely to participate in content creation due to disadvantages in education and lack of the necessary free time for the work involved in blog or web site creation and maintenance.

Additionally, there is evidence to support the existence of the second-level digital divide at the K-12 level based on how educators' use technology for instruction. Schools' economic factors have been found to explain variation in how teachers use technology to promote higher-order thinking skills.

Policies and Legislative Framework

The major Acts like the Right to Information Act (2005), the Right to Education Act (2009), the National Food Security Act (2013) and Mahatma Gandhi National Rural Employment Guarantee Act (2005) were in place yet.

The following policies and legislative frameworks are in place to help ensure the skill goals.

Table 1 Policies and Legislative framework

S. No.	Skill Act	Year
1	Skills Development Act	1998
2	Employment Equity Act	1998
3	Skills Development Levy Act	1999
4	Labour Relation Act	1995
5	Public service Act	1994
6	Employment of Educators Act	1998
7	National Skills Development strategy (NSDS)	2005-2010
8	Integrated Quality Management System	2003
9	National Framework for Teacher Education	2009

Role of Libraries & Information Centres

Libraries, with their computers wired for the Internet and available free for public use, plus the valuable human resource they offer--librarians to help visitors find their way-- bring technology into our communities in friendly and useful ways for workers who will not soon gain access to the Internet in their homes or on their jobs. Many of the public libraries in India lack of proper infrastructure in terms of skilled manpower and technology. The government should take up the necessary steps for providing proper infrastructure and needs to strengthen the libraries in modernization. Besides the government initiatives developing skill among the library and information science professionals working public libraries, an individual has to equip their skill in ICT tools, digital information, training the user on the ICT and suggesting the suitable source in digital information.

Roles and Responsibilities in Skill Development

Thus, in order to cope up with the ever-changing in library and information science profession, the library professionals must be a skilled professional. The skills can be categorised as

- Domain Specific Skills - Engineering, Medicine, etc.;
- Essential Skills - Reading, Writing, Computer Application, Creative Thinking, Analyzing Skills, etc;
- Managerial Skills - Planning, Organisation, Managing Negative People, Assertive Skills, Conflict Management Skills, etc;
- Leadership Skills - Goal Setting, Team Building, Motivation, Risk Taking, Formulating Vision, etc;
- Contextual Skills – Operational Skills in a different environment or culture.

In order to meet the various challenges in skills development the Department of Education must invest in human resources, focusing on the following areas:

- To identify and address areas demanding development in order to achieve greater competence in the workplace, relevance, and alignment to strategic objectives.
- To provide the required skills, the Education and Training sector skills plan in conjunction with the Workplace Skills Plan (WSP), among others, will be used.
- The Department of Education will also need to identify supply-led and not demand led programmes
- The Department of Education needs to undertake ongoing research to identify scarce and critical skills that are required by the sector.

It is essential to have different categories of knowledge on digital content become mandatory for the library and information professionals. The different types of knowledge essential for digital information were:

- Content Knowledge (CK)
- Pedagogical Knowledge (PK)
- Technology Knowledge (TK)
- Pedagogical Content Knowledge (PCK)
- Technological Content Knowledge (TCK)
- Technological Pedagogical Knowledge (TPK)

- Technological Pedagogical Content Knowledge (TPACK) (Koehler & Mishra, 2009).

Conclusion

The Public libraries have to be identified as on important players in the task of equalizing computer, Internet access, and digital access tools. As a large portion of the online population gravitates to wireless and mobile access to supplement their home high-speed connection, this increases the supply of and demand for online content. Institutions—whether they are governments or news organizations—have greater incentives to optimize their services to be consumed online. More people have a greater opportunity to share their advice, creativity, and observations online. This makes exclusion from the network of people and information found online more costly than in the past. More recently, it seen that librarians have used their skills to contribute to Wikipedia (Chillingworth 2008; Pressley and McCallum 2008), and projects such as Hakia (available at hakia.com) and Reference Extract (available reference tract. org) aim to use librarians' expertise to increase the credibility of search engine results (Hadro 2008; Anderson 2008). The above trend clearly indicates the removal of the digital divide.

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#3
ROLE OF PUBLIC LIBRARY
IN PROMOTION OF DIGITAL LITERACY

Prof. Manoj Kumar Joshi

Introduction

As we all know ICTs have deeply affected all areas of human life. Our life is increasingly being driven by ICT applications. This revolution known by different names such as ICT revolution, Internet revolution, technological revolution, digital revolution; has changed the entire world view of human civilization. It is increasingly becoming difficult to survive in cities without ICTs. Although, this revolution is transforming the urban life; villages are not lagging behind in ICT adoption. In fact, it has become an instrument of integration of rural and urban life.

This revolution has engulfed the entire human civilization at such a rapid pace that we cannot find any such precedence in history. If we confine our discussion to only our own country India; this transformation can be seen in less than three-quarters of a century. The history of computers in India goes back to 1955 when the first computer was installed at Indian Statistical Institute, Calcutta. "In 1955 only a few dozen scientists and engineers in India knew about computers. In 2010 there were over 2.4 million people employed in computer-related jobs and over 60 million Personal Computers were in use" (Rajaraman, 2012, p. 7). This surge has been the result of a number of government and private initiatives; notable among these is the establishment of National Informatics Centre in 1975 (Rajaraman, 2012, p. 27) that spearheaded the e-governance initiatives and computerization of ticket reservation system of Indian Railways in 1986. "The reservation system using computers was an eye opener to the general public as it demonstrated the advantages of using computers. There was an attitudinal change among both the general public and the white-collar workers about computerization. This was the beginning of the acceptance of computers and the realization that in a country which has large volumes of data to be processed the use of computers is inevitable" (Rajaraman, 2012, p. 38). Gradually the developments in telecommunication sector made mobile accessible to the common man; and the users of mobile phone in the country are estimated to be 813.2 million in the year 2019 (Statista, 2015).

The digital library projects were started in the USA during the 1990s, but Indian boat started its journey mainly with the dawn of the century. Although, the result of long preparation, a number of educational and cultural digital content providing or digitization projects like UGC INFONET, INDEST, NPTEL, National Mission for Manuscripts (NMM) were started in 2003. In 2006, the Government of India approved the National e-Governance Plan (NeGP) with the following vision: "Make all Government Services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realise the basic needs of the common man" (India, NeGD, n.d.).

Although a number of digitization efforts were already operational in different sectors; a comprehensive ambitious project 'Digital India' (India, Ministry of Electronics and Information Technology, 2018) was launched in 2015. It covers three broad areas: digital infrastructure development, digital services provision, and digital empowerment of citizens. Under infrastructure development projects were undertaken on broadband connectivity in rural and urban areas, the establishment of digital service centers and digital content development. Under digital services area digital payment platform-BHIM, educational content platform- SWAYAM, E-sign, digital locker, GeM (Government e-Marketplace) portal, etc. have been provided.

In order to utilize these growing number of digital services, efforts are being made to empower the end user or at least the intermediary who can be easily approached. Pradhan Mantri Gramin Digital Saksharta Abhiyaan (India, CSC, 2019) is an ambitious project of Government of India which aims to make 6 crore rural households digitally literate by training at least one person from each household up to 31st March 2019. The digital literacy training would empower "them to operate computer or digital access devices (like tablets, smartphones, etc.), send and receive e-mails, browse the internet, access Government services, search for information, undertake digital payment, etc". The project is operating with the help of NGOs, institutions, corporate houses, etc. Another Government initiative under Digital India programme was 'Digital: Educational channel for digital payments', which telecast various digital payment mode demonstrations.

End-user empowerment

In addition to above-mentioned Government initiatives for enabling users to use various Government schemes and services; the growing availability and use of ICTs made everything accessible to the common man; and thus, need to dexterously accomplish all tasks by self, soon became the need of the hour of every human being. This has necessitated learning new tools, skills, and subjects, on a continuous basis as newer technologies are emerging and becoming operational all the time.

This necessity to learn everything that confronts a person in his/her everyday life led to the emergence of new skills to be learned. This led to professionals of different fields identifying essential skills relevant to their field (e.g. health professionals called those skills health literacy) and proposing schemes to impart those skills. In the field of ICTs, terms like information literacy, library literacy, media literacy, technology literacy, computer literacy, internet literacy, and digital literacy are frequently used. Other professionals propagate literacies such as financial literacy and legal literacy. The practical requirements have necessitated the use of newer terms like eGovernance literacy and eSafety literacy (Nedungadi, 2018).

In-library and information field, information literacy term first used by Paul Zurkowski in 1974, has prevailed. No doubt librarians had been using terms like user education, bibliographic instruction, etc. for broadly similar ideas; information literacy soon became the popular term. The enthusiasts immediately distinguished its scope from the earlier terms in the field. The librarians' quest for new and modern terminology adopted it

and started furthering its cause. Of course, information literacy claims to cover broader spheres of work than the earlier terms; and was more acceptable to the new age librarians. But these technological advances were not only realized in the information field, but all areas of human endeavor were also equally bearing this onslaught.

With increasing digitization and digital content availability, digital literacy is rapidly gaining the attention of not only information professionals but the government and common masses also. The three decades of the existence of the internet, have transformed the way we live, work, investigate, communicate, store and use not only information but all the things that concern us. In fact, the age has come when we have started facing the deluge of information, frequently confronting the dilemma of selecting the right information from the heap of information of varying quality and authenticity. Most of this information is available in digital mode, on different devices, and in different formats. In order to access this information, one needs to: be aware of the existence of required information, identify the device that can help access it, access the information, call out the required piece of information, if required share it with different device, use it for the required purpose, and acknowledge the contribution of others in an appropriate manner. A certain amount of training is required for being able to do the above tasks efficiently. Since most of the tasks require handling of gazettes that deal with digital information available in different formats needing separate skills to process the same, the person needs to have a good understanding and skill for these tasks. These abilities are generally discussed under digital literacy.

Although Gilster was not the first person to use the phrase digital literacy, he was the first to use it in the way we generally use it now (Bowden, 2008, p. 18). He defined digital literacy as "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers" (as cited in Stordy, 2015). Another definition says, "Digital literacy is the skills required to achieve digital competence, the confident and critical use of ICT for work, leisure, learning and communication" (European Commission, n.d., p. 4). The European Commission definition covers wider aspects such as all ICT devices and purpose for being digitally literate.

The Public Library

In the preceding sections a discussion of Government initiatives towards digitization and user empowerment for use of digital services together with analysis of professional efforts for different types of literacies has been presented. But it is significant to mention that the public library which has been the main information disseminating agency is not in the mainstream of digital empowerment of users.

Public Libraries have a long history of serving information needs of a diverse group of users. These "arsenals of democratic culture" (Ditzion, 1947) have historically played varied roles in human societies. In fact, the heterogeneous nature of their clientele darkens the doors of the public library with as many expectations as heterogeneity in their characteristics. People use public libraries simultaneously for educational, informational, recreational, or research purposes. Moreover, some use library collection while others use it as a place. For some, it is their home for the whole day while others do not have time to visit the library.

The digital revolution has affected the public library like any other social institution. A common man's life is becoming digitally governed. As stated earlier increasing number of government schemes are becoming digital; mode of interaction for government services and facilities such as application forms etc. have largely become digital; interaction with educational institutions such as admission application forms, admission lists, fee deposits, student assignments, declaration of results, etc. all have either already become or in the process of becoming digital. Other services such as bookings for flight, train, bus; banking and insurance; hotels and restaurants, all have become digital. These societal changes have deeply affected the information behavior of library users.

As an increasing number of information items are becoming digitally available on the internet; some people have developed a perception that the role of libraries has broadly become less significant. But historically libraries have not only served as information disseminator but have been much more than that. The public library has been the promoter of democratic values, a flag bearer of local history and culture, a place for psycho-social advice, a place for continuing education, a place for collective social and educational events, and above all a place where one can spend some quality time with books without any disturbance.

Thus, unless we grossly neglect the role of library and deprive it of financial and other resources, a public library can play an even more significant role in this era. Its role as an information resource centre cannot be undermined particularly in the light of large proportion of society having meagre financial resources to own/access fee-based information sources, the paucity of space for serious reading due to small houses, digital illiteracy to use available open access resources, and so on.

The public library can become the hub of all information related activities in society. In a country like India, where we have a large number of hamlets together with megacities, diversified approaches to all issues are needed. If one public library is established in a small locality, it can serve all information needs in one place. Thus, it has a great potential of serving as the community's only information centre also.

Digital collection and digital services

Before a discussion of the public library's role in the spread of digital literacy, a brief overview of preparations required to be done by the public library shall be pertinent. In order to be a partner in digital literacy instructions, the library should be well equipped with digital infrastructure. It should have state-of-the-art technology and latest gadgets for use. It should also have digital collection and services. But the most important aspect is trained and competent staff that can not only handle digital collection and service-related problems but can also provide instructions.

Potential Role for Library

The library has traditionally catered to the information requirements of society. But librarians have been a bit late in responding to the changing social needs. This has proved time and again. Earlier in the twentieth century, documentation and information science fields have grown with the active participation of scientists. The gradual erosion of scope has

left librarianship slimmer, and technology has pushed it to the extent that people have started talking of the end of librarianship (USA Today, 2017).

But the picture is not that much gloomy. There is vast scope for library and librarianship. The library can expand its work to new areas. This will help regain much of the lost ground. Since other areas are beyond the scope of this paper, only measures that can highlight the role of the public library in digital literacy, are discussed here.

Information literacy instructions

The public library has been traditionally engaged in organizing user education programmes. When the librarians took these programmes outside the confines of interpreting library resources and services, a new name information literacy was used. So digital content is already in information literacy instructions. Only an additional emphasis needs to be given in already running information literacy instructions.

An active partner in digital empowerment of masses

As we have seen, a lot of activities are being done for digital empowerment of masses in India. But due to diversity in all aspects, this needs to be taken up in a mode that can cover the entire population. Since it is not possible to organize instruction programmes for a limited period and cover the entire population, we need to run such programmes on a continuous basis. The public library can be made an enduring partner in this movement. It can organize such programmes on a regular basis, and this can be in association with other organizations.

Host to digital services

The public library can be a host to various digital services. Bank ATMs can be installed within public library premises with instruction for persons needing help in operation, to contact library staff. Similarly, the public library may provide instructions on the government's online services. In consultation with government agencies, the public library can be made an agency for providing instructions on optimum utilization of digital services.

Instructions through reference service

Reference service and more recently digital reference service is a highly used service of a public library. The library can provide users instructions through reference interaction either face to face or digitally. Although, in the former mode, a modest beginning can be made, in the latter mode, advanced level instruction can be provided.

Online tutorial through the library website

Online tutorial through library website can be a good mode of instruction on advanced concepts for those who are aware of initial operations of computer and internet. In this mode, text, as well as graphics and video presentation, may be made for self-learning.

Conclusion

The public library has great potential and role in the digital era. It can become the hub of information activities in any locality. In order to become a community information centre, it needs to expand its activities to other areas also. But unfortunately barring some individual

efforts, no systematic attempt has been made in this direction. There is a need for liaison with government agencies to take up digital literacy instruction projects for the locality served by the public library. Although, a lot has already been done on this front, but in a country like ours still there is vast scope for the library's role.

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4
PUBLIC LIBRARY AND DIGITAL DIVIDE OPPORTUNITIES AND CHALLENGES

Dr. Rajesh Singh
Dr. Rajiv Nayan

Introduction

From religion and rituals to research and development, from education and training to political and economic development, from health and hygiene to business and industry, and from environmental protection to national defense, every social activity of modern society is institutionalized. Public libraries are one of the most popular and useful institutions evolved by society. They acquire, process, organize and disseminate information recorded in various kinds of documents free of cost to the society at large. Public library is a social institution of basic learning. It has a mission to meet diversified information needs of the community through its organized collection and services. It serves as local gateway to information and knowledge. It facilitates all round community development, lifelong learning and independent decision making of individuals and groups of people. It has a social mission of providing information for education, leisure and recreation. The UNESCO Public Library Manifesto (1995) declares that the "public library is concerned with the refreshment of man's spirit by the provision of books for relaxation and pleasure". It further emphasizes that a public library should be developed under "the cleared mandate of law". It should be "maintained wholly from public funds". There should be no "direct charge for its any of the services". It should be open "for free and equal use by all members of the community". Emphasizing the educational role, Carlyle described it as the 'People's University'. It supports both formal and non-formal education systems of our society and serves as a centre for self-education and lifelong. Describing the democratic setup of public libraries, Dr. S. R. Ranganathan (1950) defined it as "A library owned and maintained by the public of its area for the socialization of its books and kindred materials for free service to the people of the area." The Encyclopaedia of Library and Information Science (Kent, 1978) defines that "Public library is a public institution, supported by taxation, one that opens its collections, facilities and services, without distinction to all students." It is an institution created by public of a specific area and financially supported by money collected directly or indirectly from the public. The collection, facility and services are available to all members of society without any discrimination. The Librarians' Glossary (Harrod, 1987) defines public library as "a library provided wholly or partly from public funds, and the use of which is not restricted to any class of persons in the community but is freely available to all." Public Library is maintained by public funds and equally accessible to each member of the community.

The Sinha Committee (1959) definition of public library is quite comprehensive and widely accepted in India. According to this definition a public library is an organization:

i.   "Which charges no fees from readers and yet is open for full use by the public without distinction of caste, creed or sex;

ii.   Which is intended as an auxiliary educational institution providing a means of self-education which is endless; and

iii.   Which housed learning materials giving reliable information freely and without partiality or prejudice on as wide a variety of subjects as will satisfy the interest of readers".

Public library is a free auxiliary educational institution for self education. Its collection and services represent the interest of readers and is available for full use by the public at large. According to IFLA/UNESCO Guidelines for Development 2001 (2001), "A public library is an organization established, supported and funded by the community, either through local, regional or national government or through some other form of community organization. It provides access to knowledge, information and works of the imagination, through a range of resources and services, and is equally available to all members of the community regardless of race, nationality, age, gender, religion, language, disability, educational attainments." The collection and services of a public library is equally available to all members of the society including the disabled. It should have ample resources in accessible formats like Braille print, audio books etc. in its collection.

Characteristics of Public Libraries
The above deliberations delineate the following characteristics of the public libraries:
Library for all
> The public library is a democratic institution. It is the property of general public and is open to full public use. The collection and services represent the needs of all age groups and every individual of the society.

Free Library
> Public library does not charge any fee for any of its services. All services are rendered free to the citizen of the locality it serves.

Maintained by Public Funds
> Public libraries are established, developed and maintained mostly from public funds. The local, regional or national governmental body, levies an indirect tax as 'Library Cess'. It is levied as a surcharge on house and / or property tax, income tax, vehicle tax etc. The state governments also contribute certain amount to the library fund. In some cases the government meets out entire expenditure.

Auxiliary Educational Institution
> A public library supports both formal and non-formal education. It serves society as an auxiliary educational institution for self-education and lifelong learning.

Mandatory Institution
> Public libraries are crucial for social development and essential for a democratic country. Thus, it is a mandatory institution supported by public fund and established under the law of the land. A network of libraries from village to national level is essential to serve all the localities.

In a multi-cultural and multi-lingual Indian society public library services are essential in order to promote sense of respect and regard to each cultural and linguistic group and strengthen the unity in diversity.

Functions of Public Library

As "People's University" public library plays a vital role in bringing all round development in a society and nation. It functions as an intellectual power house, aspiring to meet the recreational, educational, intellectual, informational, and cultural requirements of the people. According to IFLA/UNESCO (2001) guideline for development, 2001, the purpose of the public library is to, "provide resources and services in a variety of media to meet the needs of individuals and groups for education, information and personal development including recreation and leisure. They have an important role in the development and maintenance of a democratic society by giving the individual access to a wide and varied range of knowledge, ideas and opinions." It makes provisions of not only recreational materials for leisure reading but also of economic, social, cultural and political materials to make the public aware of the developments around them. In true sense of term, it is a democratic institution free from the all kinds of social, economical and cultural barriers. It caters all categories of users irrespective of age, race, sex, colour, creed and religion. It provides access to wide variety of resources for information and knowledge and serves as a catalyst for education and socio- cultural development. Dr. S. R. Ranganathan (1967) enumerated the objectives and functions of public library as follows:

- "Help the life-long self- education of one and all.
- Furnish up-to-date facts and information on all subjects to one and all;
- Distribute in unbiased and balanced way sources of recorded reviews and thoughts to one and all, and serve as a help in the discharge of their political responsibilities in respect of local, national and international affairs.
- Contribute to productive drive by information to management of the latest trends in diverse enterprises by ploughing back in the minds of researchers, designers and technologists every piece of relevant new thought promptly;
- Preserve the literary remains of humanity for posterity as vehicles of culture and source materials for antiquarian research;
- Provide to one and all worthy and elevating use of leisure; and
- In general work for continued social wellbeing as the agency in charge of all socialized thought".

The Public Library Research Group of the London and Library Association of United Kingdom (1971) outlined that public libraries should function to foster and provide means for education and self-development of the individual or group; bring in depth and accurate information; serve as center of cultural life; and encourage the positive use of leisure time. American Library Association (1956) points out that a public library should facilitate informal education by enriching collection of subjects concerned; meet information needs of all, support various civic, educational and cultural activities and encourage constructive use of leisure time.

Thus, public libraries are established and developed as an important local centre of varied information to play crucial role in the social, cultural and economic development of the community and ultimately the nation as a whole. The changing information landscape has brought changes in the concept and functions of public libraries. Further, the concept of digital divide has brought new challenges and multiple opportunities for public libraries.

Modern concept of Public Libraries

The concept of public libraries has undergone substantial change in the context of advancement of knowledge, technology and passage of time. The advances in and applications of ICT tools have not only changed the role of public libraries but also their shape and nomenclature. ICT has made available new tools to produce, store, distribute, and communicate information in an effective and efficient way. The public library collection has become hybrid, consisting partly a cohesive digital library and partly local physical library. The heritage collection is mostly digitized and available in multimedia format.

The expansion of Internet has fundamentally changed the framework conditions of the public libraries. The ever-increasing amount of information available in public domain on Internet is of questionable value and accuracy. Public libraries are playing increasingly significant role in providing Information Literacy skills to enable the users to select, assess and use the public domain information that best meet their needs. Public libraries have become welcoming places to both real and virtual users. The ICT has enabled the public libraries to provide access to required information from anywhere in the world and at any given point in time.

Because of all these advances in and applications of ICT the shape and nomenclature of public libraries have changed and are being termed as, 'Knowledge Centre', 'Information Kiosk' and 'Community Information Centre'.

Digital Divide

Digital divide refers to social and economic inequality in terms of access to, use and impact of modern communication and information technologies (NTIA,1995) "The digital divide is a simplistic phrase used to explain the gap between people who can easily use and access technology, and those who cannot. The term digital divide has been in common use to refer to this sense of technological haves and have-nots for over a decade." (Jessamyn,2011) The digital divide is both a reason and a symbol of social exclusion (Pateman, 2008). Social exclusion is when certain individuals and groups are marginalized and are excluded from the mainstream of society (Hendry,2000). In digital divide the information "have-nots" are not capable to participate in ICT-enhanced education, e-government, ICT-based jobs, and ICT-improved healthcare (Mphidi, 2005). They are unable to use the opportunities of ICTs to improve their lives. The information "have-nots" are mostly found in developing countries, and in disadvantaged groups within developing countries (Bridges.org., 2006).

Traditionally, digital divide was concerned with having or not having access (Compaine, 2001), but now it has become a question of inequality between people having more or fewer skills (Eszter, 2003) and more and less bandwidth (Hibert, 2013) with over 95% global mobile phone penetration (ITU, 2013). Since, a huge knowledge base is only found online, a lack of access or limited access is believed to be a disadvantage. The digital divide appears in various differences such as difference in the Internet access between urban and rural population, between people from different income groups, races and educational attainments. The divide is evident among nations of the world between developed, developing and emerging nations in terms of the availability of Internet and its bandwidth.

Review of literature shows that the digital divide may not be alleviated merely by providing the necessary equipment since it is more than just an access issue. Wilhelm (2004) claims that "technology is not the problem. How it is used, to empower, liberate or enchain, is a function of human action". He also points out that just providing ICT is not enough. "Digital literacy" education is needed to bring marginalized people into the centre of economic and social life. Hendry (2000) also believes that the digital divide is more than access to technology. It refers to the gap between people who are information literate and those who are not information literate. Information accessibility, information utilization and information receptiveness are the three important factors in digital divide. People need to learn how to interpret information and use ICT once they are available within a community (Mun-cho & Jong, 2001). Library and information professionals hold the skill and expertise to bridge the gap of digital divide by imparting information literacy skills to help individuals learn and utilize the available technologies and providing reference and information services, regardless of the economic status of the individual seeking help (Aqili, Moghaddam, 2008)).

Opportunity and Challenges for Public Libraries

Access to information is critical to the development and well-functioning of democratic societies. "Democracy depends on a knowledgeable citizenry whose access to a broad range of information enables them to participate fully in public life, help determine priorities for public spending, receive equal access to justice, and hold their public officials accountable." Neuman, 2002. Inequality in terms of information access is a form of poverty as without knowledge, you cannot act (Calland, 2002). The Internet has emerged as a huge information reservoir for information on anything under the sky. Access to the Internet has become a basic human right in a democratic society. All the stakeholders worldwide are engaged in developing proper infrastructure to provide access to the Internet. For example, in 2013, Google began an effort called Project Loon that would launch a network of solar-powered balloons to transmit broadband to Internet-less areas (Muoio, 2016). Rival companies like Facebook is developing an unmanned aerial system called Aquila that they eventually hope can fly for months at a time, powered by the sun, which would provide Internet access to areas without broadband (Metz, 2016).

Public libraries as a local center of information has a very crucial role to play to bridge the gap of digital divide. Public library services are free and equally available to all. They offer information services in wide range of media, including the internet. Besides access, they also provide information literacy to educate people in understanding and use of information and its tools and techniques. Public libraries own special strength in terms of efforts to bridge the digital divide (Tlabela, Roodt, Paterson & Weir-Smith, 2007). The social role of public libraries is sometimes seen in terms of building social capital which contributes to socio-economic development within a community (Hart, 2006). Libraries could also play an important role in the realization of the Millennium Development Goals (Tise, 2009). Worldwide they are engaged in multiple initiatives to help bridge the digital divide. In pursuit of excellence in providing the functions listed above, the public libraries need to come forward and shoulder the responsibility. The public libraries should emphasize on the following:

ICT Infrastructure

Availability of suitable ICT infrastructure may not be an issue in public libraries of developed nations, but it is still a big concern in developing countries. As a local centre for world information, public libraries are required to develop proper ICT infrastructure to bridge the digital divide. The funding agencies need to comprehend the requirement and make suitable budgetary provisions

Indigenous Digital Library

Public libraries located in remote areas with a lack of documented cultural heritage and low access to technology may create an "online indigenous digital library as part of public library services" (Greyling, Zulu, 2010). Such initiatives have the potential to narrow the digital divide as they not only provide access to digital resources, but also indulge the community members into the process of creating it.

Community Informatics and Training in Use

Public libraries may establish 'Community Informatics' (CI) and provide training in use of ICT inside the library premises to bridge the gap of digital divide. It will shift the focus on providing more than just access, by placing computers and provided training in libraries. In such a setting assistance and guidance is readily available to the grass root users who need it. Thus, CI not only ensures community level ICT access opportunity but also the means for the "effective use" of ICTs for community empowerment and betterment Gurstein, 2003).

Information Literacy

With the availability of more and more day to day information in e-format, particularly on the web, citizens need more skills and knowledge to identify, locate, evaluate, use and communicate the information effectively and efficiently. The term 'Information Literacy' (IL) broadly refers to a set of skills and understandings that enables an information literate individual to successfully operate in new information environment by recognizing and understanding information needs, identifying and locating suitable information resource to meet the needs, evaluating the information in terms of its authenticity and reliability, and using the information ethically and effectively. The IL skills are essential for survival and lifelong learning. It is "a basic human right in the digital world" that "empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals" (IFLA, 2005). The CILIP (2018) further elaborated the concept and defined IL as "a set of skills and abilities which everyone needs to undertake information-related tasks; for instance, how to discover, access, interpret, analyse, manage, create, communicate, store and share information. But it is much more than that: it concerns the application of the competencies, attributes and confidence needed to make the best use of information and to interpret it judiciously. It incorporates critical thinking and awareness, and an understanding of both the ethical and political issues associated with using information." It enables the users of information sources to interpret

and make informed judgments as well as to become producers of information in their own right.

Public libraries need to make the community information literate, so that each individual is able to define and articulate his/ her 'Information Need'; skilful to identify, locate and make relevant and precise 'Information Access'; capable of critical 'Information Evaluation' in terms of reliability and authenticity; able to analyze, interpret and make best 'Information Use'; and comprehends the social, ethical and legal context of information and follows 'Information Use Ethics'.

The modern concept of development advocates for inclusive development. It is a form of development that provides equal opportunities to all the citizens of a country. The developing nations may not utilize the full potential of its citizens with digital divide. The location, collection and services place public libraries at the top of helm of affairs to bridge the gap of digital divide. They need to gear up and play an important role by making provision of suitable ICT tools, impart skills to use ICT infrastructure, facilitate access to world information base and make people information literate.

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#5
INNOVATIVE TECHNOLOGIES IN PUBLIC LIBRARIES

Dr. B Ravi

Introduction:

Public Libraries played a significant role in the national development and considered as the nerve center for providing information to the society for imparting the knowledge on various aspects. The public libraries preserve the collections relevant to national heritage, social, cultural and educational development of the community as a whole. The Public Library Services encourage social education by overcoming the illiteracy. The Public Libraries are adopting different activities, events & organizing a literary campaign, family, and health welfare programme, poverty alleviation, exhibition, mobile library services, extension lectures, etc.

The development of information explosion, a digital representation of information, the qualitative changes in design and architecture of computers and the available software's have enlarged the scope of computer applications in library and information systems and their services. The development has given rise to library automation where databases are created and maintained. Simultaneously, the library automation has led to online access to information, enabling instant access to the vast amount of information resources sharing among libraries resulted in the implementation of new services. The technology applications are playing a vital role in the libraries.

The impact of innovative technology in the library is to witness a change in their role in the collection, preservation, and dissemination of information. With the advent of new emerging technologies, it is the time for public libraries to adopt the existing Innovative Technology and change their roles for the progress of society.

The public libraries should develop a technology plan for making use of the effective and efficient use of emerging technologies. Any technology proposal plan will be a long-range plan on a phased manner for the implementation for all necessary requirements. The public libraries are mainly categorized, i.e., State Central Library, District Libraries, Taluka Libraries, Mandal/Branch libraries.

Innovative Technologies for Public libraries:

There are innovative technologies available for public libraries to implement.

Library Software and Hardware:

There are various library software's are available for library automation and the creation of a digital library. The automation software is integrated with all the housekeeping operations and also integrated with office applications for managing the different parameters necessary for the library management. The suitable library automation software is selecting as per the requirement. The hardware's are necessary used to maintain the servers and terminals depend on the requirement of the data capacity.

The public library has to automate the collection by using appropriate library automation software, which helps to maintain the resources online. The software is providing the ready reference information about the transactions of books, books in demand, the level of usage, the periodicity, most relevant books, highly used, less used books, finance/budget-related information, etc. These details will help the library administration to take up and address the issue accordingly, and only the required resources can acquire as per the budget availability. The library also focuses on acquiring the online books, by hosting the full-text content in a separate server, which may integrate into the form of the link into library automation metadata. The digital library software may install for creating the institutional digital library for hosting the digital content.

Networking/Internet:

The networking plays an important role in sharing the information from one library to another or from one user to another. The development of the internet is mainly responsible for building resource sharing. The Internet is a network of the network which connected to shared computers with its different services and applications; it has become a major source of information provider in the current times. WWW (World Wide Web) is the most exciting and fastest growing communication medium and also one of the most popular services of the Internet. The library related services, databases, library URLs are available in the form of web-based content, and these resources can be shared by connecting many other systems, peoples, and services by implementing the network.

The public library system is a set of defined structure like the state central library, District library, Taluka library, and branch library. The networking of all these libraries is benefitting the library administration to share the resources and services efficiently. The present-day user's requirements are diversified, mostly in electronic form so that the implementation of networking/internet are benefitting the public library to address the issue and lessen the burden of public library administration.

Remote login:

The remote login infrastructure is applications that allow the users to log in and get access to remote access resources and services. The resources of both graphical and textual interfaces are available which would enable users to connect to access in a remote system anywhere on the network. This facility has a benefit of monitoring the resource server remotely.

The public libraries can manage the users remotely by providing the services and also provision of issuing electronic books online without enabling the downloading facility. There are public libraries in the western world are practicing this service by delivering online books for a fixed loan period. After the loan period is over, automatically the book return to the server. These transactions can be monitored online by login to the server.

Live Chat:

A live chat virtual facility allows people with a common interest to share ideas and have a real-time conversation like 3dchat, voice chat and can share the photographs. The users can discuss and share their knowledge in helping others in the live discussion. The

public library users are in different background and are mainly in need of various type of services. The library can create a live chat platform for different user groups like - children's, adolescents, elders, women's, etc.

Video Conferencing:

Video conferencing can collaborate real-time interaction, which allows people in different locations to meet for face to face discussions. The public libraries can make use of this facility to implement the platform in their libraries to provide live talks with the academic group, farmers issues, medical issues, organizing the important live discussions, information dissemination for different age groups, women's, etc.

Online Forums:

The online forums or bulletin boards are online discussion sites where people can post messages and comment on other posts. Online forums like Orkut, Facebook, Twitter, watts up help the public libraries to create their account to attract the users for improvement of the services. Majority of the user is having social networking accounts and are using the smartphones. Public libraries can make use of these opportunity to attract smart users by implementing smart services. The public libraries may have an account of Facebook, WattsUp, twitter, etc. for reaching to the users.

Various online websites conduct real-time Seminars (webinars) for the help of users located at different geographical locations by using a combination of discussion boards and video conferencing. The Public Libraries can provide an opportunity by developing the infrastructure for the benefit of users and overcome physical boundaries no longer confine the libraries.

Library Blogs:

The blog is a kind of web application, where the libraries can create the blog and provide the details of resources and services in an online platform. The library blog can be updated regularly as and when introduced the new services; the blog may create by using various platforms available freely on the internet. The text, audio, video, photographs, online content can be shared by using blogs. The public libraries can create the blog and disseminate the information online about "What's New for users," the conversation about services and resources, information on meetings, discussions, events, community information, related photographs, etc.

Wikis:

A wiki is a web-based platform used for managing the content required for the libraries. The public libraries can manage the wikis for encouraging the users to create the content in a real-time collaborative manner. The usage of wikis in public libraries built the reference resources wiki, annotate online and print resources, allowing easy access by the users, creating the subject guides, allow the discussions, suggestions, additions, modifications, etc.

Podcasting:

A podcast is a web-based service where the libraries can manage the digital media files for the usage of users. The digital media files are audio, video content which helps the public library users to make use of them. The digital media content may be promotional recordings, book reviews for different age groups, children short stories, book club promotions, audio recordings, audio or video content for the skill-based training programmes, video on public library activities, etc.

Instant Messaging:

The public libraries can manage the instant message service to all their users for real-time information. The instant message is acting as a current content service of the library, for instant information related to activities, services, resource addition, events publicity, programme details routing, etc. The message is circulating to all the users of the library. The public libraries can use instant messaging for providing the virtual reference service, library-related messages, news, new arrivals, etc.

Mobile applications:

Library users now-a-days are smart users, and most of them are using mobile applications. The mobile devices have a built-in application, with wi-fi enabled. The public libraries can develop the "mobile app" related to the concerned public library for promoting the usage of resources and services and also implement many mobile applications required for the library services.

As per the existing condition, many public libraries in India are not having the facilitates/infrastructure for implementing innovative services. By implementing the innovative technology services in public libraries, a proper plan may be prepared.

Innovative technology Plan in Public Libraries:

The Technology plan to be proposed in every public library where the approval is required from the civic bodies/local bodies for its implementation. Normally the library Cess is collecting every year by the local civic bodies for the maintenance of public libraries attached their jurisdiction. The proper utilization of such Cess may help the library to propose this plan. The effective utilization of Cess develops the public library to implement all innovative technologies available for managing the resources and services.

Factors to be considered while implementing the technology implementation

The following steps are considering while implementing the technologies

- The library should openly discuss the plans and procedures of technologies & services
- Users should be involved in planning & evaluating the technologies & services
- Users should provide an opportunity to suggest the implementation of technologies & services
- All the library staff should be involved in the implementation of innovative technologies

- The public library should encourage open resource development- where the conversations, connections, wikis, and communities are born.
- All the library staff to be provided the usage training for the technology operation
- The periodic up-gradation and training are necessary.

Key Factors in Technology Planning in Public Libraries

Any technology plan should focus on five factors for its implementation

a) **Management and library staff Support:**

The involvement of library staff in the preparation of technology proposal is necessary so that they can suggest any requirements. Based on the suggestions, the proposal may be prepared and submit to the approval of the management. The management may convince with proper justification of the proposal. The merits of the proposal and benefit of the concerned management towards social cause to be indicated.

b) **Involvement by other parties**

Any developmental activities in a local public library, the involvement of the users are necessary. The users are of different age groups and different service user groups. The proper feedback and suggestion from the local user's may benefit to the success of the plan and proposal.

c) **Technology goals and initiatives for library services:**

Any technology-oriented service to be introduced in the public library may have goals specified for the specific purpose for particular users. The clear understandings of the need of users can help to implement the technology for individual services. With the clear intention of implementation of technology in libraries are fulfilling the effective and efficient services to the users.

d) **Staff development**

The staff in-service training programme and the regular orientation of usage of any technology implementation in the public library will benefit the library administration. The staff may encourage to develop the skills regularly needed for the operations of the technology. The staff may also encourage to upgrade their skills for the benefit of their promotional requirement.

e) **Identification of funding and development of a budget**

The innovative technology plan for public libraries may require a budget to implement. A proper proposal may submit to the civic/local bodies or the concerned ministry or the Government for the approval. The plan is highlighting the financial requirement for the individual breakup of the technology implemented in the public libraries. The necessity of the requirement of technical staff, obsoleteness of the technology, graduation, implementation in phase manner, etc. by way of expenditure. The justification of the technical proposal for utilizing the library Cess to be highlighted.

Conclusion:

      The implementation of technology in a public library system will satisfy the functions, where they can fulfill the information requirements of the users. One should keep abreast of the latest developments in library systems technology implementation. The librarians should be proactive in its implementation, but still, there are some challenges mainly finance. The issue of the financial requirement may take up action to convince the authority for regularly providing the library Cess to the development of the public library. With the implementation of It, related services can help the community information service as required and also help to bridge the gap between the reach to un reach by implementing the services. The role of the public library is fulfilling the desires of social cause by disseminating the service by using the technologies.

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#6
IMPLEMENTING E-GOVERNANCE SERVICES: ISSUES AND CHALLENGES OF PUBLIC LIBRARIES IN NIGERIA

Dr. P Rajendran
Abubakar Ladan

Introduction

Public libraries occupy a cardinal place among all the public institution in a modern society system. They provide unrestricted access to library resources and services free of charge to all residents of a given community, district, state or nation. Public libraries play an indispensable role not only in the life of an individual but also in their further of the whole community. Kapoor (1998) opines that public libraries function as centers of reference by providing familiar information, enable the modern citizen to secure reliable and truthful advice on political matters and help to get his bearings in the complexities of modern community life. Reitz (2004) believes that public library is now acknowledged to be an indispensable part of community life as promoters of literacy, providers of a wide range of reading for all ages and as a center for community information services.

Public libraries are public institutions established and maintained by the government to provide services to the public. Salman et al (2017) state that some of the services that can be provided by the public libraries includes: provision of information services to support local businesses; economic and workforce development; accreditation and employment support; maintaining and providing access to information; providing materials and programs that complement formal studies; facilitating access to information on services and programs of government and community agencies; assisting users to find relevant, accurate information quickly through print and electronic sources and using information and communication technology (ICT) in order to connect virtually to the library, through community and the world. They additionally assume an imperative role in the information by providing access to electronic information.

E-governance

Government around the globe have perceived the open doors given by the internet and the World Wide Web and are investigating better approaches for conveying administrations to and associating with citizens. The use of information and Communication Technology has turned into a vital instrument in improving citizen's participation, observing and assessing government venture, guaranteeing government responsibility and straightforwardness and in addition exchanging data starting with one division then onto the next (Palvia and Sharma, 2007). Government call for citizens to interact with its services through the internet, believing this is a productive use of the technology which can improve the efficiency, convenience, and quality of public services. In this situation, public libraries

are among the first local institution services to take advantages of internet technology to publicize and offer online access to government services. Public libraries have been engaged with creating e-government services from an assortment of points of view, for example, designer and host; transaction service providers; and as facilitators through the arrangement of ICT facilities (Warren and Goulding, 2006).

What is e-Governance?

E-government incorporates an expansive vision of the usage of information and correspondence innovation in government organizations with the essential point of empowering more prominent support in the state and in addition upgrading the connection between the government and the citizens (Akomoye, 2018). Numerous scholars have defined e-governance in different ways. Shilubane (2001) defined e-governance as the use of information and communication technology to carry out public services, that is to say, the use of the internet to ensure those services are delivered in a much more convenient, customer oriented and cost-effective manner. Sunday (2014) describes e-governance as the use of information and communication technology by the various government agencies to enhance accountability, create awareness, and ensure transparency in the management of government businesses. Similarly, Surbhi (2017) defined the term e-governance as the utilization of information and communication technology for providing government services, disseminating information, communication operations with the general public. All the definitions agree that e-governance is the application of ICT to provide government services. In this regard, it can be said that e-governance has a universal definition. Kettani and Moulin (2015) identified three state components of e-governance as e-administration: improving government process; e-citizens and e-services: connecting citizens; and e-society: that is building interactions with and within the civil society. In this context, public libraries can provide services which improve government process by providing access to government websites and databases available to users; they connect citizens to the world by providing internet facilities which make citizens access to government information and businesses; and public libraries also create interactions between citizens, government and citizens as well as civil societies by providing internet access to the public. Therefore, public libraries are e-governance service providers.

Objectives of e-governance

E-governance as a concept usually aims at achieving certain objectives such as enhancing government operations, especially in the general population area, enhancing the conveyance of open administrations and empowering viable investment of natives in the basic leadership procedure of the country. Heeks, (2001) argued that the major objectives of e-governance are to improve government processes (e- administration), connect citizens (e- citizens and e-services), and builds external interactions (society).

E-governance Versus E-government

The concepts of e-governance and e-government often used interchangeably by various scholar and authors but these concepts are not the same. E-government is a subset of e-governance (UNESCO, 2007). E-government, as defined by Surbhi (2017), is the

implementation of information and communication technology (like the internet) to improve government activities and process. E-government aims of increasing transparency, efficiency and citizen involvement in the various government schemes, operations, and process. E-government is the use of ICT in government operations, as a tool to increase the outreach of government services. E-governance, on the other hand, implies the use of ICT in transforming and supporting functions and structures of the system. E-government is a system while e-governance is a function. (Surbhi, 2017).

Benefits of e-government
- It ensures a greater level of efficiency and effectiveness in government activities and operations.
- Improves of information to the common mass
- It ensures transparency in the operation of government programs
- It increases the reach of the government to the general public.
- It helps in improving the quality of public services
- Increases communication between various government agencies.

Public libraries system in Nigeria: Overview

Public libraries in Nigeria are established by the governments to provide access to information resources and services to the public without any restriction. They provide resources and services in a variety of media to meet the needs of individuals and groups for education, information and personal development including leisure and recreation. Olayinka and Joseph (2010) describe that the role of public libraries in Nigeria includes: provision of information for planning; provision of public and economic information; provision of educational information and facilities; undertaking research; organizing enlightenment programs; promoting culture; and engine room for national development. Salman (2018) opines that the Public libraries system in Nigeria function on three levels: national level, state level, and local level.

- **National Level**: It provides funding for the National Library of Nigeria (NLN) which is categorized as a public library because it serves all categories of the user at the national level. National Library of Nigeria has branches across the state.
- **State Level**: All state governments provide funding for the state public library boards. State Library Boards are located at state capitals and branches at local government areas.
- **Local Level**; Local level are the rural/community and local government libraries which are supervised by the public library boards and they serve as branches of the urban libraries.

Public libraries have constantly provided a vital role in guaranteeing that there is free and open access to knowledge in the world the more so information relating to government's exercises (Osuigwe and Unagha, 2011). Access to information online requires internet facilities and skills for individuals to utilize the internet for access. Public library communities including the person who needs internet access, which is crucial for meeting

their government information needs, a significant number of these people turn to public libraries to look for access (Snead, 2016).

E-Governance in Nigerian Public Libraries

Public libraries in Nigeria have responded to the challenges of electronic revolution by the provision of information and communication technology (ICT) to their services both at urban and rural libraries. Oghenetega et al (2014) describe that the application of information technologies to Nigerian public libraries has helped in providing a wide knowledge base for information seekers, new alternative to information has also been recorded and facilitating e-government service provision by meeting the basic needs for internet service from library users. Warren and Goulding (2006) identify three ways public libraries enable access to electronic information, services and delivery of government services available online:

- The public library can provide many of its services electronically e.g. online transaction, renew materials, OPAC, book reservation, registration, etc
- Public library services have significant mastery in the gathering, association, and dispersal of information and can, therefore, have a vital impact on the establishment and support of local authority e-government services
- Public libraries can overcome the digital divide by providing public access to ICT and delivering training activities which ensure that people have the facilities and skills to take advantage of e-government services.

Similarly, Osuigwe and Unagha (2011) highlight basic e-governance services provided by public libraries as:

- Granting access to and providing help in navigating government websites
- Assisting patrons to fill forms and composing and sending e-mails related to the forms
- Creating e-mails accounts, and
- Locating government information for different uses.

Moving further to some public libraries who adopt a proactive approach to the provision of e-government services rather than just meeting demands:

- Organizing classes and workshops for patrons on how to access government websites, programs, and electronic forms
- Creating a one-to-one appointment for those seeking assistance with government services
- Dedicating computers for e-government services only
- Becoming an emergency information hub.

Public libraries in Nigeria play a vital role in the provision of e-governance services such as the provision of access to the internet, accessing, navigating and filling out e-government websites and forms, checking examination results, application for ad-hock duties and government jobs, and in some cases computer assistance like general training or obtaining and using e-mail accounts.

Challenges for implementing effective e-governance

Despite their efforts to provide information resources and services to the public, public libraries in Nigeria are allured with a number of constraints in terms of resources, facilities, and infrastructure. Opara (2008) in his study on the public library in contemporary Nigeria: *challenges and the way forward* described that inadequate funding, inadequate and unmotivated workforce, inadequate and dilapidated accommodation, poor collections, poor perception of public library and librarians, and old public library laws, as challenges facing public libraries in Nigeria. Badawi (2009) opines that public libraries and their services in northern Nigeria are experiencing boost particularly in terms of infrastructures, collections, and support. Similarly, Salman (2017) revealed that inadequate funds, lack of skills in IT, lack of staff motivation, irregular supply of electricity, and poor working environments affected the provision of resources, services, and facilities in most of the libraries.

In a survey of public library services across the six geopolitical zones of Nigeria, News Agency of Nigeria (NAN) (2018) reported that poor electricity supply and financial constraints constituted major challenges facing most of the public libraries in Nigeria. The challenges for implementing e-governance at public libraries in Nigeria are as follows:

- **Financial Challenges:** poor funding of public libraries is the major challenge affecting public library services delivery in Nigeria. Most of the public libraries cannot afford some of the basic requirements of ICT for a financial reason (Achebe, 2005). Libraries depend on donations and donor agencies to acquire a few computers and connect to the internet.
- **ICT Facilities Challenges:** lack of adequate ICT and other infrastructural facilities are another challenge of public libraries in Nigeria. Jacintha (2013) described the lack of infrastructures like steady power supply, internet facilities and even an adequate number of computers to support e-governance services as one of the major problem facing Nigerian public libraries. Absence of constant power supply influences the provision of services and facilities, for example, bindery machines, scanners, internet, lighting in the gathering territories, and the library as a whole.
- **ICT skill and training challenges:** Information and communication technology facilities require training and skills for better service delivery. Studies on public libraries in Nigeria point out that lack of technological and computer skills and reluctance among library staff affect library services delivery. There is no doubt these challenges could seriously affect libraries in the provision of e-governance services.

Suggestions for the effective implementation of e-governance

- Public libraries are public service institutions which require adequate financial support from the government to function properly. Therefore, the government should increase the fund allocation to public libraries in order for them to provide effective and efficient services, especially in the provision of e-governance services.
- No e-governance services can be provided without ICT facilities. Public libraries should provide all necessary mechanisms in the provision of relevant and

adequate services by approaching the government to motivate donor agencies like NITDA, NCC, Mobile network providers, and international and local foundations to assist with funding and ICT facilities such as computers, internet connection and subscription, standby generator and reprographic machines.

- Staff training and ICT skills are one of the mechanisms for effective e-governance services. Public libraries should collaborate with library schools and government ICT agencies for staff training and ICT skills.
- Tertiary Education Fund (TETFUND) should intervene in funding, facilities, and infrastructure for not only academic libraries but also public libraries
- Library legislation should be reviewed.

Conclusion

The existence and effective functioning of any government is predicated on its ability to deliver a wide range of services to its citizenry. Nigeria has realized the advantages provide by information and communication technology and the internet for provision of services electronically. Public library by its nature and accessibility is regarded as the best public place for the provision of those services. Despite a number of challenges, public libraries in Nigeria play a role in the provision of e-governance services. Therefore, it is needed for the government to provide all necessary effort to support public libraries in the provision of e-governance services**.**

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#7
CHANGING ROLE OF PUBLIC LIBRARIES IN BRIDGING THE DIGITAL DIVIDE FOR EFFECTIVE E-GOVERNANCE

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Introduction

E-governance projects the sense of reaching innovative programs and initiatives of both the State and Central Government using the technology at the grass root level and in the present setup, necessity has been felt to bridge the gap between the government and the rural public to implement them at the rural sectors. In the developing countries like, USA, UK, China, etc., there is a commendable impact that can be measured through the growing economy, sustainable development in their livelihood, education, literacy and of course, it has started gaining momentum in India too in the recent years. While e-government and its associated terms relate to government online, e-services, e-administration (Berryman, 2004), e-governance focuses on making the citizens informed about the various policies, plans, schemes initiated by the both Central and State Governments from time to time through ICT. Prabhu (2004) viewed e-governance as SMART i.e, Simple, Moral, Accountable, Responsible and Transparent Government. Reaching the mission of e-governance to the rural sector for developmental activities in all corners has become crucial that can be operated through an intermediary agency and thus, a triangular link among the Central Government, State Government, and the intermediary agency is established through networking on the Internet platform.

E-governance implies to the performance activities of the government as well as other service agencies like banks, insurances, etc. and the online business organization using ICT for facilitating the citizens irrespective of their location with an efficient, instant and transparent process of information dissemination, availability of products, etc. Hence, e-governance has a wide spectrum of its implications while e-government engulfs to a change in society. In the process, it brings forth the new concept of citizen responsibilities, need and their consciousness and facilitates the operating policies and information of the government. The objectives of e-governance are primarily associated with to engage, enable and empower the citizen of the respective country to come close with the government initiatives and policies.

E-governance in India has steadily evolved from the computerization of Government Departments to initiatives that encapsulate the finer points of Governance, such as citizen centricity, service orientation, and transparency. The National e-Governance Plan (NeGP), takes a holistic approach of e-Governance initiatives across the country, integrating them into a collective vision and a shared cause. The coverage of various services like Income Tax, Passports, Pensions, Land records, Agriculture, Municipalities, Gram Panchayats, E-courts, etc. includes in e-governance initiatives of the Central and State governments to bring public services closer to the citizens. (http://india.gov.in/e-governance/initiatives).

E-Government and Public Libraries

E-government, according to AOEMA (Asia Oceania Electronic Messaging Association) report (www.worldbank.org) and United Nations (www.unpan.org) is very much associated with materializing into action the government initiatives through networking and mobile technology. Further, it not only enhances the increasing confidence, rights of the citizen through the use of technology but also allows to access information instantly. The prime focus of e-government lays in the principle to literate the citizens about the various constructive programs initiated by the government time and again and enjoys the optimum benefits.

Consequent upon the prevailing of ICT at all level, the concept of E-government evolved in 1990 as a process in developed countries like the USA, UK, etc. to make effective to the different programs of the Government not only for providing effective services to the citizens online but also making the information and documents available which contribute for sustainable development of economy, knowledge society. Further, an integrated way of providing and implementing increasing awareness in the Internet world through public libraries are the additional drives of e-government. (http://publiclibrariesonline.org/2015/06/e-government-in-public-libraries/).

While discussing the E-government Act of 2002, Gibson, Bertot and McClure (http://ii.fsu.edu/) discussed that, the mission of the government rests on the principle to achieving efficient performance including citizen participation through the local government agencies like public libraries in various aspects such as, education, legal, medical, transportation, social security, voting, rules and regulations of the government, etc. In the developed country like the USA, there is a transformational change of the public libraries where they were shouldered with the responsibility of ensuring open and liberated global knowledge otherwise known as the democratization of knowledge and government resources to one and all. The E-government Act, 2002 further, emphasized on making public libraries a hub center for allowing free access to authentic and trustworthy resources online massively on the Internet (ALA Office for Research and Statistics, 2010)

Digital Divide-The Notion

The Digital Divide otherwise reckoned as a digital split has become a fundamental social issue signifying the sense of the differing amount of information between those who are facilitated with access to the Internet especially broadband access and those who are deprived of access. The term became democratic among government policy framers, researchers, facilitators, and the advocacy groups, during late of the 1990s. This is due to the fact that the digital divide before the 20th century did not gain momentum and was confined to the division between the groups with and without telephone access which, however, extended its dimensions after the late 1990s (http://www.internetworldstats. com/links10.htm).

The term digital divide otherwise, can be identified as a gap between the demographics and the regions having facilities to ICT at their doorstep and who are deprived of such facilities. The ICT infrastructures comprise a telephone, television, personal computers and above all the Internet which primarily rests on the ability to use and access.

The digital divide has been viewed by various organizations in different perspectives. The TechTarget (http://whatis.techtarget.com/definition/digital-divide) while identifying digital divide focussed on the gap between cities and rural areas, educated and uneducated, socioeconomic groups, privileged and unprivileged class, and globally, between more and less industrially developed nations. Even among populations with some access to technology, the digital divide can be evident in the form of lower-performance computers, lower-speed wireless connections, lower-priced connections such as dial-up, and limited access to subscription-based content. Stanford University viewed a digital divide, as an interaction between human and computers which has immensely increased during the present days. It resembles the ability to access computers and the internet which has increasing importance to completely engross in economic, political, and social aspects of the entire world population. Even if, the technology is far off reaching by all the individuals, initiatives need to be explored for making them literate to bring them in the parallel stream. The idea of the digital divide further viewed by the Stanford University as a growing gap between the underprivileged members of society especially the poor, rural, elderly, and a handicapped portion of the population who do not have access either to the computers nor the communication technology, internet, etc. (http://cs.stanford.edu/people/eroberts/cs201/projects/digital-divide/start.html).

The efforts of the National Knowledge Commission (NKC) in 2007 in this direction are also unique as it emphasized for effective implementation of e-governance through web-based services by the public libraries and to begin with it, commenced with the functions like, issue of birth certificate, death certificate, proof of residence, ration/ ID cards etc. Further, the NKC, in addition to providing e-governance at all levels of the public library such as State Central Library, District Library, Sub-divisional/Town library, and Rural library also accentuated the dissemination of services like e-learning, knowledge management, database creation, panchayat level information, etc. (www.knowledgecommission.gov.in).

Attributing Factors of the Digital Divide

Multiple factors are associated with the digital divide which is growing at an alarming rate in the developed countries also. The National Telecommunications and Information Administration (NTIA) in a study on Falling through Net: Defining the Digital Divide opined that, the digital divide gap is broadening. While focussing to bridge the gap, it stressed on development of education.

It viewed that, higher levels of education boost for use of computers and the internet and college students or higher are ten times more likely to have the internet at work as that of high school education students. However, providing fruitful education and developing competencies are significant which need its operation in the rural areas especially as the urban area public are facilitated with multiple options to generate skills and required education. The other factors associated with the digital divide include,

Illiteracy

Illiteracy is one of the prime factors of the digital divide and hence need promotions among the rural public irrespective of their location.

Information Technology Literacy

It is pertinent to note that IT literacy indispensable in all quarters i.e, at both the government and user end where the former implements while the later receives the advantages. This can be attended to through the government body i.e, the public library in the rural sector. But, there is a drawback with the users who are not technically sound to take the proper use of the technology leading thereby keeping them away from the sporadic attempts of the government initiatives. Hence, in India, many programs were launched by the government to make information literate to the public in rural areas. Programs like, Agriculture Marketing Information Network (AGMARKNET), Bhoomi, etc. were initiated by the government for rural people but lack of technical knowledge forbade them to make proper use and take the benefits of the program. Further, as digital India is the prime focus of the Govt. of India, the government initiated 'National Digital Literacy Mission' to make aware the public at large in digital literacy.

Language Deviation

In the event of prevailing diversified languages in India, no common language could be available that suits to provide literacy to the rural public which compelled the organisations and the government agencies to use English language which sometimes very difficult for the rural public to understand and make proper use and take the benefits of such e-governance programs launched by the government.

Lack of Awareness

Due to lack of education, the programme initiated by the government from time to time is out of the reach among the rural communities. In spite of the fact that the government is taking measures to aware them by using multiple media like radio, television, etc. This requires more propagation through various agencies at the local level like discussions, putting banners, a library of the school, college, etc. to make the rural communities aware and more lively and in the process, the agencies will work as a promoter of the government policies.

The success of e-Governance lies in increasing the number of electronic interactions between citizens and the government and not merely in building the infrastructure of e-Governance. In addition, a proactive approach from civil society groups requires generating greater demand and acceptance for e-Governance initiatives.

Resistance to change

In the event of the promulgation of various programs through multiple ways like Internet and other electronic devices, the public at a rural level hardly compromise to the change and in the process, they are deprived of the benefits. Hence, government agencies, NGO, library, etc. require to put much effort to change the mindset of the public and accept for greater benefits. Further, this is supplemented with inadequate infrastructures to

support the program which, however, can be resolved with the initiatives of the government and volunteer organizations.

Initiatives of the Government

Sporadic attempts have been taken in various sectors to have an effective implementation of e-governance. For the success of e-governance, Government launched the National e-governance plan and with the help of National Informatics Centre set up a central repository for all e-governance initiatives (Srivastava, 2015, pp. 741-744).

National e-Governance Plan (NeGP)

The National e-Governance Plan was launched in 2006 by the Department of Electronics and Information Technology (DEIT) and Department of Administrative Reforms and Public Grievances (DAR&PG). The mission was primarily intended to make all public services accessible to the common men in his locality through common service delivery outlets and ensure efficiency, transparency, and reliability of such services at affordable costs to realize the basic needs of the common man. Altogether 27 various Mission Mode Projects (MMP) along with 8 components are inoperative which was designed exclusively for the rural areas and for the easy access of the services provided by NeGP State Wide Area Network (SWAN) and Common Service Centre (CSC) was set up (https://negp.gov.in/).

National Informatics Centre

National Informatics Centre (NIC), a small program started by the external stimulus of an UNDP project, in the early 1970s became fully functional in 1977 and has since emerged as a "prime builder" of e-Government / e-Governance applications up to the grassroots level as well as a promoter of digital opportunities for sustainable development. NIC, through its ICT Network, NICNET, has institutional linkages with all the Ministries /Departments of the Central Government, 35 State Governments/ Union Territories, and about 625 District administrations of India. NIC has been instrumental in steering e-Government/e-Governance applications in government ministries/departments at the Centre, States, Districts and Blocks, facilitating improvement in government services, wider transparency, promoting decentralized planning and management, resulting in better efficiency and accountability to the people of India (http://www.nic.in/). The aims associated with NIC are as follows:

- Setting up of ICT Infrastructure;
- Implementation of National and State Level e-Governance Projects;
- Products and Services;
- Consultancy to the government departments;
- Research and Development; and
- Capacity Building.

NIC also imitates for ensuring Interoperability among e-Governance applications. Moreover, the Government of India also has set up an institutional mechanism for the formulation of Standards through collaborative efforts of stakeholders from DIT, NIC, STQC, other Government Departments, Industry, Academia, and Public. Various Working groups and Expert committees have been created for this purpose. NIC plays a key role in

materializing the mission through coordination and steering the standards formulation process and also technical participation in the preparation of approach papers, standards formulation, the drafts review process, and POC. (http://www.nic.in/services/e-Governance%20Standards).

Initiatives of the Government for e-governance

The central government stressed upon the transformation of governance and making it more transparent, accountable, accessible and participative. The prime intention of e-Governance lies in the principle of better governance. It also emphasized on M-Governance or mobile governance due to the prevailing of smartphones as it has the potential to make development a truly inclusive and comprehensive mass movement. It puts governance within everyone's reach (http://www.ndtv.com/india-news/full-text-of-pm-modis-speech-at-digital-india-event-in-san-jose-california-1223406)

Rural development implies to both economic betterment as well as the greater social transformation of the people. To provide the rural people with better prospects for economic development, increased participation of people in the rural development programmes, decentralization of planning, better enforcement of land reforms and greater access to credit has become necessary. E-Governance in India has a measure to achieve the target objectives and this steadily evolved from computerization of Government Departments to initiatives that encapsulate the finer points of Governance, such as citizen centricity, service orientation, and transparency. The National e-Governance Plan (NeGP), takes a holistic view of e-Governance initiatives across the country, integrating them into a collective vision and a shared cause (http://india.gov.in/e-governance/initiatives).

In 1987, India witnessed a spectacular launching of e-governance by NICNET which was a national satellite-based computer network and this was followed by launching of the District Information System of the National Informatics Centre (DISNIC) programme to computerize all district offices in the country for which free hardware and software was offered to the State Governments. NICNET was extended via the State capitals to all district headquarters by 1990. In the ensuing years, with ongoing computerization and internet connectivity established a large number of e-Governance initiatives, both at the Union and State levels.

The formulation of National e-Governance Plan (NeGP) by the Department of Electronics and Information Technology (DEITY) and Department of Administrative Reforms and Public Grievances (DAR&PG) in 2006 has boosted the e-Governance process (Central Initiativeshttp://india.gov.in/e-governance/initiatives/central-initiatives).

The initiatives of the central government for effective implementation of e-governance comprises,

- National e-Governance Plan (NeGP);
- National e-Governance Division (NeGD);
- e-Governance Infrastructure;
- Mission Mode Projects;
- Citizens Services;

- Business Services;
- Government Services;
- Projects and Initiatives;
- R & D in e-Governance; and
- Model RFPs for e-Governance Project.

Several State Governments also have taken various innovative steps to promote e-Governance and have drawn up a roadmap for IT implementation and delivery of services to the citizens online. The applications that have been implemented are targeted towards providing Government to Citizen (G2C), Government to Business (G2B) and Government to Government (G2G) services with an emphasis on the use of local language.

Every State has the flexibility of identifying up to five additional State-specific Mission Mode Projects (relevant for economic development within the State). In cases where Central Assistance is required, such inclusions are considered on the advice of the concerned Line Ministries/ Departments. States have MMPs on Agriculture, Commercial Taxes, e–District, Employment Exchange, Land Records, Municipalities, Gram Panchayats, Police, Road Transport, and Treasuries, etc. (http://india.gov.in/e-governance/ initiatives/states-initiatives

Apart from Mission Mode Projects (MMPs), the States have other e-Governance initiatives. The state initiatives for the effective implementation of e-governance are worth viewing. Many states in India have initiated e-governance service. Many e-governance projects have been initiated in India which includes,

➲	Andhra Pradesh	e-seva, CARD, VVOICE, MPHS, FAST, e-cops, AP online One shop on Internet, Saukaryam, On-line Processing
➲	Arunachal Pradesh	Community Information Center. Forms available online
➲	Bihar	Bihar Sales Tax Administration Management Information
➲	Chhatisgarh	Chhattisgarh Infotech Promotion Society, Treasury office, e- linking project
➲	Delhi	Delhi Automatic Vehicle Tracking System, Computerization of website of RCS office, Electronic Clearance System, Management Information System for Education, etc
➲	Goa	Dharani Project
➲	Gujrat	Gujarat Mahiti Shakti, request for Government documents online, Form book online, GR book online, census online, tender notice
➲	Haryana	Nai Disha
➲	Himachal Pradesh	Lok Mitra
➲	Karnataka	Bhoomi. Khajane, Kaveri
➲	Kerala	e-Srinkhala, RDNet, Fast, Reliable, Instant, Efficient Network for the Disbursement of Services (FRIENDS)
➲	Madhya Pradesh	Gyandoot, Gram Sampark, Smart Card in Transport Department, Computerization, MP State Agricultural Marketing Board (Mandi Board), etc
➲	Maharashtra	SETU, , Online Complaint Management System Mumbai
➲	Manipur	On-line applications

➲	Meghalaya	-do-
➲	Mizoram	Social welfare, food civil supplies, and consumer affairs, housing transport
➲	Nagaland	Social welfare, food civil supplies, and consumer affairs, housing transport
➲	Rajasthan	Jan Mitra, RajSWIFT, Lokmitra, RajNIDHI
➲	Tamil Nadu	Rasi Maiyams Kanchipuram; Application forms related to a public utility, tender notices, and display

Types of interaction in e-governance

E-governance encompasses a wide range of services for the citizens of India both rural and urban. The analogous terms to e-commerce encompass are discussed below which are principally intended for creating an advantageous environment, friendly surroundings, convenient, transparent and economical among the public both in rural and urban areas.

☞	Business to Business (B2B)	:	Relates to a more efficient and effective business transaction;
☞	Business to Customer (B2C)	:	Facilitating business directly with the customer without any intermediary agency;
☞	Government to Customer (G2C)	:	Providing facilities of the government especially in a financial matter directly with the customer using technology;
☞	Government to Business (G2B)	:	Direct dealing of the government with the business communities;
☞	Government to Government (G2G)	:	Establishing an inter-agency relationship between central and state governments;
☞	Government to Citizen (G2C)	:	Providing services throughout the day and year by the Government. The public can utilize the services.
☞	Government to Employees (G2E)	:	Instituting two-way process between the organization and the employees;

Role of the public library in e-governance

E-Governance, with a mission to be citizen-friendly, concentrates not only on seamless access to information and flawless flow of information across the state and central government but also the delivery of services to citizens. This could be possible through the intermediary agency like a public library which operates from the national level to state level and thereafter at the district level and finally at the rural level.

Librarians of irrespective of the types of libraries whether academic, special or public are in the process of transferring of knowledge from one form to the other. In the present century consequent upon the upcoming of ICT and its applications in the libraries, the horizons of the responsibility of the librarians not only restricted to the library but also increased to an accumulation of data, organization, management of knowledge, providing service and effective implementation of e-governance initiated by both central and state

governments. Libraries further can be recognized as an indispensable podium to leverage the effective services of e-governance. There is a need for a paradigm shift in libraries and information centers that require undergoing a change in their attitude and concentrate on professional commitment. Orna viewed the shifting responsibility of the professionals from the guardian of information to source of knowledge and innovation through commuting information to intelligence service by means of expert filtering, editing, archiving, and researching (Shahid). Further, the librarian and his team, especially in public and academic libraries, require developing skills and capacity building for materializing the e-governance and also require dispensing the skills to the rural public for taking benefits of the government. The skills that the present and future librarianship are to inculcate comprise;

⇨ Expertise in using innovative emerging technologies to design and develop web-based applications, programs to render services;

⇨ Bestowing with periodic conduct of information literacy programs to keep abreast with the users, staffs and the public at large so as to tune to the latest developments in the government sectors.

⇨ Imparting continuing education and training programs to the rural public;

⇨ Drawing consensus between the administrator and the librarian in materializing the policies for augmentation of library services;

⇨ Developing willpower and change in the mindset up to accept the challenges being imposed due to the advancement of ICT;

⇨ Assurance of Quality Services and sound communication skills;

⇨ Having knowledge of designing, developing, launching and maintaining of digital content management and assess, evaluate, recommend and test various methodologies, policies, and standards for utilizing computer software in the process of creating and preserving digital collections and resources.

The librarians of the public library need to precipitate the following literacy in the rural sector for optimizing the benefits of e-governance.

➡ Media Literacy	-	Ability to comprehend and create images in a variety of media in order to communicate effectively.
➡ Network Literacy	-	Ability to properly manage, connect and organize to assess, evaluate and get information in the right way.
➡ Web Literacy	-	A subset of information literacy needs the power to access, search, utilize, communicate and create information on the WWW.
➡ Digital Literacy	-	Refers to the ability to assess, collect, organize, evaluate and use of digital resources and services in an effective way.
➡ Scientific Literacy	-	Concerns to knowledge and understanding of scientific concepts and process which are required for personal decision making, participation in civic and cultural affairs, and economic productivity.
➡ Visual Literacy	-	Ability to understand, use images and visual expression through cartoons, line drawings, diagrams, etc.
➡ Critical literacy	-	Ability to evaluate critically the human, intellectual and social strengths, benefits.

Hence, in this technological age, the only issue of accumulation does not count which rather, needs a proper mechanism to organize with the help of technology for accelerating service and seamless access on the web by the end-users and make successful the true notion of digital India. Emergence, growth and development, the popularity of the internet in an information society have an immediate effect for transformation to a knowledge society which has posed a number of challenges for the library professionals to change their management operations and service delivery.

The following activities are required to be undertaken by the librarian to gain impetus of information literacy for effective e-governance among the rural public.

- Act as information user before information disseminator/instructor;
- Direct participation with the public, and community leaders and members;
- Proving orientation skills on sources of information and its uses;
- Organization of Seminars and workshops;
- Developing collaboration among all;
- Removing the gap between technology and the public;
- Accepting as educator and facilitator for knowledge dissemination;
- Encouraging the public for discussion methods;
- Building new paradigms and frames of analysis among the public;
- Active participation in curriculum design to provide literacy and use of information to the public at large;
- Showing directions of resource availability and use;
- Coordinating with the government, NGO, etc. for effective implementation of e-governance.
- Maintaining liaison between students and faculty; and
- Actively participate in user empowerment programme.
- Orienting the public to understand the various programs of the government and assist them to access the government websites;
- Collecting and disseminating informative pamphlets on e-government service and
- Act as an emergency information hub (http://publiclibrariesonline.org/2013/04/e-government-service-roles-for-public-libraries/)

Conclusion

Digital technologies have emerged as key driving forces for fuelling rapid economic growth and citizen empowerment across the globe. With the advancement of technology, the issue of the digital divide cannot be ignored. The society needs a transformation especially in the rural sector where the distribution of finance is unbalanced, access to computers and the Internet is also away from reach. It can be inferred that those are having adequate knowledge and computer literacy and Internet seem to be more powerful in knowledge horizon compared to those with inadequate knowledge on computer and the internet and they suffer in obtaining the benefits of e-governance. This is the effect of the digital divide. Hence, initiation of sporadic attempts by the government, NGO, libraries has become

imminent in promoting the true value of e-governance through various programs especially in the rural sector and for rendering greater benefit to the public. The digital divide will not close unless there is an initiative to seal the gap. With socio-economic divisions already present in today's society, the digital divide is compounding the effects. It is not just the cost of computers that results in the digital divide, but also the presence of widespread illiteracy among overlooked populations.

The public libraries in the present technology scenario act as intermediary agency in between the government and plans rather, it is a viable podium and termination point as well to transmit the issues of e-governance and new plans of the government for wider benefit of the public through realistic techniques by employing their skills and competencies to the public irrespective of their location. Innovative technologies are essential tools for materializing the mission of the government. The transformed knowledge, thus, in the preferred structure accomplishes the multifarious objectives of the government.

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#8

ROLE OF PUBLIC LIBRARY FOR THE SUSTENANCE OF DIGITAL INDIA: PERSPECTIVES FROM PUBLIC LIBRARY MANIFESTO

Prof. R. K. Ngurtinkhuma

Introduction

The world is moving very fast towards digitization in all walks of life. India as one of the developing countries in the world have tremendous developments in this regard. The government of India started the journey of e-Governance initiative since the 1990s for wider application of digital gadgets in various government sectoral works and many States and Union Territories started various e-Governance projects (http://www.insightsonindia.com/2014/11/23/e-governance-india-concept-initiatives-issues/). As time passed, the Government of India launched National e-Governance Plan (NeGP) in 2006 comprising 31 Mission Mode Projects by the Ministry of Electronics and Information Technology being implemented by various Central Ministries, States and State Departments would be suitably augmented and enhanced to align with the objectives of NeGP (http://meity.gov.in/divisions/national-e-governance-plan). The 31 Mission Mode Projects are:

Table 1: Mission Mode Projects

Central MMPs	State MMPs	Integrated MMPs
Banking	Agriculture	CSC
Central Excise & Customs	Commercial Taxes	e-Biz
Income Tax (IT)	e-District	e-Courts
Insurance	Employment Exchange	e-Procurement
MCA21	Land Records (NLRMP)	EDI for e-Trade
Passport	Municipalities	National e-governance Service Delivery
Immigration, Visa and Foreigners Registration & Tracking	e-Panchayats	India Portal
Pension	Police (CCTNS)	
e-Office	Road Transport	
Posts	Treasuries Computerization	
UID	PDS	
	Education	
	Health	

Source: http://meity.gov.in/content/mission-mode-projects

Digital India

The Digital India programme launched by the honorable Prime Minister of India on 1st July 2015 is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. To realize the objectives, the programme has established an ecosystem comprising several Ministries and government departments, coordinated by the Department of Electronics and Information Technology (DeitY). Delivery of public services using information technology is an important part of Digital India and it makes the initiative as a technology-led enabling programme for citizens. The programme lay emphasis on e-governance and transform India into a digitally empowered society to ensure that government services are available to citizens electronically within a project amount of Rs.1,13,000 crore to prepare the country for knowledge-based transformation. At the same time, the government is focusing on providing broadband services, telemedicine, and mobile healthcare services to the villages of the country and making the government more participative.

Vision of Digital India

To achieve the target of transforming India into a knowledge economy and information society, creation of enough physical infrastructure, providing the vital governance services to the people on e-mode and empowering people to handle digital technologies (digital literacy) are the three key areas to prepare for the knowledge economy under Digital India. As such, the government of India takes three steps through the Digital India initiative as (https://www.indianeconomy.net/splclassroom/what-is-digital-india/).

> **Digital Infrastructure:** The Digital India initiative has the vision to provide high-speed internet services to its citizens in all gram panchayats. Bank accounts will be given priority at the individual level. People will be provided with safe and secure cyberspace in the country.
>
> **Governance and services:** Government services will be available online where citizens will be ensured easy access to it. Transactions will be made easy through an electronic medium.
>
> **Digital empowerment of citizens:** This is one of the most important factors of the Digital India initiative to provide universal digital literacy and make digital sources easily accessible. The services are also provided in Indian languages for active participation.

Nine Pillars of Digital India

Digital India initiatives cover various departments of the government to make India economically and digitally empowered nation. For the smooth and progressive implementation of the programme, the government identified nine pillars of Digital India as follows (https://www.rajeshtimane.com/the-nine-pillars-of-digital-india/):

1) **Broadband Highways**: Broadband Highways will be implemented in rural areas by the Department of Telecommunications (DoT) laying national fiber network covering 250,000 Gram Panchayats. In urban areas National Information Infrastructure (NII) would integrate the network to provide high-speed connectivity and cloud platform

to various government departments up to the panchayat level. The infrastructure components for broadband networks will include State Wide Area Network (SWAN), National Knowledge Network (NKN), National Optical Fiber Network (NOFN), Government User Network (GUN) and the MeghRaj Cloud. DeitY will be the nodal Department for this project.

2) **Universal Access to Mobile Connectivity**: Mobile phone coverage will be provided to 55,619 villages in the country. The Department of Telecommunications (DoT) will be the nodal department.

3) **Public Internet Access Programme**: Common Services Centres (CSCs) will be strengthened and the number will be increased up to 250000. CSCs would be made viable and multi-functional end-points for delivery of government and business services. DeitY would be the nodal department to implement the scheme.

4) **e-Governance – Reforming Government through technology**: Government services will be strengthened with the help of digital technology to improve processes and delivery of various services through e-Governance with UDAI, payment gateway, EDI and mobile platform. School certificates and voter ID cards will be provided online (digi-locker) and all databases should be in electronic form only.

5) **e-Kranti -Electronic Delivery of Services:** e-Kranti is an advanced e-Governance programme to deliver all government services through electronic mode only. The programme integrates the then National e-Governance Plan. It has diverse mission projects, like health, education, farmers, justice, security, and financial inclusion, etc.

6) **Information for all:** All Information will be provided through the website platform for easy access by the public. The public services to citizens will be easily provided to citizens through digital platforms including social media.

7) **Electronics Manufacturing:** This pillar of Digital India aims to promote the manufacture of digital technology devices especially electronics with the country. Manufacturing of electronics within India will be promoted with a target of net zero import by 2020. To achieve its goals, several steps under the National Electronic Policy will be taken up mainly under Taxation incentives, eliminating cost disadvantages, promoting incubators, clusters, skill development, etc.

8) **IT for Jobs:** The main is providing skill and training to the youth in smaller towns and villages for availing employment opportunities in IT sector and setting up of BPO in each of the North-East States to foster ICT enable growth and train the rural workforce to cater their needs to run viable business delivering IT services. This initiative would be taken up by DoT and DeitY.

9) **Early Harvest Programme:** The Government will set up Wi-Fi facilities in all universities and in public spaces across the country, eBooks will be provided to schools, an email will be made the primary mode of communication, Aadhar Enabled Biometric Attendance System will be deployed in all central government offices, etc.

Public Library

The public library is regarded as one of the types of library, having an immense impact on every society of the world. While describing importance of library, National Knowledge Commission (2007) stated that "Public libraries, in particular, have the potential

to bridge the gap between the 'information poor' and the 'information rich' by ensuring that people from all sectors and settings of society and the economy across India have easy access to knowledge they seek". It is an agent to access knowledge providing information to all the citizens equally leaving no distinction even in the digital era.

It is defined in IFLA/UNESCO Public Library Manifesto (1994) as "The local gateway to knowledge, provides a basic condition for lifelong learning, independent decision-making and cultural development of the individual and social groups". It also defined as "A public library is an organization established, supported and funded by the community, either through local, regional or national government or through some other form of community organization. It provides access to knowledge, information and works of the imagination through a range of resources and services and is equally available to all members of the community regardless of race, nationality, age, gender, religion, language, disability, economic and employment status and educational attainment" (IFLA/UNESCO , 2001). This definition clearly shows that the public library has an important role in providing information according to the needs of the community without any distinction. It is a window to view the world and its surrounding environment and collecting various information for its clients to provide their information needs in diverse fields.

Public Library Manifesto

Peter Johan Lor stated that "In 1947 IFLA held its first Council meeting (i.e. conference) after the suspension of almost all of its activities during the Second World War. In that same year, IFLA signed a cooperation agreement with the newly created United Nations Educational, Scientific and Cultural Organisation, UNESCO. It was the beginning of a period during which IFLA grew from what might have been dismissed as a gentlemen's club of middle-aged library directors to an international body which can claim to represent libraries and librarians worldwide – today's global voice of the library and information profession. The role of UNESCO in setting IFLA on that road and in nurturing its development in the interests of the world's libraries and library users cannot be underestimated". IFLA and UNESCO have good understanding and cooperation to promote and develop peoples of the world through public library services in various corners of the world.

Unesco adopted key missions of public libraries in 1947 at its second session of the General Conference. Abib (1996) stated that "During the International Book Year in 1972, UNESCO asked IFLA's Section of Public Libraries to update it. The text prepared by the Section, with professionals more specifically in mind, was accepted by UNESCO, published in the June edition of the UNESCO Bulletin for Libraries and also translated into many languages. Twenty years later IFLA's same Section of Public Libraries decided to include in its medium-term programme for 1992-1997 a new version aimed essentially at the authorities". As time passed and new developments and technologies have been underlying for the promotion of public library services there is need to revised the manifesto to meet the latest challenges to provide the latest information to the library users. Niegaard (1995) also stated that "In late November 1994 UNESCO's Council for the General Information

Programme (PGI) adopted the new version and its contents, and the tasks of promotion and spreading the updated declaration could begin".

The IFLA/UNESCO Public Library Manifesto 1994 stated various activities to be taken up for the development and upliftment of the people through public library services. In India, the government has initiated "Digital India" to meet the latest challenges of the world in the digitization of various activities and services. As such the role of the public library to help the people in general from the light of Public Library Manifesto need to be discussed.

Public Library as Community Information Centre:
"Ensuring access for citizens to all sorts of community information". (Manifesto).

It an important task for the librarians to publicize the government projects to the local people. It is the democratic rights of the community to know the government projects as the government is to work for the welfare of the people. The public library open to all has a key role in collecting, organizing and exploiting information, as well as providing access to a wide range of information sources. The public library has a responsibility to collect local information and make it readily available. In this regard, the public library has an important role to play providing best and fast information to the local people about government projects. Library as local information center may organize some programmes, like meeting the local people, lecture, discussion, etc. to publicize issues related to the welfare of the people. The Digital India initiatives barely needed to be publicized to the community for its implementation as well as to promote the programmes.

Public Library as an Information Service:
"Providing adequate information services to local enterprises, associations and interest groups". (Manifesto).

Public library functions as local information service providing various needs of the community. This information may be disseminated in various means, like document, non-document or electronic form. Digital India initiatives needed to be informed among the public as it is being implemented in various sectors. As such a public library may take steps to provide information of various Digital India initiatives to the community to meet their requirements. In this regard, it may need to organize some technical aspects as the programmes are based on technology devices. Anyway, the library plays vital importance to educate the community in this regard. "Providing access to major collections of the world's literature and knowledge, including the community's own literature, has been a unique contribution of the public library and is still a vitally important function". (IFLA)

Public Library as ICT Literacy Centre:
"Facilitating the development of information and computer literacy skills".
(Manifesto).

Information and Communication Technology (ICT) plays a vital role in world development in all fields. It is defined as "ICT literacy is using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society" (https://www.ets.org/Media/Tests/Information_and_Communication_Technology_Literacy/ictreport.pdf) The Digital India initiatives are mainly approaching ICT related functionaries. The local communities therefore highly needed to understand at least the basic of ICT to access their personal requirement of the programme. In this regard, the public library may procure and organized training or workshop to the local people. Singh (2017) states that "Skill is an ability or proficiency in execution or performance, which is required for a person to plan and execute an action designed to achieve some goals or accomplish a particular task. A skilled person has the ability to perform any task successfully".

Public Library as Support Service Centre:

> *"Supporting and participating in literacy activities and programmes for all age groups, and initiating such activities if necessary". (Manifesto).*

Library services are selfless service to help the others for getting their information needs at various levels irrespective of age, colour, religion, gender, race or culture. All persons are equal in the library. The public library is regarded as a support service center as it helps the users equally to enhance their knowledge in all perspectives. Therefore, the public library helps the users for their personal education or literacy in diverse ways even to the use and understanding of technology. It is, therefore, playing an important role to enhance the knowledge of the community and support their understanding of the programmes and other initiatives taken by the government. There can be various public library services to develop literacy skills of the people to access information of different Digital India programmes. IFLA stated that "Library staff should be trained to use communication media to promote the library service and respond to media inquiries. They should be able to write articles for local newspapers and prepare press releases. They should be familiar with the techniques of speaking and being interviewed on radio and television. They should also be able to promote the library and its services via computer and telecommunication networks including the creation of library websites".

Conclusion

Digital India is one of the most mindset programmes of the government to meet various challenges in the field of digitization. It is an important programme to promote knowledge of the people in the field. The world is moving very fast in technology at various levels. Most of the government functionaries are based on technology and it is very important for the community to have some knowledge of technology for day to day life. It is the duty of the citizens to support and adapt themselves to initiatives taken by the government. In this regard, the public library as a support service to the local people has an important role to educate the local persons to meet the uprising challenges in life.

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#9

SOCIAL RESPONSIBILITY OF PUBLIC LIBRARIES AND INFORMATION CENTRES IN ODISHA: A STATISTICAL ANALYSIS

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B. Chandrabati

Introduction:

In the context of the globalized world, information and its accessibility play a vital role in the development of human competency. The information era with its electronic gadgets will come across many challenges in all the sectors of development since the information has become a basic need for any activities of development. Public libraries and information centers will have their challenges and risk to take part in this major activity. To meet such challenges, Odisha will need to have a vision for the future millennium to adopt the latest Technology in the sphere of developmental activities. It may include a change in the function of the library to make it service oriented rather than collection oriented. To strengthen the system, perennial financial support from different agencies is required. The corporate social responsibly of the public enterprises also need to be taken into consideration apart from government assistance. Under such a situation, the social responsibility of the public libraries for its clienteles has to be decided from various angles leaving traditional service approach.

Conceptual Definition:

Librarianship exists within the world social context as well as within the social structure of each individual country. There is no doubt that information workers carry a professional responsibility that is of most important in today's society, though it is believed that the scope of this responsibility is now much broader than earlier with the effect of global cultural imperialism communicated through media and endemic information overload. Information professionals can play a role in reducing cultural and ideological differences because of their influence over information, thus there is a need for social responsibility of public libraries in a changing scenario.

Social responsibility and libraries is a complex term with two facets. ALA defines "Social responsibility as the relationship that librarians and libraries have to non-library problems that relate to the social welfare of the society". But this definition does not spell out the true definition of social responsibility. The definition of social responsibility is the obligation of an organization towards the welfare and interests of the society in which it operates. When libraries have to take into accounts of social issues and inequalities, which are beyond library's purview and work with patrons and co-workers for the upliftment of members of the society, it becomes the social responsibility of the library. However, a

library's social responsibility is to answer the information needs of its user and to be responsible to those needs is a librarian's foremost duty and therefore his chief social responsibility.

Social Responsibility and Library:

The library is a social institution. It is established by the people, for the people out of the social necessity of the individuals in a given society. Thus, social development and libraries are regarded as two sides of the same coin. One cannot think of social development without the library. Hence, the obligation of the library as a social organization towards the welfare of the society in which it operates is the need of the hours. In a library set up, while working with the patrons and workers, one should take account of social issues and inequalities because; these are the essential ingredients of social responsibility. With the creation of Social Responsibility Round Table (SRRT) in 1968 by ALA, the purpose was to provide a forum, whose responsibility membership discussion, can take place to examine current library effort to face issues and to propose action programs. But the issue as opposed to an agreement that the library has a unique and traditional role to play in society by providing educational information and recreation. This uniqueness has distinguished the library professionals from other service organizations. By performing a task outside the basic function, libraries are delving areas, where they have no competency to handle effectively.

Identification of Non-Library Issues as Social Responsibility for Library Professionals:

With the emergence of information technology, communication technology, and multimedia technology, the libraries are not attracted by the users as they easily get their required information from the internet at their doorstep. In such a situation the library professionals equipped with latest ICT knowledge skills and know-how of digital information handling must reach to the users of different communities with non-library issues having potential requirements for physical, economic, social, healthcare including facilities for upliftment and care of women, senior citizen and differently able persons.

- **Physical facilities:** It determines the standard of living of the people in a particular area such as road connectivity, telecommunication, installation of transmission towers, broadband facilities, road transports, sewage, irrigation, energy, forestry, environment, and conservation of natural resources. When such information for the above narrated areas is given by the library employees it may create interest among the non-users of the library in a particular area providing a boost to visit the library space.

- **Economic wellbeing:** It is very much dependent on agriculture, animal husbandry, fisheries, small scale and cottage industries, business, trade, and marketing. If related information of this nature is provided to the local people by the library staff, then they will develop an interest to visit the library for the required information.

- **Social development:** It is very much dependent on education, culture and political consciousness of the people. Information to such field of interest is to be furnished to people in a particular village or town so that they can actively

participate in the democratic and political process of the country as responsible citizens.

- **Health care information:** It is equally necessary for the field of nutrition, sanitation, prevention against health hazards like HIV, Dengue, Brain malaria, Waterborne diseases, and Air pollution. In this regard library, people can conduct the awareness programme in the above-mentioned areas so that the general public will be well aware of the facts and can rise to the occasion for maintaining good and sound health.

- **Raising consciousness**: Gender justice, empowerment of women, prevention of child labour, self-help group for thrift, credit, participation in cooperative activities, protection of senior citizen and other social security programme are some of the important activities which attract rural mass to the libraries if such programmes are conducted at regular interval in the library premises under extension programme.

- **Information literacy:** Conducting information literacy programme both for library staff and users are very much essential for digital knowledge and skill development so that more people will feel like attending the library and library staff can also efficiently deliver the information to the visitors. Also, participate with National Literacy Mission under the adult education programme may also help the library professionals to continue the post-literacy programme in a rural area through prepared handouts that may save from relapsing into illiteracy.

- **Self-employment:** Related **i**nformation for career opportunities and counseling for young students, setting up of enterprises by using local resources, traditional skills and know-how and marketing of local products are some of the lucrative programmes for young people in a village. Hence, such areas are to be tapped for the interest of youngsters so that they will be attracted towards libraries without wasting their valuable time in unnecessary engagements.

- **Public Welfare:** Govt. information relating to welfare plans and activities in various sectors, forms/certificates, voter lists, electoral records, licenses, permits, adhaar cards, welfare schemes for below poverty lines are some areas where people need information if provided at the library. Web sites developed under E-governance programmes are the best examples.

- **Agricultural Support:** Information of crops, pesticides, seeds, credit societies, equipment and tools for mechanized cultivation, soil testing, water supply, irrigation, floriculture, etc. may be of essential information services to the rural community, if provided through network and different websites development and E-Governance programme.

- **Legal Support:** Access to legal information relating to rights, duties, and responsibilities of the citizens, economically deprived classes, women, children, senior citizens and physically handicapped including legal aid programmes for those will be of very much useful to the people both in urban and rural areas.

- **Community information:** Under this service, the library staff can actively participate and identify different information needs of the communities like

agriculturist, poultry farmers, weavers, fisherman, blacksmith, porters, bamboo crafts-man and provide them information relating to the availability of raw materials, marketing, Govt. subsidies, loan facilities, etc. Their information needs are to be prepared and repackaged by the public library staff in the form of a handbook, guides, and directories, preferably in local language and made available to different occupational groups and communities that will serve as a best attraction for utilization of library resources.

Status of Public Libraries in Odisha:

Generally, Library Legislation plays an important role in the provision of national and public library services. It helps in the establishment of an organized network of public libraries, a sound administrative set-up, proper and continuous financial support, coordination in administration and management of public libraries, centralized services like purchase, processing, bibliographical and other services can be provided conveniently, and possibility of providing quality library service, at qualified hands, free of charge. In Odisha, though it was passed by the Legislative Assembly of Odisha in 2001, unfortunately it has not yet implemented. It has been a long pending issue and has always been a matter of discussion all most all professional programs.

The primary objective of the Public Library system in a State is to provide a comprehensive free Library Service to its people in an organized manner. At present, the responsibilities of Providing Public Library Service in the State of Odisha at Government level are mostly vested upon the Odia Language Literature and Culture (OLL&C) Department. Besides, Information & Public Relation (I&PR), Housing & Urban Development (H&UD) Department, Govt. of Odisha are also providing Public Library services to some extent in the urban and semi-urban regions of the State. Recently the Panchayati Raj & Drinking Water (PR & DW) Department of Odisha Government have planned to established Panchayat Library and Infotainment Centre in Gram Panchayat level to develop an intellectual fervor with an objective of 3Es as Empowerment, Enlightenment, Entertainment,

Category of Public Library by different Scenario:

In Odisha, Public libraries may be categorized into two types by different scenario i.e. Government and Privet. The details of the general Scenario of Public Libraries in the State of Odisha are enumerated below:

Government Scenario		Privet Scenario	
Functioning Under Govt. of Odisha	No of Libraries	Functioning Under privet bodies with support/Grant from Govt.	No of Libraries
OLL&C Dept.	30	NGO/Clubs	314
I&PR Dept.	83	Individual Efforts	9
H&UD Dept.	12		
Total	**125**	**Total**	**323**
Grand Total		**448**	

Table-1: Public Libraries in Odisha Functioning/Supported by the Government)
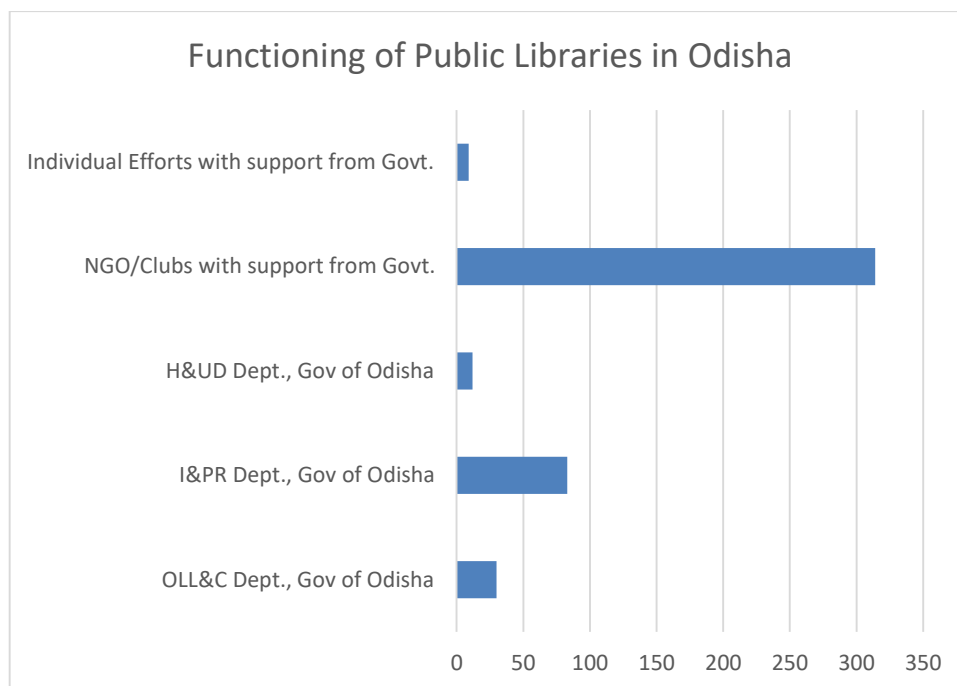
Figure-1: Functioning of Public Libraries in Odisha under Different Departments/Organizations
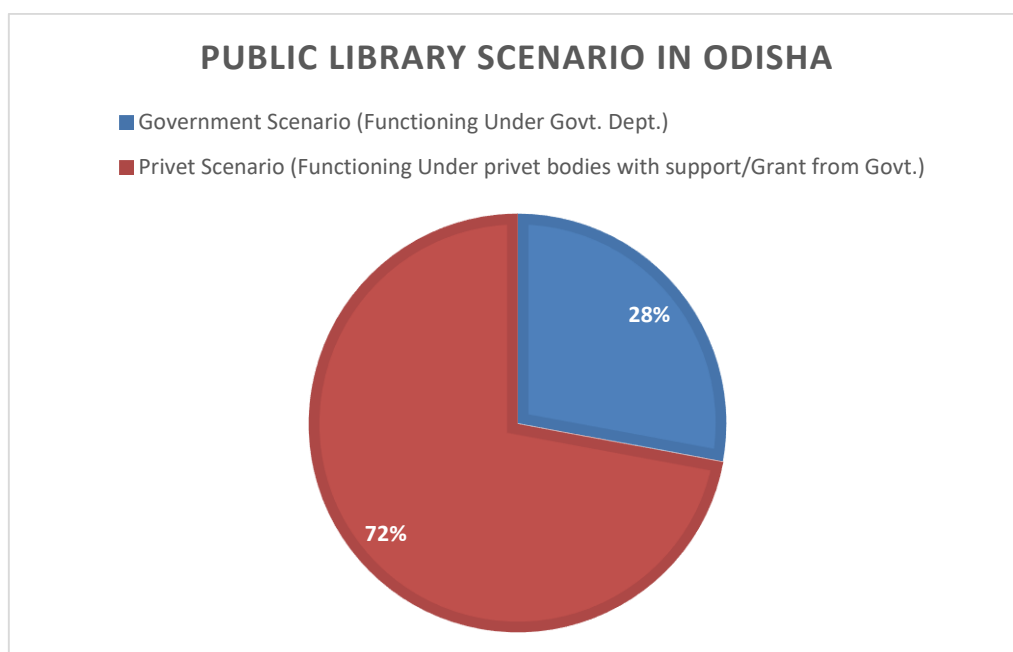
Figure-1.1: Public Library in Odisha from Different Scenario

Government Scenario:

- **Odia Language Literature and Culture Department-** At present 30 Public Libraries are functioning under the Culture Department such as:

Library Level/Type	No of Libraries
State Library	1
City Library	1
District Library	17
Sub-Divisional Library	1
ExDistrict Library	6
Memorial Hall Library	4
Total	**30**
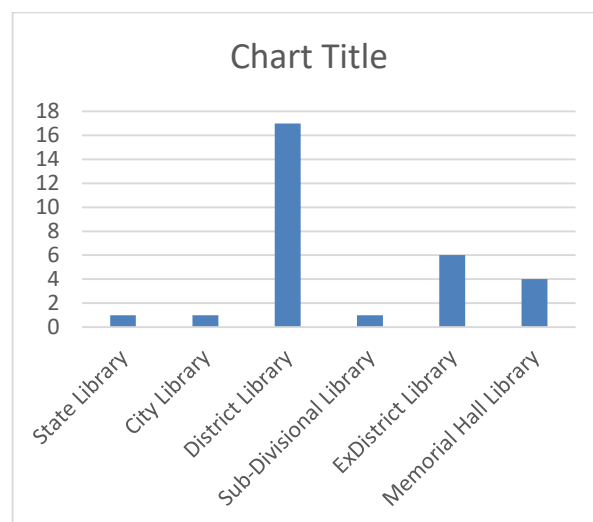
Table-2 & Figure-2: Public Libraries functioning under ILL&C Department, Govt. of Odisha

- State Library-1 at Harekrushna Mahtab State Library Bhubaneswr, Khurdha
- City Library-1 Bhubaneswar Public Library, Bhubaneswar, Khurdha
- District Libraries-17
  Angul, Baragarh, Balasore, Bolangir, Cuttack, Dhenkanal, Ganjam, Kandhamal, Mayurbhanj, Kalahandi, Koraput, Puri, Sambalpur, Sundargarh, Keonjhar, Nuapara, Rayagada
- Sub-Divisional Library-1, Rairangapur, Mayurbhanja
- ExDistrict Board Library-6 in Ganjam
- Akhanda Pathagar, Chikiti, Ganjam
  Jayakrushna Bahinipati Pathagar, Rambha, Ganjam
  Kanak Manjari Pathagar, Kavisurya Nagar , Ganjam
  Upendra Bhanja Pathagar, Tanarada, Ganjam
  Public Library, Khallikote, Ganjam
  Raghunath Pathagar, Ballipadar,Ganjam
- Memorial Hall Library-4
  Panchasakha Memorial Hall Library, Sakhigopal, Puri
  Gangadhar Memorial Hall Library, Barapali, Baragarh
  Utkamani Memorial Hall Library, Suando,Puri
  Mahavir Jain Library, (Defunct), Dhenkanal,

- **Information & Public Relations (I&PR) Department**- Like Culture Department I&PR Department, Government of Odisha is also providing free Public Library Service by establishing Information Centre-cum-Reading Rooms at urban areas of the State. Besides, Soochana Bhavan Library at Jayadev Bhawan in the State Capital is regarded as Apex Information Centre, the I&PR Department have established 13 Grantee District Libraries and 70 Centre-cum-Reading Rooms in Odisha.
  - Grantee District Libraries-13
  - Information Centre-cum-Reading Rooms-70

Table-3: Information Centre & Reading Room and Grantee district Libraries managed by I&PR, Dept., Govt. of Odisha

Sl.No.	District Name	Place/Location	Inf. Centres	Grantee Dist. Lib.	Total Lib. & Inf. Centres
1	Balasore	Balasore	4		4
		Nilgiri			
		Simulia			
		Jaleswar			
2	Bhadrak	Bhadrak*	1	1	2
		Aradi			
3	Cuttack	Cuttack	5		5
		Athagarh			
		Banki			
		Salepur			
		Chahapada			
4	Jajpur	Jajpur*	1	1	2
		Jajpur Road			
5	Jagatsinghpur	Jagatsinghpur *	2	1	3
		Paradeep			
		Tirtol			
6	Puri	Puri	4		4
		Konark			
		Sakhigopal			
		Pipili			
7	Khurda	Khurda*	3	1	4
		Bhubaneswar (State Level)			
		Begunia			
		Balipatna			
8	Sambalpur	Sambalpur	4		4
		Rairakhol			
		Charmala			
		Kuchinda			
9	Bargarh	Bargarh	2		2
		Padampur			
10	Dhenkanal	Dhenkanal	4		4
		Kamakhyanagar			
		Bhuban			
		Hindol			
11	Angul	Angul	5		5
		Talcher			

		Palalahada			
		Athamalik			
		Bamur			
12	Sundargarh	Sundrgarh	3		3
		Rourkela			
		Bonai			
13	Bolangir	Bolangir	4		4
		Titlagarh			
		Patnagarh			
		Kantabanji			
14	Sonepur	Sonepur*	1	1	2
		Birmaharajpur			
15	Ganjam	Chhatrapur	5		5
		Berhampur			
		Bhanjanagar			
		Aska			
		Digapahandi			
16	Mayurbhanj	Baripada	5		5
		Udala			
		Rairangpur			
		Karanjia			
		Jashipur			
17	Kalahandi	Bhawanipatna	4		4
		Keshinga			
		Dharmagarh			
		Junagarh			
18	Nuapara	Nuapara	2		2
		Khariar			
19	Keonjhar	Keonjhar	4		4
		Champua			
		Anandpur			
		Ghatagaon			
20	Koraput	Koraput	2		2
		Jaypur			
21	Rayagada	Rayagada	2		2
		Gunupur			
22	Kandhamal	Phulbani	3		3
		Baliguda			
		G.Udayagiri			
23	Boudh	Boudh*		1	1
24	Deogarh	Deogarh*		1	1
25	Gajapati	Gajapati*		1	1
26	Jharsuguda	Jharsuguda*		1	1

27	Kendrapada	Kendrapada*		1	1
28	Malkangiri	Malkangiri*		1	1
29	Nayagarh	Nayagarh*		1	1
30	Nawarangapur	Nawarangapur*		1	1
		Total	**70**	**13**	**83**
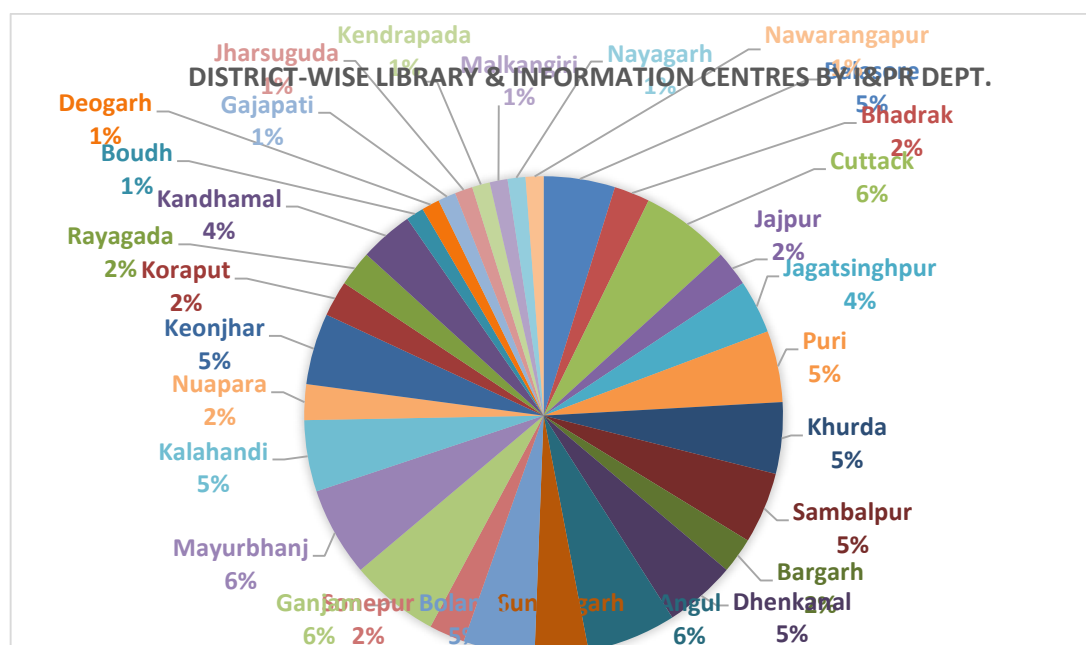
Figure-3: District-wise Library & Information Centre in Odisha functioning under I&PR Dept. Govt. of Odisha

- **Housing and Urban Development (H&UD) Department**- This Department is also providing Public Library Service in some of the Municipalities and NACs. Saheed Bhawan Pathagara, Cuttack is one of them which is serving to the needs of the people of Cuttack City. Name of some Municipality and NAC Libraries managed by the H&UD) Dept., Govt. of Odisha.

> Municipality Library, Puri
> Municipality Library, Balasore
> City Library, Cuttack
> Municipality Library, Bhadrak
> Municipality Library, Kendrapara
> Municipality Library, Jajpur
> Municipality Library, Sambalpur
> Municipality Library, Berhampur
> Municipality Library, Paralakhemundi
> Municipality Library, Talcher
> N.A.C. Library, Choudwar
> N.A.C. Library, Purusottampur

Panchayati Raj & Drinking Water (PR&DW) Department- Recently the PR & DW Department, Govt. of Odisha have released a guideline for the establishment of Panchayat

Library & Infotainment center. In the present backdrop of information explosion throughout the world, common people cannot keep pace with the multi-faceted information needs of everyday life without the aid of panchayat public library. Panchayat Library can play the role of a catalyst bringing tremendous social and economic changes in rural society. It will reduce the intellectual divide by providing access to books, information and internet facilities to rural youths of each district and above all disseminate information on all kinds of welfare schemes, agriculture, rural marketing, etc. Since information has become a national resource, information-based society will increase the quality of life of the rural people to a large extent.

Private Scenario:

- **Non-Government Organizations**- Apart from the above Departments, a number of NGOs/Clubs are also providing Public Library Services mostly in rural areas. But the services of these libraries are not in an organized manner. The Department of OLL&C is providing Book Assistance, Building Grant, Furniture grant, Assistance for Storage, Development of Special Corners, etc. from the existing RRRLF Schemes with a matching Share of State Government. As per a report, there were 314 block level libraries functioning in Odisha during the year 2006-07.

- **Individual/Institutional Efforts**- Some individuals have great contributions in this field. The bright examples are as follows:
    - BanchhanidhiPathagara, Nayagarh (managed by Trust & help from OLL&C)
    - Raghunandan Pathagara, Puri
    - Vivekananda Pathagara, Ramakrishna Mission, Bhubaneswar
    - Utkal Sahitya Samaj Library, Cuttack
    - Manmohan Digital Library, Srujanika, Bhubaneswar
    - Kedarnath Pathagara, Bhubaneswar
    - Bakula Pathagara, Bhubaneswar
    - Pragati Utkal Sangh, Rourkela
    - Sambalpur Public Library, Sambalpur

Action Plans of the Government for Development of Public Library in Odisha:

- The Government of Odisha has enacted the Odisha Public Libraries Act, 2001 with a view to bring all Public Libraries under one umbrella and to develop Public Library Systems and Services in an organized manner.
- Accordingly, Odisha Public Library Rules, 2016 has been Framed for implementation of the Act in an effective manner
- As per provisions made under the Rule, Directorate of Public Libraries has been constituted by a Government Notification bearing No. 7974/TC, Dated. -16.12.2016 and other ancillary works are under process.
- Recently, in the Heritage Cabinet meeting, separate Post of Director, Public Libraries has been created.
- Action is being taken to constitute Public Library Authority and Public Library Council and also to create additional staff members of the Directorate.

- Steps are also being taken to congregate the Public Libraries functioning under other Departments such as Information &Public Relation, Housing & Urban Development, Panchayati Raj & Drinking Water.
- Plans are being taken to expand Public Library Service to all 30 districts of the State by establishing 13 new district Libraries in the left-out districts and for up-gradation of existing 17 District Libraries as "Smart Libraries".
- The PR & DW department of Odisha Government plans to open Panchayat Libraries and Infotainment Centres in Gram Panchayat Level. Notification No. 17 NREG-11-1165-18657/PR&DW and Dated: 02.09.2018

Recommendations for improvement of Public library Services in Odisha:
- Provision of the budget may be made for the progressive expansion of the public library system in the state state in a phased manner i.e 57 sub-divisional libraries, 314 block libraries, and 6,799 Panchayat libraries.
- As 51352 nos of villages are existing (as per 2001 census) in the state, the leading NGOs / Club /*Jubakasangha* having infrastructure potentiality may be identified to cope with the public library service for time being. The regular annual library grant may be provided for the maintenance and management of the village libraries.
- As there are 51352 villages (according to the 2001 census) in the state, the NGOs / clubs with an infrastructure potential may be identified to address the public library service from time to time. Regularly the yearly library grant may be provided for the maintenance and management of village libraries.
- An ideal model staffing pattern may be framed in the libraries along with library frame rule for the smooth running of the libraries along with their supervision and maintenance works.
- Library automation may be made on a priority basis by the networking of all public libraries at least up to district level at the first phase with a provision to expand the said system to the grass root level.
- Provisions may be made for establishing of self-book study Centre in the cities to promote reading the atmosphere of the downtrodden people.
- City library service started at Bhubaneswar in the year 1987 (now housed in the State Library building). This may be extended to branches of the city library in different corners of the city as well as all other cities in a phased manner.
- Provisions may be made for preservation & digitization of rare materials i.e palm leaves, manuscripts, paper documents, etc. available in different places of the State.
- The corporate house / NRI personnel may be requested to adopt any public libraries for its management and development with their own source.
- Provisions may be made for engaged the LIS professionals in the activities of the proposed Panchayat Library and Infotainment Centre in the state. (As per the guidelines, there is not any role of a librarian in this Centre.

Conclusion:

Library and Information services that are in the interest of social, cultural and economic wellbeing is at the heart of Librarianship and therefore, Librarians have a social responsibility in areas such as:

- Good Access to information;
- Privacy, Secrecy, and Transparency;
- Open access and intellectual property;
- Neutrality, Personal integrity, and professional skills

It is not only a responsibility of Librarians and Library Professionals but also the support of the Government and the cooperation of the public is required to fulfilling the social responsibility of the public libraries in the state. As a library professional, we feel that the term "Social Responsibility" and "Duty" of the library professionals is not exactly the same. Although there are similarities in both the terms, "Social Responsibilities" are those which are directly linked with the society as a whole, while "Duty" refers to the bounded tasks that one library professional has to perform. What we mean to say that "Duty" is compulsory while "Social Responsibilities" are not, rather these are voluntary in nature.

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#10
EMERGING TECHNOLOGIES FOR LIBRARY MANAGEMENT

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Introduction

The speedy growth of ICT (Information and Communication Technology) has put a great impact on the reading habits of mankind in libraries. ICT and globalization have transformed the libraries from traditional to digital libraries in which every work is done by computer through coding and programs. Hence, working of the library has completely changed from service oriented to user-oriented. New technologies have been amalgamated in the library science and thereby libraries have been changed digitally through Virtual Libraries, Hybrid Libraries, Library without Walls, Library 2.0, etc. At present we are in the era of using libraries from our Smartphone and palmtop. With the help of advanced technologies, we use libraries at any time according to our convenience.

Due to advance technologies, many new trends can be seen in the field of libraries. The following are few trends in the field of libraries:

- Printed collection to Web-based publishing like the digital collection,
- Reference desks have been changed to Online Reference Service Web,
- Manual Library Catalogue changed into OPAC (Online Public Access Catalogue) / Web OPAC,
- Manual sharing of information changed into Networking of Libraries,
- Closed Access changed into any time/ anywhere access of material through internet libraries,
- Electronic Delivery of Information.

From the above services, we can understand the impact of ICT on the libraries. Recognizing the application of the advantage of information technology the libraries are essential to provide the facilities to their user community.

Objectives of the Study:

This study has been designed to achieve the following objectives:
1. To identify the emerging technologies in libraries
2. To highlight the challenges in implementing new technologies

Research Methodology

The method used to achieve its objectives was through qualitative research. Secondary data was collected through websites of various academic libraries to explore the availability of web-based library services. Researchers' experience in the field, his practical engagement in library and information services and day to day discussions with IT-oriented co-professionals and colleagues to develop web-based library services.

The necessity for ICT in Libraries

In this digital era, most information is recorded in electronic format. Electronic Information is becoming a challenging issue for information professionals and practitioner. The Libraries have found it very difficult to acquire, arrange, process and disseminate information in traditional ways. The information seeking behaviour of the users is also changing according to their varied needs. To meet these needs, storage capacities of information and retrieval techniques should be improved. The quality, user friendless, effectiveness, reliability and regularity of library services can be much improved through ICT. ICT in Libraries have made easier production; storage, access and easy dissemination of this electronic information. Unless the libraries are automated, there is no possibility for accessing the information from global level databases. So librarians are enforced to adopt Information Communication Technology in their libraries.

Emerging Technologies in the Libraries

Due to the information explosion, it is very difficult to handle large information with traditional library tools like a manual catalogue, bibliographies, etc. In today's library environment, to provide the right way is not possible without ICT application. ICT has become a necessity and need. With the application of new technologies in the libraries, the working of libraries has totally been changed. The librarian's first choice is to adopt ICT in the library activities/ operations and other library services for collection, processing, storage, retrieval and dissemination of recorded information. The rapid developing technologies have showered in almost every areas of application including libraries. The good uses in the following environments are as follows:

a) **Big Data**: Big data is a phrase that describes large volumes of high velocity, complex and variable data that require advanced techniques and technologies to enable the capture, storage, distribution, management and analysis of the information. Libraries have a long tradition of being information handlers and technology adopters, and big data should be no exception.

  - Big data can improve the library's activity overall, by simply having access to more insights into the user's mind. Big data helps librarians and staff can gain more insight into user experience by quickly analyzing popular hours, popular books, reading pattern, reading behaviors' and trending authors. These insights can be used for purchasing decisions and allocate resources.
  - Big data allow libraries to detect threats in real-time: from the irregular activity on server and application logs to questionable user activities.
  - In the case of large collections or more obscure requests, big data can make the search very quick and successful. The big data helps the Librarians to track down information in minutes, getting patrons the information they need right away.

b) **Internet of Things (IoT) In Libraries**: Mobile alert is possible as and when the users access the racks. User will get a message about the most issued and demanded books list on his mobile. This helps library staff in procuring more copies to be placed.

- Mobile apps using RFID, Near Field Communication and ZigBee will help users to locate books inside the library.
- Availability of a book can be checked with Bluetooth technologies or Learning Management Systems.
- Sensors help in controlling the usage of the lights, fans and air conditioners can be on and off based on the usage of users.
- The reservation status of the book can be known as and when the book will be returned to the library by sending mailer alert to the user who is waiting for the document.
- Fire safety is very much necessary in libraries. The library can be protected from fire accidents with the help of smoke or heat sensors.
- Alerts like new arrivals, special collections, library archives, shelving assistance to the users are possible.

c) **Quick Response (QR) Codes:** Quick Response codes or QR codes are two-dimensional barcodes that can be scanned by mobile phone with an embedded camera. Quick Response code is a matrix barcode readable by smartphones and mobile phones with cameras. Quick Response (QR) Codes are used in the Library in the following way:

- In the Library catalogue, individual records of books and journal titles are available on the shelves which also include a QR Code. By scanning the code, you can save the Title, Author and Class mark of the book you are viewing on the catalogue which can help you to find the shelves.

d) **Self-Issue/Return using RFID:** RFID (Radio Frequency Identification) is the latest wireless technology used in the library for theft detection. RFID has automatically checkout, anti-theft and inventory control system. RFID tags are placed on the library items when these items come under the range of antenna without requiring a line of sight, it transfers the information to the computer system if it is not issued then a siren is burst out.

e) **Book Delivery Drone:** The future belongs to unmanned flying machines, and just like Amazon drones can deliver the goods to customers, libraries could deliver the books to patrons**.** The system is using hex copters, drones with six rotors, to deliver ordered books. Now, the smart thing is that the drone can find you by the location of your smartphone, so there is no need to give a fixed address.

f) **Magic Mirror**: Magic Mirror made up by a digital screen like a computer monitor, a sensory device like a webcam. When a user holding a book enters the field of view of the camera, the camera will start capturing the image and the algorithm of the system will start tracking the information regarding the title of the books along with additional information like related books, reviews, etc and the result will be shown in the monitor.

g) **Pressure Pad Sensor:** Pressure pad sensor consisting of a thin sheet sensor pad enabled with Wi-Fi technology is connected to the processing unit which records and controls the system. Frequent movement of the user in particular aisle is to be recorded so that the collection of books of the recorded section can be increased to

provide sufficient information. Pressure pad sensor can also be linked to the energy system to minimize energy loss in an academic library.

h) **Greenstone:** Greenstone is open source, multilingual software for building and distributing smart/digital library collections. It provides a new way of organizing information and publishing it on the Internet. Greenstone is produced by the New Zealand Digital Library Project at the University of Waikato, it was developed and distributed in co-operation with UNESCO and the Human Info NGO.

i) **Web-Based Services:** Most libraries have started the web-based services to provide comfortable services to the library users. Library services include web access of e-materials like e-books, e-journals, e-thesis, etc. Users can access these services through user id and password generated by the library and can access the material on the library website by filling the user id and password. Even the users can make queries, see any notification from the librarian, and make chatting with the librarian, etc. Folksonomies and social tagging, Video Sharing, Photo Sharing, Instant Messaging, Social Networking, Blogs and Wikis, Screencasting, RSS Feeds, Web Mashups, Podcasting are few services rendered by Web-based service.

j) **Web OPAC**: Web OPAC (Online Public Access Catalogue) has changed the working of libraries to much extent. With the help of Web OPAC users can check the availability of any library material on the Web without leaving the place. Web OPAC is a catalogue of library material which tells the user the required material is available or not. Users can fill the Username and Password on the Library Web site and can use the OPAC and Access to Digital Material etc.

k) **Hybrid library:** Hybrid library is a term used to describe libraries that contains a combination of print library resources and electronic resources. It is a mix of printed books and magazines, as well as electronic materials such as downloadable audiobooks, electronic journals, e-books, etc.

l) **Library Networking:** Library networking means a group of Libraries and Information Centres is interconnected for some common pattern or design for information exchange and communication with a view to improving efficiency.

m) **Audio-Video Technology:** Audio-Video Technology includes photography, microfilms, microfiches, audio and tapes, printing, optical disk, etc.

n) **Library Automation**: Library automation is the idea of reducing human intervention in all the library services so that any user can receive the desired information with the maximum comfort and at the lowest cost.

o) **E-Granthalaya 4.0:** E-Granthalaya 4.0 is Library automation software developed by National Informatics Centre (NIC), Department of Electronics & Information Technology, Ministry of Communications and Information Technology, Government of India. The software has been designed keeping in view the requirements of special and government libraries. The software contains various modules like Administration, Acquisition of books and Cataloguing, Circulation, Serials Control, Articles Indexing, Budgets Controls, and OPAC, etc. The software provides built-in web OPAC interface to publish the library catalogue over the Internet.

Challenges in Implementing New Technologies

Libraries are placed where an endless supply of information is generated and any person can access it regardless of time and space. The rapid advancement of Information technology has transformed the way for learning and reading in libraries. But the successful process of implementing new technologies has several issues and challenges. There are some challenges in implementing new technologies are as below:

- **Lack of Fund Resources**

The most fundamental hurdle for implementing new technologies in the library is to obtain the necessary funds. The cost of setting up new technologies is beyond the reach of most organizations and institutions. To implement innovative technology in the library requires a sound financial aid for purchasing of hardware, software and other associated peripherals of ICT.

- **Lack of Technology Resources**

Insufficient awareness of current technology like hardware, software issues is the primary challenge in adopting current technologies in the library. The application software to be selected must be assessed to determine its scope and capacity that will be suitable to achieve library goal.

- **Lack of Proficient Manpower**

The implementation of new and advanced technologies in the libraries requires competent staffs with different ICT skills. The most important reason for successful implementation of ICT is the level of competence of the staff working knowledge of ICT skills for library professionals for handling various library functions to make full use of this potential for handling various library functions. To make full use of this potential in library management it is essential that should have adequate professionals who have thorough knowledge of ICT.

- **Inadequate Technological Infrastructure:**

To support the integration of ICTs in libraries, always libraries are facing challenges in technological infrastructure. This refers to issues such as lack of national ICT policy, low internet connectivity, inadequate no of PCs and inadequate supply of electricity, etc.

Conclusion:

The present scenario of the world's libraries is shifting very fast by ICT based products & services. The most important objective of libraries is to organize and provide access to information, and it remains the same although the format and methods have changed drastically. New technology has provided great opportunities for delivery of services within consortia. More and more libraries must unite, which of course requires a change in the attitudes, practices, and policies to get the maximum benefit. Users have to be carried out with the aid of technological advancement to compete in the fast-growing environment. The library movement in India is rapidly increasing and the traditional libraries are now on their way to digitization in a phased manner. In a developing country like India where resources are limited, funds are inadequate; the library professionals have to take careful and judicious decisions in selecting library materials.

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#11

EFFECTS OF USING MOBILE PHONES IN ACCESSING INFORMATION: A STUDY OF NATIONAL INSTITUTE OF ELECTRONICS & INFORMATION TECHNOLOGY(NIELIT), AIZAWL

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Introduction:

Advancement in technological innovations has led to easy communication and dissemination of information within a very short period of time. Mobile phones have now become one of the most important parts of human life. J. Roschelle as cited by Jairus, et.al (2017) stated that "There are various educational benefits of mobile phone technologies that are the most often cited as; easily accessing content, integrating a broad range of educational activities, supporting independent study and student organization, encouraging student enthusiasm, supporting classroom-based collaboration and interactions as well as supporting inquiry-based instruction and learning". The advancement in communication technology, like web 2.0 has drastically changed in transforming the impact and patterns of communications. The evolution of hand-held portable devices and wireless technologies have resulted in radical changes in the social and economic lifestyle of modern people. Vyas & Nirban (2014) stated that "an equally significant intrusion of computers and internet has been seen in the education area, educators have started looking at ways to use this technology to enhance the learning experience. After the initial impact of computers and their applications in education, the introduction of e-learning and m-learning epitomized the constant transformations occurring in education".

Webopedia defines mobile phone as, "An electronic telecommunications device, often referred to as a cellular phone or cell phone. Mobile phones connect to a wireless communications network through radio wave or satellite transmissions." O'Malley, et al, as cited by Rodríguez-Arancón, Pilar, et al. (2013) defines mobile learning as "learning that happens when students are not on fixed location or learning that happens when students use learning possibilities of mobile technologies". Another definition describes m-learning as "learning through different contexts, through social and content interaction using personal electronic devices. The context in this definition means learning that is formal, self-directed and spontaneous". (Kljunic & Vukovac, 2015). Mobile devices have already made a significant impact on services like banking, tourism, health, and agriculture. According to Khare (2009), Mobile technology has now come up with "Libraries in Hand" trend where the librarians need to communicate with the users for accessing information and must provide

web content in the most appropriate and effective ways. "Accessing information at any time or anywhere on one's own handheld device is not only the objective of mobile technology but also the main objective of a library. The libraries should promote their services like e-books, journals, multimedia content, etc by offering mobile access to their website and online public access catalogue". (Devi & Verma, 2016).

Overview of NIELIT:

National Institute of Electronics and Information Technology (NIELIT) formerly known as DOEACC Centre, Aizawl was established in the year 2001 and located at Industrial Estate, Zuangtui, Aizawl, the northern part of the capital city of Mizoram. Extension Centre at Pukpui, Lunglei was also established in the year 2013 and trained over 785 students since its inception. The institution library has a collection of more than 8000 volumes of relevant books on electronics and computer, communication in English, etc, for the benefits of both the students and faculty. Twenty-two (22) numbers of related journals and magazines were subscribed regularly along with eight (8) numbers of national and local newspapers. The library is computerized using in-house developed software. The Centre subscribes online IEEE Xplore digital library for free access by the students and faculty. The institute has an elaborate computing facility accessible to the students. There is a number of state of the art computer laboratory for use by the students and scholars. Apart from a large number of PC's, it has a campus LAN connection. The courses include Non-formal courses, Formal courses (MCA, BCA, DETE, DCSE) and Short-term courses (CCC, Multimedia).

Review of Literature:

Kihwele & Bali (2013) conducted a study on perceptions of teachers, parents, and students on the effects of mobile phone used by students learning in Tanzania. The study was conducted in four selected secondary schools in Dodoma municipality. Questionnaire method, schedule interview, and documentary review were used for collecting data. The study of the findings shows that parents and teachers agree that students with mobile phones perform poorly and misbehave more often than students without mobile phones.

Foti & Mendez (2014) conducted a study on "How students use mobile devices to support learning". The purpose of the study is to investigate whether mobile devices are currently used to enhance or support learning in a graduate level occupational therapy program in order to facilitate students' achievement. Questionnaire method was used for collecting data. The findings of the study revealed that students are using their mobile devices to enhance learning outside the classroom.

Rabiu, et al. (2016) conducted a study on the impact of mobile phone usage on academic performance among secondary school students in Taraba state, Nigeria. Questionnaire method was used to collect data. The findings of the study revealed that mobile phone usage significantly influence academic performance among male and female senior secondary school students and the age difference was not a significant factor in mobile phone usage on academic performance.

Mwilima & Hangula (2017) conducted a study on the effects of cell phone use on academic performance in tertiary education. An interview method was used to collect data and questionnaire to collect quantitative data from the respondents. The study used non-

probability sampling to ensure the equity and equality aspects during data collection. The findings of the study revealed that more than half of the respondents agree that if the cell phone is used appropriately it can add value to academic work while less than half of the respondents disagree. Iqbal, Khan & Malik (2017) studied mobile phone usage and students perceptions towards m-learning of undergraduate students in Pakistan. The objective of the study is investigating m-learning potential among university students and their perceptions of this emerging learning technology. SPSS software is used for data analysis. The results of the study show that most of the students have a positive attitude towards m-learning and the perceptions of arts and engineering students were found different from those of medical and business students.

The significance of Study and Scope:

The mobile phone plays a significant role in everyday life among teenagers and adults. The smartphone occupies a significant role particularly among teenagers and youths for various reasons. Students of different streams used it for academic purpose as well as societal information. It is assumed that most of the students are using smartphone occupying their daily life and activities in certain ways. It is very reasonable to study effects of mobiles phones to the students who have taken professional courses and attending a class every day.

At the same time, this study is limited to the students of NIELIT, Aizawl who are in their youth stage preparing for the future. There are two courses in this institute and both are taken up for the study.

Objectives of the Study:

1) To find out the mobile phone usage on academic performance among the students of NIELIT in Aizawl;

2) To find out the negative and positive effects in using a mobile phone by the students of NIELIT in Aizawl;

3) To identify the purpose of using a mobile phone by the students of NIELIT in Aizawl;

4) To know the problems faced by the students in using a mobile phone.

Methodology:

The present study was conducted to know the effects of using mobile phones in accessing information from the students of NIELIT, Aizawl. Random sampling techniques have been used for the study among the BCA and MCA Students. A detailed questionnaire has been prepared on the basis of the objectives drawn for the study of NIELIT, Aizawl. The collected data were tabulated and interpreted by using MS Excel to draw the research results.

Data Analysis:

On the basis of the responses received from the respondents, the collected data were tabulated and analyzed with the help of relevant statistical tools. A structured questionnaire is used for collecting data from the respondent. A structured questionnaire of 75 each, totaling 150 was distributed to the students of Bachelor of Computer Application (BCA) and

Master of Computer Application (MCA) who are studying in NEILIT, Aizawl were 72(51%) and 69(49%) duly filled in questionnaires were received respectively constituting 94%. Among the respondents, 97(69%) were male and total of 44(31%), female respondents. The age of respondents was grouped into three categories, and 14 (10%) respondents are under 20 years of age, 69(63%) respondents between 20-25 years for age and 38(27%) respondents are above 25 years of age.

Brand of Mobile Phone Used by the Respondents:
      Mobile phones have different brands with different specification. The following Table 1 shows the brand names of mobile phones used by the students of NIELIT. It is observed from the study that there are 10 different types of brands used by the students among both the category BCA and MCA. Samsung is the most common brand used by the respondents with 33 students constituting 23.40% followed by Vivo 23 and Oppo 23 with a percentage of 16.31 each. 17 students used Gionee with 12.05% and only 3 students with 2.12% used Apple phone. 10(7.09%) students used Xiaome and some of the students used Honor, Asus, Lenovo, and HTC.

Table 1: Brand name of mobile phone used by respondents

Brand Names	BCA	MCA	Total
Samsung	18 (25%)	15 (21.73%)	33(23.40%)
Apple	2 (2.77%)	1 (1.44%)	3(2.12%)
Vivo	14 (19.44%)	9 (13.04%)	23(16.31%)
OPPO	12 (16.66%)	11 (15.94%)	23(16.31%)
Gionee	9 (12.5%)	8 (11.59%)	17(12.05%)
Xiaome	7 (9.72%)	3 (4.34%)	10(7.09%)
Honor	5 (6.94%)	7 (10.14%)	12(8.51%)
Asus	4 (5.55%)	6 (8.69%)	10(7.09%)
Lenovo	-	5 (7.24%)	5(3.54%)
HTC	1 (1.38%)	4 (5.79%)	5(3.54%)
Total	**72 (100%)**	**69 (100%)**	**141(100%)**

(Source: Survey Data)

Purpose of Using Mobile Phones:
      It has been observed from the study that table 2 shows that most of the respondents from both the category (BCA & MCA) have more than one purpose for using a mobile phone. All of the respondents with 141(100%) used a mobile phone for sending a text message and for making phone calls, followed by browsing the internet and listening to music by 124 students which form 87.94% each. Further, 69 students with 48.93% frequently used a mobile phone for playing games and 60 students with 42.55% used a mobile phone for accessing information. It is also observed that 37(26.24%) use a mobile phone for sending photos/videos and 28(19.85%) respondents used a mobile phone for getting a news update and very few respondents 19(13.47%) use it for checking e-mails.

Table 2: Purpose of using mobile phones

Purpose	BCA (N=72)	MCA (N=69)
Sending Text Message	72 (100%)	69 (100%)

Sending Photos/Videos	21 (29.16%)	16 (23.18%)
Playing Games	27 (37.5%)	42 (60.86%)
Browsing Internet	67 (93.05%)	57 (82.60%)
Getting News Update	14 (19.44%)	14 (20.28%)
To make Phone Calls	72 (100%)	69 (100%)
Listening Music	68 (94.44%)	56 (81.15%)
Checking e-mails	12 (16.66%)	7 (10.14%)
To access Information	32 (44.44%)	28 (40.57%)

(*Source: Survey Data)*

Reasons for Using Mobile Phones:

There may be different reasons for using a mobile phone which may be differing from person to person. It has been observed from the study that from both the category (BCA & MCA) majority of the respondents 65(46.09%) use mobile phone to keep in touch with friends/family and most of the respondents 57(40.42%) used it for accessing information and a very few respondents with 19(13.47%) used it for personal safety. This is reflected in Figure 1 below:
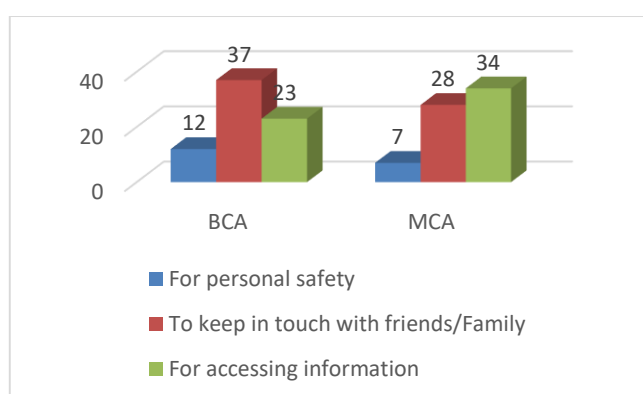
Figure 1: Reason for using a mobile phone

Benefits of Using Internet on Mobile Phone:

Figure 2 shows the benefits of using the internet on a mobile phone. The present study reveals that majority of the respondents 79(56.02%) has the benefit of using the mobile phone which is accessible everywhere and 34(24.11%) respondents have the benefits to use online utilities everywhere. Only a few respondents 28(19.85%) has the benefit in using the mobile phone which they can search for information that is needed urgently.
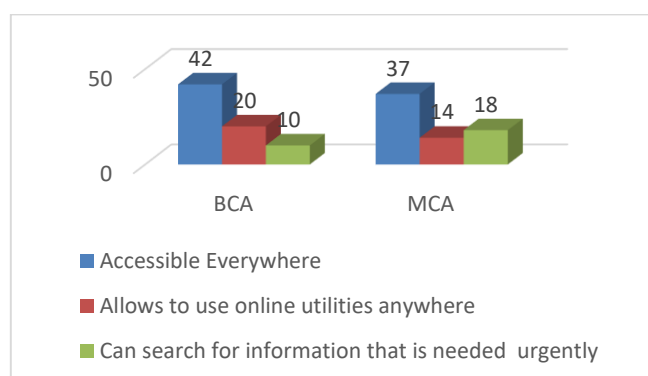
Figure 2: Benefits of using the internet on a mobile phone

Impact of Mobile Phone Usage on Academic Performance:

Table 3 shows the impact of mobile phone usage on academic performance. The study revealed that majority of the respondents 81(57.44%) has a positive effect on the use of mobile phone which they share materials for assignments and projects works. 27 (19.14%) respondents have an impact on accessing academic resources and 19 (13.47%) respondents have an impact on learners to learn independently. Only very few respondents with 14(9.92%) students have a positive effect on reading e-books, e-journals through a mobile phone.

Table 3: Impact of mobile phone usage on academic performance

Activities	BCA	MCA	Total
Reading e-books, e-journals	8 (11.11%)	6 (8.69%)	14(9.92%)
Learners to learn independently	12 (16.66%)	7 (10.14%)	19(13.47%)
Sharing materials for assignments & project works	38 (52.77%)	43 (62.31%)	81(57.44%)
Accessing academic resources	14 (19.44%)	13 (18.84%)	27(19.14%)
Total	**72 (100)**	**69 (100%)**	**141(100%)**

(Source: Survey Data)

Problems in Using Mobile Phone for Academic Resources:

Table 4 depicts the problems in using a mobile phone for academic performance and the present study reveals that majority of the respondents 85(60.28%) has the problem regarding lack of awareness about using the resources through a mobile phone. It is also observed that 41(29.07%) students have problems regarding unfamiliar with resources available for academic performance and 12(8.51%) respondents have a problem regarding lack of time. Only 3(2.12%) respondents from BCA category have a problem regarding the technical problem in using it for academic performance.

Table 4: Problems in using a mobile phone for academic performance

Problems	BCA	MCA	Total
Unfamiliar with resources available	22(30.55%)	19(27.53%)	41(29.07%)
Technical problems	3(4.16%)	-	3(2.12%)

Lack of awareness about using the resources	42(58.33%)	43(62.31%)	85(60.28%)
Lack of Time	5(6.94%)	7(10.14%)	12(8.51%)
Total	72 (100%)	69(100%)	141(100%)

(Source: Survey Data)

Needed for Special Training in the Use of Mobile Phone for Academic Activities:

Figure 3 shows the opinion about the need for special training in the use of mobile phone for academic activities and has been observed from the study that most of all the respondents 128(91%) has the opinion regarding the need for special training and only 13(9%) does not think that special training is needed in the use of mobile phone for academic activities.

Findings of the Study:

The major findings of the study are as follows:

1. It is observed from the study that the male respondents are more than the female respondents, whereas the majority of the respondents are between 20-25 age group and only 10% of respondents are below 20 age group.
2. It is observed from the present study that 10 different types of brands are used by the students of NIELIT and Samsung is the most commonly used mobile phone followed by Vivo, Oppo, Gionee, etc.
3. It is observed from the study that the students use the mobile phone for a different purpose and most of the students of NIELIT have more than one purpose in using a mobile phone. Sending a text message and for making phone calls are the main purpose of using a mobile phone by the students of NIELIT and majority of the students have the same purpose as browsing the internet and listening music (87.94%).
4. It is observed from the study that the students use a mobile phone for various reasons and the majority of the students (46.09%) used a mobile phone to keep in touch with friends/family and a few students (13.47%) used it for personal safety.
5. It is observed from the study that the students of NIELIT has the benefit in using the internet on mobile phone and the most common benefit in the use of internet through mobile phone by the students (56.02%) is that it is accessible everywhere.
6. It is observed from the present study that the use of the mobile phone by the students have positive effects that the majority of the students (57.44%) used it for sharing material for assignments and project work.
7. It is observed from the study that majority of the students have problems in using a mobile phone for academic performance regarding lack of awareness about using the resources and students with 29.07% have a problem regarding unfamiliar with resources available. Majority of the students have an opinion regarding having special training in the use of the mobile phone for academic activities.

Conclusion:

In today's digital environment, the use of electronic applications has become extremely popular among the students as well as professional people. Students use

electronic media for sharing different types of activities and also for interactions even with teachers related to their academic activities. The use of electronic applications may have positive and negative effects upon the students, but in the present environment, electronic applications become the most important part for communication and sharing ideas, thoughts and also for skills development. So, it is highly recommended that an orientation programme must be conducted for the use of the mobile phone for academic activities like class related subjects rather than entertainment. The library must also come up with the idea of library application for a mobile phone where the students can access the library material at any time and should also provide the facilities and services which will be easily accessible through mobile phone and thus will attract the students in the use of the mobile phone for their academic-related activities.

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#12

LIBRARY WEBSITE OF CENTRAL UNIVERSITIES IN INDIA: AN EVALUATIVE STUDY

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Rudra Narayan

Introduction

The role of the internet transforms from a repository of data into a repository of services. Web service is a programmable web application that is universally accessible over standard internet protocols. It literally puts a world of information and a prospective worldwide audience at fingertips. Similarly, the library website continues to evolve as a gateway for providing web-based library services to the students, researchers and faculty members. The aim of the library website is to provide required features such as usability, functionality, reliability, and efficiency. The library websites should include quality information for students and researchers who are always looking for quality, not quantity. The major characteristics of any website are the quality of information it contains in order to satisfy the user community. Most importantly that information contains in the website should be relevant to the purpose of the website.

Statement of Problem

The review of literature for library websites evaluation shows that there are wide variations in the status of the various library websites. Some universities are at the very advanced stage of library websites design while most of the universities are very much lagging behind their goal of full and effective content management. One of the most serious and extensive objections against the information found on the library websites is that the quality in terms of unreliable and incomplete. Moreover, research in the field of evaluation issues in the Indian scenario is comparatively very less.

Significance of the Study

Websites are most essential for information dissemination in this technological era. Websites not only disseminate the information pertained to the organization but also to their related resources. One of the major causes for the success of any organization is its websites. University library websites provide information about its collections, e-resources, technical services, link to e-resources and other value-added services. A good and well-designed library website is not only an excellent media for publishing the activities and services but also helps to bring it to the notice of users about all the significant information which they must know in using their products and services. The literature showed that various criteria have been applied earlier to evaluate the websites. The result of the study will facilitate website designers to enhance the quality of their website contents. The web designers will link the resources, which resources are more preferable by the user's point of view with proper navigational aid.

Review of Literature

Studies on evaluation of library website have taken in many ways; still, there is a necessity of more studies on usability and credibility aspects of library websites. Some of the reviews of related studies have accumulated to conceive a comprehensive idea on the subject and justify the need for the present study.

Nielsen and Tahir (2002) added that an institution's webpage is its virtual face to the world, its house's hall, and the institute receptionist. It is like an ambassador of an organization which is responsible for interaction with the external world, and this interaction can only be meaningful if the website is designed and furnished with sophisticated features, however, these features are of no value if the online users fail to find the required information or required goals.

McKinney, Yoon, and Zahedi (2002) made an evaluation of retrieved information which is dependent on the basic elements of a website. Web evaluation studies indicate that elements of a website like the amount of text, graphics, animations, clear hyperlinks, proper navigation, and consistency of web pages determine important user outcomes such as web-information and web-system quality. Bhattacharjee (2006) narrated that some organizations and institutions designing and developing their own library websites. It has been observed that despite the effort made by the in-house expert or outside agency, most of the library websites are not updated regularly. At the same time, the contents and information available on the library websites are also not up to the mark. Chandran and Ramesh Babu (2008) discussed the need for web resources evaluation and different criteria to evaluate web resources, such as accuracy, authority, currency, coverage and so on. Mohamed and Anjana Venugopal (2010) have made the study of content analysis of the websites of the national libraries in Asia by concluding further development in the information input and design of the websites. Joo, Lin, and Lu (2011) developed a usability evaluation model and a practical survey tool crafted for academic libraries based on literature review and expert consultation. Again the usability evaluation model verified by the reliability and validity issues using the survey data from the actual users. Descriptive statistics, internal consistency test, and factor analysis have been applied to ensure the reliability and validity points of the usability evaluation tool. From the document analysis and expert consultation, this study acknowledged eighteen measurement items to survey the three constructs of the usability, effectiveness, efficiency, and learnability, in academic library websites.Pant (2015) evaluated the usability of the website of the Central Science Library (CSL), University of Delhi. In this research Multi-method approach of evaluation is used by means of the use of the standard checklist and a questionnaire survey of representative users. The questionnaire survey was conducted through random sampling. The results of both methods (standard checklist and questionnaire survey) were analyzed for evaluating the website usability further the results suggested that, improvement of the website was realized in terms of efficiency, effectiveness, and learnability for better usability.

The review of the related literature concludes that most of the studies are related to the website content, website design, and website navigation. Some of the studies are concentrated on the user interface design and website satisfaction which are the essential factors required to create a user-centered website.

Objective of The Study

The main objective of this study is to analyze the patterns of information available on the library website of central universities in India.

The other objectives of the study are as follows:

1. To investigate the general information available in the library websites, services, facilities, links to other resources and websites aids & tools.
2. To collect information based on the structure and contents available in the library websites.
3. To study the current status and integration of contemporary web technology for library-related activities.
4. To suggest measures for the development of library websites with effectiveness, efficiency, navigation, quality contents, and reliability.

Scope and Limitation

This study covers the entire library websites of central universities established in India, headed by the Ministry of Human Resource and Development (MHRD), Government of India. The Study attempts to understand the pattern of the library websites and assertion the quality factors of 41 central university library websites, which comes under the purview of MHRD.

Methodology

There are 903 universities in India (As per AISHE Report, MHRD, Govt. of India, 2017-18) comprising of different status and governed by State Governments, Government of India, and private authorities. Apart from this, there are 47 universities categorized as Central Universities of which 41 come under the Ministry of Human Resource and Development (MHRD), Government of India. This study includes all the library websites of central universities, which comes under the purview of Ministry of MHRD, GoI. The Central Library of Mahatma Gandhi Central University (MGCU) doesn't have a proper website, due to this reason the same has excluded from the proposed study. Evaluation checklists were developed based on the guidelines suggested in previous studies and research (Nielsen & Tahir, 2002) and (Bhattacharjee, 2006). There are 44 checklist criteria were included and grouped into different sub-sections. The features of each sub-sections matched with each other to avoid duplicate attributes. The analysis was presented in tables and graphs.

The subsections are as follows;

- Library General Information
- Accessibility and Navigation
- Library Collections
- Access to E-Resources
- Link to E-Resources

- Use of Web 2.0 Tools

Table 1. List of the Central University libraries in India

Sl. No.	Name of the University	Library Website URL
1.	Aligarh Muslim University	https://www.amu.ac.in/malibrary/
2.	Assam University	http://libraryopac.aus.ac.in/
3.	Babasaheb Bhimrao Ambedkar University, Lucknow	http://14.139.228.238/
4.	Banaras Hindu University	http://www.bhu.ac.in/bhulibrary/
5.	Central University of Bihar	http://www.cusb.ac.in/index.php/2016-07-01-04-53-58/2016-03-09-15-31-33/central-library
6.	Central University of Gujarat	http://library.cug.ac.in/
7.	Central University of Haryana	http://cuh.ac.in/library.aspx
8.	Central University of Himachal Pradesh	http://www.cuhimachal.ac.in/library.aspx
9.	Central University of Jammu	http://www.cujammu.ac.in//Default.aspx?option=article&type=single&id=35&mnuid=738&prvtyp=site
10.	Central University of Jharkhand	http://172.16.1.36:8380/liberty/libraryHome.do
11.	Central University of Karnataka	http://cuklibrary.ac.in/
12.	Central University of Kashmir	https://www.cukashmir.ac.in/displaydepartment.aspx?sid=74&did=36&pag=494
13.	Central University of Kerala	http://14.139.185.134/library/
14.	Central University of Orissa	http://library.cuo.ac.in/
15.	Central University of Punjab	http://www.cup.edu.in/library.php
16.	Central University of Rajasthan	http://www.curaj.ac.in/Default.aspx?PageId=90
17.	Central University of Tamil Nadu	http://cutn.ac.in/library/
18.	Dr. Harisingh Gour Vishwavidyalaya	http://dhsgsu.ac.in/departmentdetails/110
19.	Guru Ghasidas Vishwavidyalaya	http://www.ggu.ac.in/facility_central%20library.html
20.	Hemwati Nandan Bahuguna Garwal University	http://www.hnbgu.ac.in/forms/contentpage.aspx?lid=226
21.	Indira Gandhi National Open University (IGNOU)	http://www.ignou.ac.in/ignou/aboutignou/division/ldd/introduction
22.	Indira Gandhi National Tribal University	http://igntu.ac.in/clib.htm
23.	Jamia Millia Islamia	http://jmi.ac.in/studyatjamia/library/zhl/introduction

24.	Jawaharlal Nehru University	http://lib.jnu.ac.in/
25.	Mahatma Gandhi Antarrashtriya Hindi Vishwavidyalaya	http://www.hindivishwa.org/contentdtl.aspx?category=13&cgid=34
26.	Manipur University	http://manipuruniv.ac.in/p/library-3
27.	Maulana Azad National Urdu University	http://www.manuu.ac.in/Eng-Php/central_library.php
28.	Mizoram University	http://www.mzu.edu.in/index.php/facilities/central-library
29.	Nagaland University	http://nagalanduniversity.ac.in/English//Library/build/Lumami.html
30.	North Eastern Hill University	http://www.nehu.ac.in/library/
31.	Pondicherry University	http://lib.pondiuni.edu.in/
32.	Rajiv Gandhi University	http://www.rgu.ac.in/ext_uploads/library/
33.	Sikkim University	http://library.cus.ac.in/
34.	Tezpur University	http://www.tezu.ernet.in/Library/
35.	The English And Foreign Languages University	http://www.efluniversity.ac.in/ramesh_library.php
36.	Tripura University	http://www.tripurauniv.in/index.php/general-information
37.	University of Allahabad	http://allduniv.ac.in/home/pages/638
38.	University of Delhi	http://crl.du.ac.in/
39.	University of Hyderabad	http://igmlnet.uohyd.ac.in:8000/
40.	Visva Bharati	http://14.139.211.2/library/index.php

Data Analysis

Library General Information

Table 2 shows the general information available on library websites. The various aspects of library general information are library services, library introductions, library collections, library working hours, etc. There are 14 major items were included in this subsection. The study revealed that most of the libraries provide information on library services. The other important features of general information like library introduction, library collections, library hours, membership, and library rules and staff directory are 98%, 93%, 90%, 83%, 78%, and 75% respectively of the websites. Information on the annual report of the libraries (10%) is the lowest response found while analyzing the websites. However, information regarding different sections (48%), library location (43%), mission and vision statement (38%), library floor details (35%), news and events (33%) and library committee (28%) also provided in the website.

Table 2. Library General Information

Sl. No.	Items	Frequency	%	
1.	Library Services	40	100%	
2.	Library Introduction	39	98%	

3.	Library Collections	37	93%	
4.	Library hours	36	90%	
5.	Membership	33	83%	
6.	Library rules	31	78%	
7.	Staff Directory	30	75%	
8.	Different Sections	19	48%	
9.	Library Locations	17	43%	
10.	Mission and Vision	15	38%	
11.	Library floor details	14	35%	
12.	News & Events	13	33%	
13.	Library Committee	11	28%	
14.	Annual Reports	4	10%	n=40

Accessibility and Navigation

Accessibility of any website is very important, in the present study a link on the parent organization's homepage under the title "Library/Central Library" was found in all the websites (100%) and 95% library websites have a home link in every web pages. However, it is observed 90% of the library web pages loaded in the websites within ten seconds. 58% library website have the presence of broken or dead links, 55% websites have the relevance of content with page title and only 15% websites show "under construction".

Table 3. Accessibility and Navigation

Sl. No.	Items	Frequency	%	
1	Links to institutional home page	40	100%	
2	Home link in every web page	38	95%	
3	Page loading within 10 seconds	36	90%	
4	Presence of broken links	23	58%	
6	The relevance of content with the page title	22	55%	
5	Under Construction pages	6	15%	n=40

Library Collections

Library collections are an important part of the library. Therefore it is essential that every library website must place the information of the collection available in the library such as books, journals, newspaper, magazines, thesis, dissertation, CD, DVDs, and audio-visual materials, etc. Table 4 shows the information regarding the collection details of the library available in the central university library websites of India.

Table 4. Information about Library Collections

Sl. No.	Items	Frequency	%	
1	Books	40	100%	

2	Journals, Newspapers & Magazine	39	98%	
3	Thesis & Dissertation	32	80%	
4	CD/DVDs	20	50%	
5	Audio / Video Materials	9	23%	
6	Manuscripts	4	10%	
7	Maps	1	3%	n=40

The data revealed that about most of the library websites provides information on their collection pertain to books, journals, newspaper, magazines, thesis, and dissertations. It also observed that 50% of libraries are providing information on CD & DVD collections, while 23% of libraries provided information on audiovisual collections.

Access to E-Resources

Electronic resources (or e-resources) are the resources in digital format available electronically. Examples of e-resources are Online Public Access Catalogue (OPAC), Web-OPAC, Open Access (OA) Resources, Institutional Digital Repository, and Remote Access Facility, etc. The data on access to e-resources is presented in Table 5.

Table 5. E-Resources Collections

Sl. No.	Items	Frequency	%	
1.	Access to e-resources	40	100%	
2.	OPAC /Web-OPAC	39	98%	
3.	Access to OA Resources / Databases	36	90%	
4.	Access to IDR	24	60%	
5.	Remote Access Facility	14	35%	n=40

The data shows that all forty central university library websites facilitate access to e-resources. While 98% of library websites have OPAC and Web-OPAC facilities and 90% of library websites have the provision to access to open access resources. Institutional Digital Repository (IDR) has a presence in 60% of the library websites. The remote access facility to the users is being provided in 35% library websites.

Links to E-Resources

Links to electronic sources is an important aspect of any educational web site. These sources facilitate access to dedicated subscribed databases essential for the online users of the library. In the case of subscribed sources, generally, links are provided with limitations of in-campus access or passwords protected. From the data analysis, it has been observed that 93% of library websites have links to e-books and 88% of library websites have a link to other educational databases as well as consortium. The details of the results are shown in Table 6.

Table 6. Links to E-Resources

Rank	Items	Frequency	%	
1.	Links to E-Books	27	93%	
2.	Links to educational database	35	88%	
3.	Links to consortium	35	88%	

4.	Links to search engines	21	53%	
5.	Links to reference tools	10	25%	n=40

Use of Web 2.0 Tools

Web 2.0 technologies being used in the libraries include Instant Messaging (IM), Wikis, Blog, RSS (Really Simple Syndication) Feeds, Media Streaming (Podcast / Vodcast), Social Networking Sites (SNS) and Video Sharing.

Table 7. Use of Web 2.0 Tools

Sl. No	Items	Frequency	%	
1.	Wikis	20	50%	
2.	SNS	18	45%	
3.	Video Sharing	17	43%	
4.	Blog	9	23%	
5.	Media Streaming	3	8%	
6.	News Feeds / RSS	2	5%	
7.	IM	1	3%	n=40

As shown in Table 7, among 40 library websites of the central universities in India Wikis are used only by 50% of central university libraries in India. However, SNS found in 45% of the university library websites. Video Sharing and Blog have their presence in 43% and 23% of the central university library websites. The other web 2.0 utility tools like Media streaming, RSS feeds, IM are used in 8%, 5%, and 3% respectively.

Findings and Conclusion

The present study shows that most of the central university library websites provide basic information but in terms of value-added strategic information the library authority need to share in their websites for the user community. Accessibility and navigation aid in the websites plays an important role to retrieve desired information by the users. In this study, it observed that some library websites have broken links and under construction pages, which affects the level of user satisfaction. In the ideal library system collection of documents to be informed properly to all the users, the study reveals that there is a lack of effort towards providing the status of non-book materials in the websites. In the present day, accessibility is one of a major factor in providing prompt information services, as per the data 14 of the 40 central university library websites provide remote access facility. In terms of adoption of Web 2.0 technology, the central university library authority should act proactively to incorporate more Web 2.0 tools on their websites.

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#13

E-RESOURCES AND ITS IMPACT IN THE NEW INFORMATION AGE

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Introduction

The term "library" is defined by Encyclopaedia Britannica Online as "traditionally, collection of books used for reading or study, or the building or room in which such a collection is kept".

Electronic resources: the concept

It adds that "rapid developments in computers, telecommunications, and other technologies have made it possible to store and retrieve information in many different forms and from any place with a computer and a network connection. The term digital library and virtual library have begun to be used to refer to the vast collections of information to which people gain access over the internet, satellite television or some other type remote electronic connection". Electronic resources are regarded as the mines of information that are explored through modern ICT devices, refined and redesigned and more often stored in the cyberspace in the most concrete and compact form and can be accessed simultaneously from infinite points by a great number of audiences. The phrase "electronic resources", has broadly been defined as, information accessed by a computer may be useful as bibliographic guides to potential sources but, as of yet, they infrequently appear as cited references in their own right (Graham, 2003, pp. 18-24). Moreover, e-resources refer to that kind of documents in digital formats which are made available to library users through a computer-based information retrieval system. The Internet is said to be the right and most extensively used channel to catch hold of the majority of e-resources through different search engines (e.g. Google, AltaVista, Msn, Yahoo, etc. etc.) and Webopac and, of course, some offline databases in CD/DVD formats that can even be accessed without the help of internet. Therefore, it is perceptible that electronic resources include online databases, sources from web pages, e-journal articles, electronic personal papers, e-mail messages, newsgroup postings, newsletters, government publications, electronic theses and dissertations, e-newspapers, CDs/DVDs, and things of similar sorts.

The electronic resources are systems in which information is stored electrically and made accessible through electronic systems in which information is stored electrically and made accessible through electronic and computer network. These resources include online public access catalogue (OPAC), CD-ROMS, (Compact Disc-Read Only Memory), Online-databases, e-journals, e-books, internet resources, etc. Multiple accesses speed, richer in content, reuse, timeliness, anywhere access is some of the features of e-resources (Prangya and Rabinda, 2013).

According to Adomi (2005), the nation's poor telecommunication infrastructure has been a subject of debate to researchers and higher institutions. In the factor of poor telecoms

infrastructure poor skill in navigating electronic resources, cost and restricted access to electronic information resources by postgraduate students in Nigeria. Prangya and Rabindra (2013) found that lack of training; poor infrastructure and high cost of usage are the obstacles to proper and full utilization of electronic resources.

New technology makes demands on the skills of library users. According to Douglas (1999), information literacy skills and computer literacy skills have evolved into the same skill set: navigating a graphical environment, Internet applications, word processing, spreadsheets, database searches, and presentation software. Using a mouse, navigating screens, printing results and understanding enough file management to print or save a resource also are key skills. Both users and librarians now need to understand and be able to deal with software crashes, cutting, pasting, setting preferences, changing display formats, preparing data for printing, e-mail transmission, or saving to an external storage medium, as well as have a basic familiarity with Internet browsers (Krissoff & Konrad, 1998). Further, users will always need to apply abilities in identifying search syntax, an order of operations with Boolean operators, subject scope and content, dates of coverage, and database record structure. Kristoff and Konrad concluded, however, that not all library users are able to do these things and as a result, their library experiences suffer. Furthermore, technology has changed "the entire concept of libraries from 'holding' to 'access'" (Khalid, 2000, p.179). The result has been a dynamic new concept and technical category referred to as "information technology" (Alqudsi-Ghabra, 1999, p. 145). Today, libraries can revolutionize their user services, technical processing, and sharing of resources through technology (Khalid, 1997). This is possible due to factors such as huge growth in information, rapid computing services development, and increasingly sophisticated online equipment. Lower costs for computer hardware and communication services further contribute to technology-driven improvements at libraries. Finally, user communities are creating greater and greater demands on technology. "The widespread application of new technological tools such as electronic and telecommunications equipment and remote databases also encourages libraries to use technology in their activities" (Khalid, 2000 p. 179).

The umbrella term "information technology" encompasses certain concepts and trends that have been manifested globally in academic libraries in recent years. First is the "paradigm shift from ownership to access" (Alqudsi-Ghabra, 1999). Increasing library costs and decreasing budgets have made limits on ownership more acceptable, especially as improvements in information technology encourage access over ownership (Kane, 1997). The second factor is the drive for access to, and prompt transmission of, knowledge and information. Increasingly, libraries will spend less on collection development and more on document delivery services (Dybkjaer, 1997).

Furthermore, the universal nature of information technology has created widespread ideas regarding democratization of information, which Dybkjaer (1997) defines as "the right and opportunity for everyone to access information and knowledge of how to use it" (p.343). Nevertheless, there are still access issues. For example, when libraries move toward access instead of ownership, they give up the power that ownership had given them in the past. Now others own the information and can charge for subscription and manipulate prices. Furthermore, electronic information subscription costs are high and show no tendency yet of decreasing. These are the issues that all eight university libraries in Saudi Arabia share

with those nations which have been fortunate enough to have the resources to develop information technology in a local context.

The Anglo-American Catalogue Rule Two (AACR2) defines e-resources as materials consisting of data and/or computer programme(s) encoded for reading and manipulation by a computer by the use of a peripheral device directly or remotely connected to the computer or via a network such as an internet (Reitz, 2005). In addition, Deng (2010) listed examples of e-resources as; databases, electronic books (e-books), electronic journals (e-journals), electronic magazines (magazine), electronic newspapers and archives, the rest include e-theses, conference papers, government papers, monographs and research reports in electronic form. E-resources can be used to supplement printed information in university libraries in order to give information seekers the choice to have access to more convenient and reliable information sources to meet their information needs.

Review of Literature

Habiba & Chowdhury (2012) presented an analytic study of the status of electronic resources, facilities, and services provided by the Dhaka University Library (DUL). They discussed the purpose of using e-resources, benefits, subject coverage status, overall user satisfaction, problems that are faced by DUL users while accessing e-resources and perceived impact of e-resources on users. Finally, the paper reported the results from a questionnaire-based survey of e-resources use and its impact on DUL users. Navalur, Balasubramani & Kumar (2012) examined the existence of various E-resources, awareness about E-resources, Preference to E-resources, and Assess Points of E-resources problems faced while accessing the E-resources and purpose of E-resources usage in Bharathidhasan University by teachers, students, and research scholars.Kandpal, Rawat & Vithal (2013) assessed and evaluated the exposure of ICT and the use of e-resources by the students of NTR College of Veterinary Science, Sri Venkateswara Veterinary University, Gannavaram, Andhra Pradesh with a view to know the exposure of ICT and e-resources to the student at their department or library based on a structured questionnaire. The study confirmed that students of Veterinary Sciences are aware of the e-resources and use various types of e-resources, e-database, and e-journals. The study suggested the improvement in the access facilities with high internet speed and subscription of more e-resources for the students. Bhat & Mudhol (2014) presented the findings of a survey about the awareness and use of electronic resources by medical students available in the medical institute libraries. The subjects chosen for this study were 300 faculty members and medical students of the Sher-E-Kashmir Institute of Medical Science (SKIMS), Jammu and Kashmir, India. Chandra, Sankaranarayanan & Nagarajan (2014) attempted to investigate the awareness of e-resources, experience level in using e-resources, time spent on using e-resources, the purpose of using e-resources, use of various online sources and the most preferred place for accessing e-resources by the Associate Professors and Assistant Professors of Arts and Science Colleges in Chennai. Parthasarathy & Kavitha (2014) explained the experience in using E-resources, Adequacy of using e-resources, Preferred Search engine, possible reasons for using E-resources and Satisfaction level of using e-resources by the teachers of Government Colleges in Tiruchirapalli. They found that about 484(42.20%) Male and

207(39.81%) Female respondents fulfilled between 51-75 percent of their information needs and 85(7.41%) Male and 28(5.38%) Female respondents fulfilled less than 10.00 percent of their information needs through Electronic Information Resources. Shukla & Mishra (2011) reported the extent to which research scholars of Institute of Technology, Banaras Hindu University are aware of making use of e-resources to highlight the problems faced by them in accessing e-resources. Their views on the usefulness of e-resources compared to that of print resources and the place from where they prefer to access information. Research scholars prefer e-resources against print resources because of its various good features for their research progress and are looking in the future to have more e-resource access within university campus with better internet connectivity.

Types of e-resources

The academicians frequently used e-resources types are:
- E-journals
- E-books
- Full-text (aggregated) databases
- Indexing and abstracting databases
- Reference databases (biographies, dictionaries, directories, encyclopedias, etc.)
- Numeric and statistical databases
- E-images
- E-audio/visual resources

Methods of accessing e-resources/Online Databases

The following methods provide access to e-journals, e-books, and databases provided by the academic libraries.
- **IP Based Access**: Resources access to the specific range of IP (Internet Protocol Address).
- **Username and Password**: Using by username and password to access the resources.
- **Free Access**: Freely available electronic recourse access via the Web.

E-resources/Online Databases

The academicians commonly accessed online databases/electronic resources are:
- Science Direct
- Web of Science
- IEEE/IEE/IEL Online
- J-Gate
- Springer
- INSIGHT
- NaturePro-Quest Science
- EBSCO Online
- ESDU
- Euromonitor (GMID)
- Wiley Blackwell
- Elsevier

- ACM Digital Library
- AIP/APS Journals
- ASCE Journals Online
- ASME Journals Online
- ASTM Standards + Digital Library
- Capitaline Databases
- CRIS INFAC Industrial Information
- Emerald Management Xtra
- ICE+Thomas Telford
- IEC Standards
- McGraw- Hill's
- Gale Cengage Learning
- RMIT
- OSA: Optics Infobase
- Wiley InterScience
- INSPEC on EI Village
- MathSciNet
- SciFinder Scholar
- SCOPUS

Problems and Opportunities Facing Libraries in India

Library and information services are fundamental to the goals of creating, disseminating, optimally utilizing and preserving and conserving the knowledge. They are instrumental in transforming an unequal society into an egalitarian, progressive knowledge-based society. It is well known that in India most of the libraries function in the government sector. These are in academic and research institutions and under the public library system, which is again under the state and central governments. At present, education being a state subject and coming under the purview of different apex agencies, there is no common direction or coordination among them. It is imperative that all libraries (public, academic, research and special) change gear and develop at an accelerated pace. Developments in information communication technology (ICT) have enabled libraries to provide access to all, and also bridge the gap between the local, the national and the global. Yet the Library and Information Services (LIS) sector in India has not kept pace with the paradigmatic changes taking place in society. There are a few libraries which are using state of art technologies to disseminate knowledge to their respective user community. There is a lack of cooperation among the libraries of different organizations and which cause the lack of union catalogues at the national level. The national library failed even to do this immense task. One of the major problems faced by the LIS sector in India is lack of bibliographic control at national level which causes duplication in research. A considerable number of libraries had not been developed bibliographic databases of their documents for putting them on the network.

To summarize, the major constraints faced by the libraries which militate against effective dissemination and use of information are:

♦ **Illiterate:** A considerable percentage of the population is illiterate or functionally literate making libraries of minimal use to them.

♦ **Insufficient Resource**: Poor resource allocation for infrastructure improvement and collection development for public libraries.

♦ **Lack of Professional Staff**: Lack of sufficient sanctioned posts, forcing most services to be operated by voluntary nonprofessional staff, which damages information organization and services.

♦ **Policy:** Lack of clear national policies promoting ICT as a tool for the development of library systems and services.

♦ **Manpower:** Lack of adequately trained manpower in the use of IT.

♦ **Funds**: Lack of funds for acquiring necessary hardware and software facilities.

♦ **Professional Ethics**: Resistance on the part of library staff to change from their traditional practices to the use of IT.

Technology competencies

- As technology has saturated all levels of library's operations and services, the library professional in an academic institution has to anticipate the changing expectations of users and be flexible in adapting and adopting new skills and levels of awareness. Listed below are some of the basic technology competencies important for an academic librarian.
- Knowledge about relevant developments in information technology like email, internet, and web search strategies.
- Skills in basic computer hardware, troubleshooting, and networking
- Knowledge about software applications and operating systems
- Automation of library services and its management
- Familiar with web tools like blogs, social networking, RSS feeds, etc.

Impact of Information Technology in Library and Information Centres (LICs)

The IT has wide-ranging impact on library and information work. Information activities have undergone rapid transformations from conventional methods, consequent upon the introduction of new technologies. This summarized with the help of a table.

Sl.No.	Information Activity	Conventional Method	New Technology
1	Generate, Originate	Writing, Typing Word Processing, Text editing	Character Recognition, Voice Recognition
2	Preserve, Store Manuscript	Paper-Print Media	Electronic Publishing, Magnetic Storage, Videotext, Tele-text. Computer disk, ROM
3	Process	Classification, Cataloguing, Indexing	Electronic data processing, Artificial intelligence/ Expert systems.
4	Retrieval	Catalogues, Indexes	Information

		Database management system	retrieval off-line, On-line
5	Disseminate/ Communicate	Lists, Bibliographies, Abstracts, Hard Copies	Electronic mail, Electronic document delivery, Computer conferencing, Telefacsimile, View data
6	Destroy	Physical weeding Magnetic erasers,	Optical erasers, re-use the medium

Suggestions

The following are some suggestions to increase the electronic resources usage in academic libraries.

- Need to increase the bandwidth so as to increase the speed of upload/download and without power cut.
- E-Resource access should be open on Saturdays, Sundays and other holidays.
- More computer terminals should be installed in the library for easy access to users.
- There should be made necessary arrangements for resource sharing (by using Wi-Fi Technology) with libraries.
- Allocate the computers for each and every online database in the library, users can access the electronic resources without any interferer to their respective subjects.
- E-Resources users should be taught about advanced search strategies and the use of controlled vocabulary to make the electronic search process much easier.
- IP (Internet Protocol address) based access for online databases is very helpfull to access the campus-wide access and also secure, outsiders cannot able to access the resources.
- All the available online databases in library details informed by internal circular, intranet link, OPAC and institution website to users.
- Keep the online databases link in OPAC, users can easily to connect the website of the online database.
- Regarding e-resources related news send to users by phone short message and this is a help to increase the library e-resources services.
- All the online databases news should be provided at the college website and it should be regularly updated.
- Information regarding the subscribed online databases and the latest available electronic resources websites and freely available resources websites also with their addresses should be displayed on the library and all department notice boards and also computer labs.
- Asking the vendors to supply the databases in easy formats.
- Many resources are still in print; in future, all resources should be available in digital form.

- The library should be an IT trained staff in the digital library room for helping the users in case of difficulty.

Conclusion

The provision of electronic information resources in academic libraries has provided unprecedented support to modern teaching, learning and research purposes in universities. Electronic resources have become a 'household name' for postgraduate students in terms of access to current and convenient information for their academic endeavors. For this reason, it is
prudent for academic libraries to prioritize e-resources as the major information resources and
ensure its potential usage.

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#14
USE OF ELECTRONIC JOURNALS AT IIT LIBRARIES: REVIEW AND ANALYSIS

Prof. Subarna Kumar Das
Priyanka Roychowdhury

Introduction:

The touchstone of modern scholarly communication is turning out to be the digital platform that gave rise to the concept of an electronic journal (e-journals). The concept of e-journal needs a clear and pragmatic approach among its users. This article examines in some detail the use, level of awareness, the impact of and the purpose of using e-journals among IIT students at various IIT libraries across the country. Our goal, therefore, is to analyze and investigate the trend in use of e-journals among IIT students, scholars and faculty members. Although there is a growing acceptance of e-journals among students and researchers, there seems to be a general lack of awareness among students regarding the benefits of e-journals. In this age of digital communication, awareness about such benefits of e-journals in learning institutions needs to be elucidated in greater detail. Journals are a means for scholarly communications that provide information. They are indispensable tools for doing research on a particular topic. They are, as well, widely used by students, faculties, and researchers to gather information on a particular problem and used extensively as reference materials. For building and updating knowledge, and for the study and research purposes, the collection of relevant materials is necessary. Journals are among the most reliable resources that are accessed by the students, researchers, and faculties to obtain information regarding a particular topic or a problem under research. With the advent and evolution of digital technology, the publication process and dissemination of research too, have become electronic in nature. This new mode of scholarly communication has given rise to electronic journals (e-journals). It is at once first and the last thing to say that the evolution of the web and the internet has provided new meaning to scholarly communications in form of electronic documents which are easily stored and can be quickly searched and retrieved. Furthermore, e-journals can be more efficiently utilized for retrieving information regarding research, assignments, and presentations among students at higher institutes of learning, e.g. IIT.

This research attempts to review and highlight the use of e-journals among IIT students across the country by discussing various advantages attached to it, and some limitations thereof. A few inherent problems with the use of e-journals have been discussed, therefore, as well. The purpose of the work is not to justify the use of e-journals, but to analyze how e-journals are being perceived and used among IIT students.

Awareness of and Frequency of use of e-journals among IIT students:

There is a growing awareness among students regarding the use of e-journals, and the benefits that it accrues to the users are being slowly acknowledged. E-journals tend to be more sustainable with the concept of "Green Learning" attached to this mode of scholarly

communication. E-journals save resources and are easy to access which can be read over the computer screen. Following the adoption and efficient implementation of Library Automation Systems (LAS), journals can be searched efficiently and accessed online with much ease. With the continued progress of digital technology, higher learning institutions are taking advantage of the digital platforms that store and help to disseminate information among users. The availability of the electronic versions of the printed copy of articles along with full electronic access to the contents of the journals is helping researchers and students to retrieve information more quickly, and efficiently. E-journals are now being used and accessed more frequently by students and faculty members for their ease of usability, storage, and transmission in electronic form. This research points to that direction only, i.e. to understand the use of e-journals among IIT students at various IIT libraries. And furthermore, this study aims to compare the use of e-journals through National Knowledge Resource Consortium (NKRC). IITs have access to over 12000 electronic journals and databases through the INDEST-AICTE Consortium which is part of the e-shodhsindu which forms such a consortium with the merging of three consortia initiatives: UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium based on the recommendation of the Expert Committee, the MHRD. The purpose is to review and analyze the use of e-journals at different IIT libraries and how they exploit the advantages of such consortia mentioned above.

Need and Significance of the Study:

In this age of digital technology, more and more journals are becoming web-based by offering their services through web portals that can be easily accessed using the internet. The digital platform is rapidly changing, and with that, various opportunities are arising which becomes an enabler of online learning and information sharing. More universities and institutes of higher learning like IITs are taking advantage of this digital revolution by building state-of-the-art IT infrastructures to support or complement research and learning among students, researchers and the faculty members. There is, therefore, a genuine need for a comprehensive review and analysis of how IITs are using e-journals in their libraries. We investigate to conduct such a study that encompasses the following objectives:

- To examine the use of e-journals at the IIT libraries
- To review and analyze and correlate the findings that reveal the level of awareness among users of electronic journals
- To investigate the satisfaction level and the impact of e-journals among users
- To investigate the satisfaction level and the impact of e-journals among users
- To examine the purpose of using e-journal through E-ShodhSindhu Consortia by the users at the IIT libraries
- To design and develop a questionnaire based on the research finding to create more awareness, and understand the levels of acceptability and use among students.
  The research findings may help us to analyze several issues that include:
- Suggest new ways and means for more efficient use of e-journals at the IIT libraries
- Understand the frequency of use of e-journals
- The level of use among users
- Whether the use of e-journals is having any positive effect on the performance of users or increases their academic efficiency

- The most preferred format of using e-journals

Objectives of the Study:

The primary goal and purpose of this study are to analyze and review the use of e-journals at the IITs. The study encompasses several research questions which attempt to underline the recent trends in and benefits of using academic journals in electronic formats across IIT libraries. The purposes are:

➢ To examine, analyze and review the use of e-journals by the students, faculty members and scholars at IIT libraries

➢ To examine the purpose of using e-journals at IIT libraries

➢ To assess the awareness and satisfaction levels of users regarding the use of e-journals
  at IIT libraries

➢ To investigate the impact of the e-journal on users

➢ To understand the mechanism of accessibility and to examine any problems related to
  technical, personal and managerial problems

Research Question:

We attempt to answer several research questions in this paper regarding the use of e-journals at IIT libraries. Some of these are as follows:

➢ What is the level of satisfaction regarding e-journals at IIT libraries?

➢ How e-journals are perceived by the users?

➢ How useful are e-journals to the users?

➢ What are the benefits of migrating to e-journals?

➢ What is the level of awareness among users of e-journals at IIT libraries?

➢ What features of e-journal do the users at the IIT libraries like most?

Method of Study

Our research study involved the design of questionnaire for faculties of IITs to assess the awareness and usefulness of e-journals among students, researchers and scholars. A descriptive survey method was designed employing a structured questionnaire as a means of the data collection method. The questionnaire consisted of Multiple-Choice Questions which required one or more answers. Using a random sampling technique, approximately 100 questionnaires were emailed to the faculties. The questions were designed in view of the objectives in mind to collect data for this research. The questionnaire comprises carefully designed questions comprising of several issues related to the topic of study. It includes such queries like search strategy, types of information, most preferred format, their influence, awareness, ease of access, purpose, satisfaction level among users among others. Several hypotheses were postulated and tested from the data obtained from email responses which have been very crucial for this analysis. The responses derived from the answers via email questionnaire furnish factual data about the frequency and use of e-journals which has been our model for this study. Following this, we perform some simple statistical analysis on the

data we obtained to derive significant knowledge about the descriptive parameters of the responses.

Respondents of the Study

Out of the 100 MCQ questionnaires that were mailed to the faculties of IITs, only 60 duly filled up questionnaires have been received which have been selected as a sample. Usage statistics have been analyzed from 23 IITs across India based on downloads of e-journals. Following testing of the hypothesis, the analysis of the result shows that most of the users prefer to take a print out for the purpose of reading. Also, 'keyword' is the most popular search strategy. The data thus derived show that in the year 2015, IIT Delhi has recorded the highest total usage of e-journals which is closely followed by IIT KGP and IIT Guwahati.

7. Data Analysis & Interpretation:

We interpreted our results from data analyses obtained through responses from the received questionnaires. This data is interpreted and tabulated which has been charted below.

Table 1: Publisher wise e-journals used by the users

Publishers	% of Responses	No. Of Responses (n=60)
Elsevier	78.33%	47
Emerald	25%	15
IEEE	85%	51
Taylor and Francis	38.33%	23
Springer	80%	48
Royal Society of Chemistry	28.33%	17
Institute of Physics	63.33%	38
American Chemical Society	43.33%	26
American Institute of Physics	65.00%	39
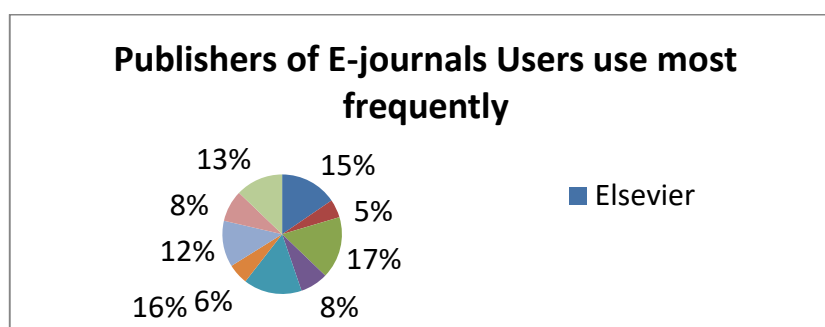
Fig. 1 Publisher wise e-journals used by the users

We include another data table and chart which describes the use of a search strategy.

Table 2. search strategy

Search Strategy	No. Responses
Keyword	60 (100. %)
Author	19 (31.66%)

Article's title	5 (8.33%)
Journal's title	26 (43.33%)
Boolean operator	2 (3.33%)

Fig. 2 *Search Strategy*
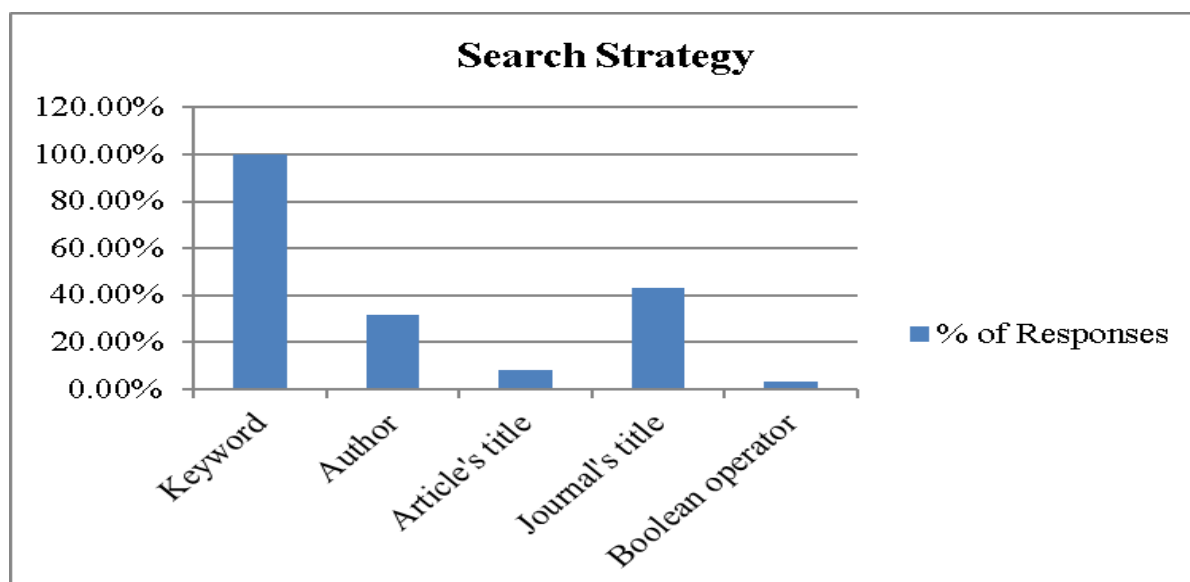
The above data placed in Tanle-2 shows that the most popular search strategy is keyword (100%) followed by the Journal title (26%) and author (19%). We have derived interesting insights regarding the frequency of use, level of awareness, sources of e-journals, and search strategies among other parameters which are vital for this study. We demonstrate using the data obtained from the respondents that "keywords" tend to be a very popular tool among users who search for information in the library.

Statistical Analysis:

We have performed simple statistical analysis on the data concerning the user response parameters and report such as thus:
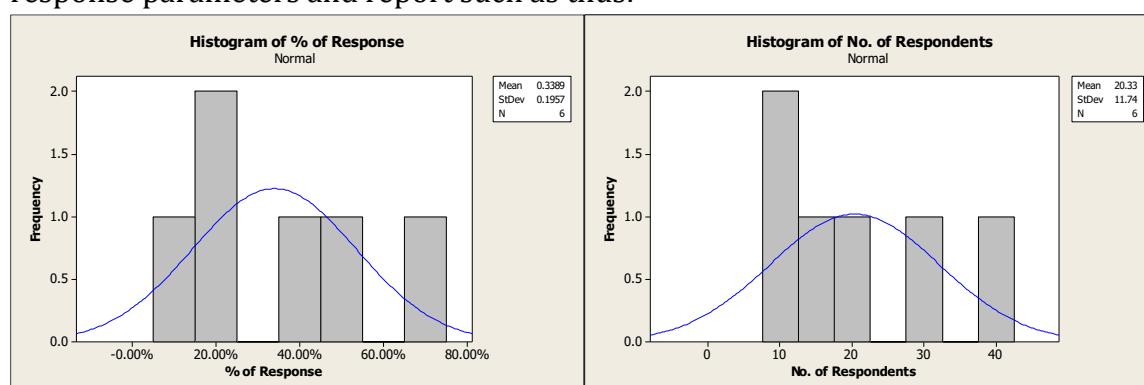
Histogram of number and % Response

The above histogram depicts the mean and the standard deviation of a number of respondents and % of respondents with a normal distribution curve. The descriptive statistics thus obtained have been reported as well:

Descriptive Statistics: No. of Respondents, % of Response

Variable	N	N*	Mean	SE Mean	St.Dev.	Min.	Q1	Median	Q3
No. of respondents	6	0	20.33	4.79	11.74	8.00	10.25	18.00	30.75
%^of responses	6	0	33.88	7.99	19.57	13.33	17.08	29.99	51.24

Variable	Maximum
No. of Respondents	39.00
% of Response	65.00

Our statistical analysis finds that the mean and the maximum number of respondents are 20.33 and 39 respectively. The mean % of response has been found to be 33.88% with an std. Dev. of 7.99.

Findings of the Study

Findings have been derived from data collected through a survey method using a questionnaire that encompasses several responses and some of them are as follows:

• 100% of the faculty covered through the questionnaire are aware of the use and benefits of e-journals

Table 1. Sources of e-journals:

Sources	No. of Respondents	% of Response
Library Professionals	39	65%
Library Website	28	46.66%
Books	22	36.66%
Advertisement	14	23.33%
Teachers/Research Guide	8	13.33%
Colleagues	11	18.33%

The above table depicts the different sources of e-journals along with number of respondents and the % of response among IIT students and researchers. The questionnaire designed allows multiple responses from the respondents. The finding shows that 65% of IIT users come to know about e-journals through library professionals followed by 46.66% of users who came to know about e-journals from the Library website. Books accounted for 36% of the sources and the rest as depicted in Fig.3
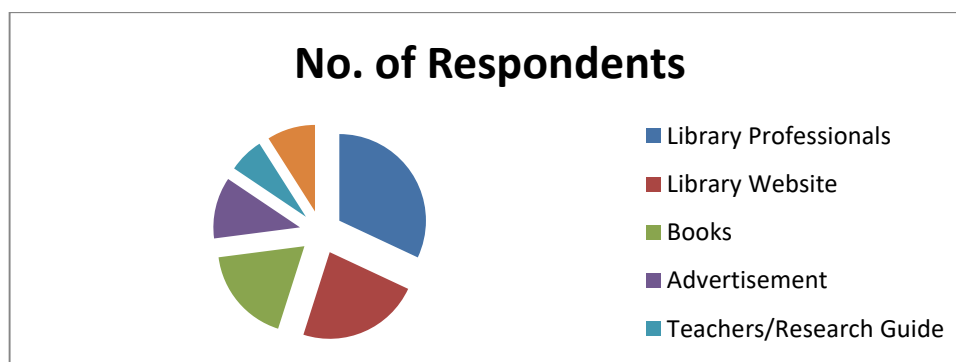
Fig. 3 Number of Respondents

• 43.33% of users were actively engaged in the use of e-journals on a daily basis.

- 65% of the faculties have come to know about the e-journals through library professionals, 46.66% through the library website, 36.66% though books among others which indicate that library professionals are by far the largest source through which IIT faculties have come to know about e-journals.
- Findings also relate to the fact that around 60% of users have learned to handle the e-journals from university training and workshops.
- The study also reveals that the most preferred format for reading e-journal is the pdf format.
- A good point which has been observed is that the users indicated that they need no formal training for using the e-journals.
- The findings also suggest that the majority of users say that they find e-journals very helpful.

Conclusion

The study concludes with several proposals for further research on this frontier. Conclusions that can be drawn from this study relates to the growing evidence of e-journal users among IIT students and faculty members. It may be summarized from this study that there are growing awareness and acceptance of e-journals among IIT students and the academic community. This is evidenced by the growth e-journal use over the past eight years in IITs. Furthermore, this lends support to the fact that the IITs are spending a substantial budget on procuring e-journals and the IITs, IIT Madras, IIT Kharagpur, and IIT Bombay were found to the largest users of e-journals for study and research purposes. The responses received from the participants in this survey study point to the fact that they are almost aware of the benefits of e-journals. On the other hand, it also shows that the major issue confronting the use of and access to e-journal is the problem of downloading. This could be overcome by increasing the speed of the internet and installing and updating computer systems in IIT libraries.

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#15

INFORMATION NEEDS OF A DISADVANTAGED COMMUNITY IN MAYURBHANJ DISTRICT, ODISHA: A CASE STUDY ON LODHA AT SANSASOLE VILLAGE

Prof. Subarna Kumar Das
Monoj Tudu

Introduction:

In this study, an attempt has been made to identify the various information needs of Lodha community of Sansasole village under the Suliapada Block of Mayurbhanj District of Odisha. Among the 30 District in Odisha, Mayurbhanj District being Socio-Economically backward and culturally sound occupies a unique place in the tribal map of the district having the largest number of the tribal community settled here. These tribes include Bhumuj, Birhor, Lodha, Kharia, Koli, Munda, Shabara, Santal, etc. The Lodha communities of Mayurbhanj District are belonging to the north munda groups peaking Mundari language. They are mainly founded in the SuliapadanadMarada Block of Mayurbhanj District. As per census 2011, the small tribe Lodha having a total population is 8905. The socio-economic condition of these Lodha communities has changed over time, but not in the helpfull direction. After independence, their socio-economic condition has improved little *(Mandal, 2002)*

The Lodha of Northern India has a fairly large concentration in Mayurbhanj District. They are mainly founded in the Suliapada and Morda Block of Mayurbhanj District, Odisha. The Lodha are belonging to the North Munda group speaking Mundari language as their mother tongue as well as they speak a dialect with is a mixture of Odia, Bengali, Tanti, Mundari, and Santali. *(Kumar,2016).* They have a normal feature like medium height, dark brown complexion, long head, flat nose, and well-built figure. Still, now, they have been getting there sources of income from forest product which fulfill their daily requirement.

Lodha is designated by the British colonialists as a "Criminal Tribe" and later this nomenclature underwent interesting evolution in the post-colonial period. This deprived community was later put under the category of Denitrified Community and then reclassified as Primitive Tribal Group (PTG) in 1973. *(Panda, 2015).*Lodha community give their children piece flesh name after their ancestor. Lodhas have been in the focus of anthropologists and social activities. During the British rule, the government of India oppressed the tribal people of Jangal Mahals, basically those who were traditionally dependent upon the forest for a living. They had to struggle for livelihood, but without any economic power, they had not a success for improving their better lifestyle. They spend a criminal lifestyle and were subsequently branded as a criminal tribe. Comparatively the title of Lodha communities is also divided into different types like- Nayek, Bhakta, Mallick, Sardar, Digar, Kotal, Dandapat, and Bhuniya. The Government of India classification created for the purpose of enabling improvement in the conditions of certain communities with, particularly low development

indices. In India, more than 75 communities are regarded as PVTG (Particularly Vulnerable Tribal Group). In 2006, the Government of India renamed the PTGS as Particularly Vulnerable Tribal Group.

Now-a-days Lodhas are doing live alone in the forest covered areas, but they have lived in village areas with other community. They have founded to work on agriculture, Fishing, and Laborers. But most of the time they also depended on forest product to fulfilling their alternative economical problem. They collect different types of forest product for sale. Lodhas are collect Sal leaf, Kendu leaf, Fruits, Woods, and sale them in their locality. They are also founded to be engaged in the collection of Snakes, Lizards, Fox, Fish and Tortoise for domestic consumption as well as for sale *(Bhumik, 1981)*.

Lodhas are basically known as criminal tribes. The Government of Independent India repeated the Criminal Tribes Act in 1952. Now the Lodha peoples are straggling for the better lifestyle and sifted from forest areas to non-tribal neighbors. Over the decades the Lodhas gradually changed their occupation from criminal and they are shifted to agricultural and laborers for their better livelihood *(Danda, 2002)*.

Scope and Coverage:

The scope of the study is to present the community information needs of the people belonging to the Lodha Community. The study has been carried out in the Sansasole Village under the Ufalgadia Gram Panchayat, Suliapada Block in the Mayurbhanj District of Odisha. The Ufalgadia Panchayat Consist of 21 Village, out of which Lodha community are funded in three Gram Panchayat Namely:

Block	Gram Panchayat	Lodha Village
Suliapada	Bagda	i) Nekaddgunja ii) Bhobani
	Ufalgadia	Sansasole
	Kantisahi	Patharnasa

Out of this Gram Panchayat, the study concerns only one Village "Sansasole" under the Ufalgadia Gram Panchayat. The total population of this Sansasole Village is 677. Out of this 588 are adult (291 male and 297 female) and 89 children (36 male and 53 female).

This research study also concerns socio-economic condition, education, economic, occupational, social condition, health and sanitation, religion and cultural aspects of Lodha Community.

Objectives:

A study of the Lodha community residing at Sansasole Village of Suliapada Block of Mayurbhanj District was conducted with the following Objectives:
1. To Study the socio-economic profile of Lodha community.
2. To understand their origin, development, Traditional changes, Social Organization and the relation of Lodhas among the other community.
3. To study the information needs of the Lodha community in different aspects of their life.

4. To collect empirical data on the demographic and some Historical background of Lodhas.
5. To understand their social lifestyle like- culture, livelihood, attitudes and behavior.
6. To understand the differences of Lodhas from the other communities and societies and
7. To know about the Government welfare schemes and benefits.

Methodology:

This research study was made to explore the information needs of Lodha community of Sansasole village in Suliapada Block of Mayurbhanj District, Odisha. To complete this article various methods were used such as questionnaire method, schedule methods, interview method, and observation method as a part of the survey. Basic information is collected through a different literature search on Lodha community. Secondary data are collected from Panchayat Office, BDO Office and Census. The Lodhas are questioned using scheduled methods and the population is selected randomly. All the data have been summarized, analysis and tabulated through a different point of view, finally, conclusion is made.

About the Community

The Lodhas have scheduled tribe community of Mayurbhanj District, their main concentration being in the Suliapada Block. The Suliapada Block is one of the most tribal populated Block of Mayurbhanj District, where the large numbers of Lodha people are residing there. The research study is taken from a small village Sansasole is located in Suliapada Block of Mayurbhanj District. Odisha. The total 125 Lodha families residing with total 677 population of which 291 are males and 297 are females and 89 children. As per the census 2011, the average sex ratio of Sansasole village is 1921. The Literacy rate of the Sansasole village is 59.52% compared to 72.87% of Odisha. The male literacy rate is the stand of 73.73% while the female literacy rate is 44.67%. The total scheduled tribes of this village are 100%, there are no other Tribes.

Occupation

The main occupation of the Lodha community is forest product. The collect different types of forest product from forest like- DudhiLata, Sal leaves, Sal wood, Mahua flower, Kedu leaves, Honey and Resin(Jhuna). The Lodha people are described as criminal people, they have no land property, so sometimes they are forced to become pretty thieves and earn their bread by stealing someone's property. But nowadays they also engage in other occupation like Govt. service, Business, Cultivation, and some women are involving in collecting different types of forest product.

Religion

All the Lodha people are Hindu. They faith and worship all Hindu gods and Goddesses. But some of them are converted to Marang Buru (Satsang), Christian and others are Kali Dharam.

Literacy and Education

An additional component hindering maximum participation and achievement of Lodha in school education is the lack of didactic due to the poor financial situation of their family. Most of the Lodhas children are never attending school, the engaged in collecting forest product for saving their livelihood. So the Lodha community is generally not much higher educated.

Health and Hygiene

Lodha communities are also aware of health. They use primary treatment from their traditional method. For secondary treatment, they use primary health care, for another main disease like malaria, typhoid, and diarrhea, they go to the Sub-divisional and Private Hospital. Due to some financial problems, they have done mothers delivery by traditional process. The other main things are that they are unaware of their sanitation, most of the families are use drinking water from tub well, Dug well, and use Pumping waters.

Language

The Lodhas is known as multiple languages, they speak with Mundari, Odia, Santali, Tanti and some other language. They have not their own script, so they basically depend on Odia Language. For the educational purpose, they use Odia Language, but at their home, they speak with their local language.

Marriage

The marriage ceremony of the Lodha community is consisting of a number of rituals. They have evidently been borrowed within their society. Adult marriage system is common among the Lodhas and it is performed by negotiations. A mediator plays a vital role for engaged by both the bride and groom side and he carries both side massage to settle the bride's price. Some time their marriage system happens with different types like, arrange marriage, Love Marriage, Marriage by the exchange of sister is also possible. Window re-marriage and divorce system is permitted with Lodha community *(Hansdah,2018:18).*

Observation of religious rituals and festival

Lodha community has observed different certain religious rituals and festivals from other community. Lodhas are basically Hindu, so they worship all Hindu gods and goddesses. The supreme gods among the Lodhas are Dharam Devata. They believed other gods like Mother Earth, MaaBasumata, MaaSitola, and others. They also observed numbers of festival and rituals around the year like other community. Every year they observe their Sitala Puja, Chani Puja, and Chaitra Puja very flamboyantly. In the Mayurbhanj District, there is within twelve months the different thirteen religious festivals are observed by the tribal community, so the Lodhas also participate with them. Finally, the entire festival is celebrated by singing and dancing.

Food and Drinking

Lodha community are both vegetarian and non-vegetarian, their principal food is rice. They take meals thrice a day. Everyday morning and lunch they eat watered rice and during lunch, they eat staple food rice with meat curry. Some time they take Vegetables, Green Leafs, burnt brinjal tomato paste with mustard oil. Nowadays they are also grown different types of vegetables in their land. Consumption of liquor is another drink habit of the Lodhas, they take mahua and rice beer for their drink. Men are use smoking, Biri, Cigarette and Gutka in their pleasure time.

House Types

The Lodhas build their house with mud, Biju Paka Ghoro and some others are get Indra Awas Yojana. Basically, Lodhas are build a single house made of mixed mud with bamboo and straw-thatched. The Lodhas have no separate room for pet animals, Cattle, Goat and Cock; they live with them in one corner of the house. Now they use Kitchenware, Steel Plate, Pots, and Cups and so on.

Settlement

The Lodhas is known as criminal community, so they settle their village separately from other communities. The Lodhas village is situated near the forest areas and some others are founded living with the other caste.

Analysis of the Data:

Table 1: Distribution of Total Population at Sansasole Village.

Total Population	Lodha Community						Others Community
	Adult			Child			
	Male	Female	Total	Male	Female	Total	
677	291 (42.99%)	297 (43.88%)	588 (86.86%)	36 (5.31%)	53 (7.82%)	89 (13.14%)	_

This table revealed that the total population at Sansasole Village is 677. There are total of 588 are adult, in which 291(42.99%) are male 297(43.88%) are female. The total children are 89(13.14%), in which 36(5.31%) Male and 53(7.82%) are female children. There is no other community.

Table 2: Distribution of Respondents and Non-Respondents among Adult and Child Population.

	Adult		Child		Total
	Male	Female	Male	Female	
Respondents	132 (19.50%)	118 (17.42%)	_	_	250 (36.92%)
Non-Respondents	159 (23.49%)	179 (26.44%)	36 (5.31%)	53 (7.82%)	427 (63.07%)
Total	291 (42.99%)	297 (43.87%)	36 (5.31%)	53 (7.82%)	677 (100%)

The above table shows that the total respondents are 250(36.92%) in which 132(19.50%) male and 118(17.42%) are female respondents. The total Non-respondents are 427(63.07%) out of which 159(23.49%) are adult male, 179(26.44%) are adult female, 36(5.31%) are child male and 53(7.82%) adult female.

Table 3: Distribution of Respondents according to Age and Sex

Age Group	Male	Female	Total
Up to 18	7(2.8%)	9(3.6%)	16(6.4%)
18-28	39(15.6%)	36(14.4%)	75(30%)
28-38	16(6.4%)	17(6.8%)	33(13.2%)
38-48	32(12.8%)	22(8.8%)	54(21.6%)
48-58	25(10%)	20(8%)	45(18%)
58 Above	13(5.2%)	14(5.6%)	27(10.8%)
Total	**132(19.50%)**	**118(17.42%)**	**250(100%)**

From this table, it is revealed that there are 132(19.50%) male and 118(17.42%) female in the sample population. In the group of up to 18 years, the total male and female are 16(6.4%) in which 7(2.8%) are male and 9(3.6%) are female. Similarly, in the age group of 18-28, the total respondents are 75(30%) in which 39(15.6%) are male and 36(14.4%) are female. In the age group of 28-38, the total respondents are 33(13.2%) in which 16(6.4%) are male and 17(6.8%) are female. In the age group of 38-48, the total respondents are 54(21.6%) in which 32(12.8%) are male and 22(8.8%) are female. In the age group of 48-58, the total respondents are 45(18%) in which 25(10%) are male and 20(8%) are female. Finally, in the age group of 58 above the total respondents are 27(10.8%) in which 13(5.2%) are male and 14(5.6%) are female.

Table 4: Distribution of Respondents Sex and Age wise in Respect of Educational Qualification

Age	Just Literate		Up to -V		Up to-X		Graduation		Total Literate		Total Illiterate		Total Literate + Total Illiterate		Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M+F
Up to 18	7 (2.8%)	3 (1.2%)	6 (2.4%)	1 (0.4%)	4 (1.6%)	2 (0.8%)	2 (0.8%)	1 (0.4%)	19 (7.6%)	7 (2.8%)	21 (8.4%)	12 (4.8%)	40 (16%)	19 (7.6%)	59 (23.6%)
18-28	8 (3.2%)	3 (1.2%)	2 (0.8%)	3 (1.2%)	1 (0.4%)	2 (0.8%)	1 (0.4%)	2 (0.8%)	12 (4.8%)	10 (4%)	20 (8%)	23 (9.2%)	32 (12.8%)	33 (13.2%)	65 (26%)
28-38	7 (2.8%)	4 (1.6%)	2 (0.8%)	3 (1.2%)	2 (0.8%)	1 (0.4%)	_	_	11 (4.4%)	8 (3.2%)	24 (9.6%)	18 (7.2%)	35 (14%)	26 (10.4%)	61 (24.4%)
38-48	3 (1.2%)	5 (2%)	1 (0.4%)	3 (1.2%)	1 (0.4%)	1 (0.4%)	_		5 (2%)	9 (3.6%)	10 (4%)	10 (4%)	15 (6%)	19 (7.6%)	34 (13.6%)

48 - 58	2 (0.8%)	3 (1.2%)	2 (0.8%)	3 (1.2%)	_	2 (0.8%)	_	_	4 (1.6%)	8 (3.2%)	2 (0.8%)	5 (2%)	6 (2.4%)	13 (5.2%)	19 (7.6%)
58 Above	2 (0.8%)	3 (1.2%)	1 (0.4%)	3 (1.2%)	_	_	_	_	3 (1.6%)	6 (2.4%)	1 (0.4%)	2 (0.8%)	4 (1.6%)	8 (3.2%)	12 (4.8%)
Total	29 (11.6%)	21 (8.4%)	14 (5.6%)	16 (6.4%)	8 (3.2%)	8 (3.2%)	3 (1.2%)	3 (1.2%)	54 (21.6%)	48 (19.2%)	78 (31.2%)	70 (28%)	132 (52.8%)	118 (47.2%)	250 (100%)

This table shows that out of total of 250 respondents, 54(21.6%) person male and 48(19.2%) person female are literate. In the age group up to 18, 19(7.6%) male and 7(2.8%) female are literate. In comparison, there are 21(8.4%) male and 12(4.8%) female are illiterate as the same group. This indicates that, the rate of illiteracy in the case of male 78(31.2%) is very much higher than the illiteracy rate of female 70(28%).

In the age group of 18-28, 12(4.8%) male and 10(4%) female are literate, in the same age group, 20(8%) male 23(9.2%) female are as illiterate. In the age group of 28-38, there are 11(4.4%) male and 8(3.2%) female are literate persons, where 24(9.6%) male 18(7.2%) female are as illiterate persons in the same group. In the age group of 38-48, there are 5(2%) male and 9(3.6%) female are literate wherein the same age group 10(4%) male and 10(4%) female respondents are as illiterate persons. In the age group of 48-58, there are 4(1.6%) male and 8(3.2%) female persons are literate persons, wherein the same age group 2(0.8%) male and 5(2%) female are as illiterate persons.

In the age group of 58 above there are 3(1.6%) male and 6(2.4%) female are literate persons, in the same age group 1(0.4%) male and 2(0.8%) female persons are as illiterate persons. The finding of the table shows that literate persons belong to the up to 18 age groups. On the other hand in the age group of 28-38 years were least educated persons.

Table 5: Distribution of Respondents in respect of Occupation

Age	Agriculture		Forest Product		Daily Labor		Business		Others		Total
	M	F	M	F	M	F	M	F	M	F	M+F
Up to 18	3 (1.2%)	3 (1.2%)	8 (3.2%)	11 (4.4%)	5 (2%)	5 (2%)	_	_	2 (0.8%)	1 (0.4%)	38 (15.2%)
18-28	9 (3.6%)	6 (2.4%)	6(2.4%)	15 (6%)	4 (1.6%)	7 (2.8%)	_	_	2 (0.8%)	3 (1.2%)	52 (20.8%)
28-38	12 (4.8%)	8 (3.2%)	9 (3.6%)	17 (6.8%)	4 (1.6%)	4 (1.6%)	1(0.4%)	_	3(1.2%)	2 (0.8%)	60 (24%)

38-48	11 (4.4%)	9 (3.6%)	4(1.6%)	12(4.8%)	9(3.6%)	3 (1.2%)	1(0.4%)	_	1 (0.4%)	1 (0.4%)	57 (20.4%)
48-58	2 (0.8%)	5 (2%)	9 (3.6%)	8(3.2%)	5 (2%)	4 (1.6%)	_	_	_	_	33 (13.2%)
58	2(0.8%)	2(0.8%)	4(1.6%)	6(2.4%)	1(0.4%)	1(0.4%)	_	_	_	_	16 (6.4%)
Total	39 (15.6%)	33 (13.2%)	40 (16%)	69 (27.9%)	28 (11.2%)	24 (9.6%)	2 (0.8%)	_	8 (3.2%)	7 (2.8%)	250 (100%)

This table shows that in the age group of up to 18 years, total 38(15.2%) male and female are engaged in every occupation, where 3(1.2%) male engaged in agriculture, 8(3.2%) are forest product, 5(2%) are Daily labor, 2(0.8%) are others, of whom female respondents 3(1.2%) are engaged in agriculture 11(4.4%) are forest product, 5(2%) are Daily labor and 1(0.4%) are in others.

In the age group of 18-28, total 52(20.8%) male and female respondents are engaged in every occupation, where 9(3.6%) male are engaged in Agriculture, 6(2.4%) are in Forest Product, 4(1.6%) are in Daily Labor, 2(0.8%) are others. Of whom 6(2.4%) female respondents are engaged in Agriculture, 15(6%) are Forest Product, 7(2.8%) are Daily Labor and 3(1.2%) are in others. In the age group of 28-38, total 60(24%) male and female respondent are engaged in every occupation, where 12(4.8%) male are engaged in Agriculture, 9(3.6%) are Forest Product, 4(1.6%) are Daily Labor, 1(0.4%) are Business and 8(3.2%) female are engaged in Agriculture, 17(6.8%) are in Forest Product, 4(1.6%) are Daily Labor, 2(0.8%) are in others.

In the age group of 38-48, the total 57(20.4%) male and female are engaged in each occupation, where 11(4.4%) male in Agriculture, 4(1.6%) are in Forest Product, 9(3.6%) are in Daily Labor, 1(0.4%) are Business, and 1(0.4%) are others. On the others hand, 9(3.6%) female are in Agriculture, 12(4.8%) are in Forest Product, 3(1.2%) are in Labor and 1(0.4%) are in others.

In the age group of 48-58, the total 33(13.2%) male and female are engaged in each occupation, where 2(0.8%) male are agriculture, 9(3.6%) are Forest Product, 4(1.6%) are Daily Labor. There is no one male engaged in Business and other occupation, in others hand 5(2%) female engaged in Agriculture, 8(3.2%) are Forest Product, 4(1.6%) are in Daily Labor, there is also no one female engaged in Business and others occupation.

In the age group of 58, the total 16(4.4%) male and female are engaged in each occupation, where 2(0.8%) male are Agriculture, 4(1.6%) are Forest Product, 1(0.4%) are Daily Labor, no one male is engaged in Business and other occupation. Of whom 2(0.8%) female are engaged in Agriculture, 6(2.4%) are in Forest Product, 1(0.4%) are in Daily Labor, there is also no one female respondents are engaged in Business and others occupation. From this table, it can be seen that mainly the age group of 28-38 years male & female are engaged in various occupation and the maximum they are engaged in forest product occupation, were 40(16%) male and 69(27.9%) female.

Table 7: Distribution of Respondents Requiring Information of the Various Areas

Age	Agriculture		Forest Product		Sanitation		Housing		Electricity		Library		Education	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Up to 18	2 (0.8%)	2 (0.8%)	7 (2.8%)	7 (2.8%)	2 (0.8%)	2 (0.8%)	3 (1.2%)	3 (1.2%)	3 (1.2%)	2 (0.8%)	2 (0.8%)	2 (0.8%)	6 (2.4%)	6 (2.4%)
18-28	3 (1.2%)	4 (1.6%)	5 (2%)	8 (3.2%)	_	5 (2%)	2 (0.8%)	_	4 (1.6%)	4 (1.6%)	3 (1.2%)	6 (2.4%)	6 (2.4%)	5 (2%)
28-38	2 (0.8%)	2 (0.8%)	6 (2.4%)	6 (2.4%)	3 (1.2%)	5 (2%)	2 (0.8%)	3 (1.2%)	6 (2.4%)	5 (2%)	_	_	10 (4%)	13(5.2%)
38-48	5 (2%)	5 (2%)	4 (1.6%)	8 (3.2%)	2 (0.8%)	_	3 (1.2%)		4 (0.6%)	5 (2%)	_	_	6(2.4%)	7 (2.8%)
48-58			3 (1.2%)		5 (2%)	4 (0.6%)	4 (1.6%)	6 (2.4%)	4 (0.6%)	4 (0.6%)	_	_		
58 Above							1 (0.4%)	1 (0.4%)	1 (0.4%)	1 (0.4%)	_	_		
Total	12 (4.8%)	13 (5.2%)	25 (10%)	29 (11.6%)	12 (4.8%)	16 (6.4%)	15 (6%)	13 (5.2%)	22 (8.8%)	21 (8.4%)	5 (2%)	8 (3.2%)	28 (11.2%)	31 (12.4%)

Out of total 250 respondents in the age group of up to 18 years 2(0.8%) male and 2(0.8%) female require information of Agriculture, 7(2.8%) male and 7(2.8%) female require information of Forest Product, 2(0.8%) male and 2(0.8%) female require information of sanitation, 3(1.2%) male and 3(1.2%) female are require information on Housing, 3(1.2%) male and 2(0.8%) female require information of Electricity, 2(0.8%) male and 2(0.8%) female require information on Library and 6(2.4%) male and 6(2.4%) female require information of Education.

In the age group of 18-28 years, 3(1.2%) male and 4(1.6%) female are required information of Agriculture, 5(2%) male and 8(3.2%) female are required information of Forest Product, only 5(2%) female are required information of Sanitation, only 2(0.8%) male require information of Housing, 4(1.6%) male and 4(1.6%) female are required information on Electricity, 3(1.2%) male and 6(2.4%) female require information of Library, and 6(2.4%) male and 5(2%) female require information about Education. In the age group of 28-38 years, 2(0.8%) male and 2(0.8%) female are required information of Agriculture, 6(2.4%) male and 6(2.4%) female require information of Forest Product, 3(1.25) male and 5(2%) female require information of Sanitation, 2(0.8%) male and 3(1.2%) female are required

information of Housing, 6(2.4%) male and 5(2%) female require information about Electricity, 10(4%) male and 13(5.2%) female are required information on Education.

In the age group of 38-48 years, 5(2%) male and 5(2%) female require information of Agriculture, 4(1.6%) male 8(3.2%) female require information of Forest Product, only 2(0.8%) male require information of Sanitation, only 3(1.2%) female require information of Housing, 4(0.6%) male and 5(2%) female require information about Electricity, 6(2.4%) male and 7(2.8%) female are required information on Education.

In the age group of 48-58 years, only 3(1.2%) male require information of Forest Product, 5(2%) male 4(0.6%) female require information of Sanitation, 4(1.6%)male and 6(2.4%) female require information of Housing, 4(0.6%) male and 4(0.6%) female require information of Electricity. In the age group of 58 above years, 1(0.4%) male and 1(0.4%) female require information of Housing and 1(0.4%) male and 1(0.4%) female require information of Electricity. It can be concluded that the majority of respondents greater require information on Education

Table 9: Distribution of Respondents relating to Library Awareness

Age	Awareness			Unawareness		
	Male	Female	Total	Male	Female	Total
Up to 18	_	1(0.4%)	1(0.4%)	5(2%)	6(2.4%)	11(4.4%)
18-28	3(1.2%)	2(0.8%)	5(2%)	6(2.4%)	8(3.2%)	14(5.6%)
28-38	2(0.8%)	1(0.4%)	3(1.2%)	12(4.8%)	16(6.4%)	28(11.2%)
38-48	1(0.4%)	_	1(0.4%)	22(8.8%)	24(9.6%)	46(18.4%)
48-58	_	_	_	55(22%)	46(18.4%)	101(40.4%)
58 Above	_	_	_	18(7.2%)	22(8.8%)	40(16%)
Total	6(2.4%)	4(1.6%)	10(4%)	118(47.2%)	122(48.8%)	240(96%)

From this table, it is revealed that out of 250 respondents only 10(4%) respondents are having aware regarding library out of which 6(2.4%) are male and 4(1.6%) are female. In the age group of up to 18, there are only 1(0.4%) female respondents and no male respondents having information regarding the library.

In the age group of 18-28 years, 5(2%) respondents, in which 3(1.2%) male and 2(0.8%) female are aware of Library. In the age group of 28-38 years, 3(1.2%) respondents, in which 2(0.8%) male and 1(0.4%) female are aware of the library. In the age group of 38-48 years only male 1(0.4%) are aware of Library, in the age group of 48-58 and 58 above, there is no respondent aware of a Library. In the other hand out of 250 respondents, 240(96%) do not have any information regarding the library, which includes 118(47.2%) male and 122(48.8%) are female.

So, it may be concluded that the highest numbers of are unaware about the library and most of the respondents belong to the age group of 48-58 years. It is also observed that female respondents are much more unaware than the male respondents.

Suggestions

The present study has been undertaken to Information Needs of a Disadvantaged Community in Mayurbhanj District, Odisha: A Case Study on Lodha at Sansasole Village and to find out a way through which the needs for information might be available or accessible

to the disadvantaged community. On the basis of the study the findings and suggestion are as follows:-

➜Literacy campaign is the main obstacles for the Lodha Community. Proper awareness should be needed for that Community, especially create awareness programs like- Tribal education, scholarship, fellowship, single child education facilities and post matric scholarship. Financial is the important problems for the tribal community, that why they have failed to fulfill their higher study in private institutes. According to the result literacy rate for women is very low, so it should be creating awareness programs especially on women education. Higher education among the tribes is very less, special ST scholarships should be provided to the tribal students perusing higher education, particularly in medical, engineering, and other vocational streams. Adult education is also needed for all old age men and women because it helps them to read, write, speaking and self-signature for official purpose.

➜The Lodha Community is hardly unconscious about their health and hygiene. Still, they believe in traditional systems of treatment, especially herbal, medicine man, and superstition. There is one primary health care in their locality, but they use very rarely. So the health awareness programs should be organized timely and it should consult them about the different types of disease.

➜Birth control is most essential because it shows that the growth of childbirth is increasing among the Lodha Community of Sansasole Village. Most of the Villagers are unknown about the birth control related information. Still now Lodhas dependent on traditional birthing systems. Therefore, they should be needed adequate information regarding birth control planning, so the family awareness programs should be organized timely.

➜Library and Community information center may act as an information hub so that the basic needs of the rural people are fulfilled. Both the library and the Community Information Centre plays a vital role in the proper development of a Community. But in Sansasole villagers are do not aware of the Library and Community Information Centre. In the near areas, there is only one rural library and one Community Information Centre, but it is situated very far from the village. Therefore the library and Community and Information Centre is essential in near areas for the dissemination of different types of information about the Development Programs, Policies, Educational Information, Occupational, Health Information, Agricultural Information, and Welfare Schemes.

➜Most of the Lodhas peoples are belonging below the poverty line. They are in the BPL groups, so they always depend on Government welfare schemes like- 100 days works, Sorajgar Yojana and also depend on some other schemes, which help them for starting their own jobs, enterprises and as they earn as well. Self Group is another important scheme which helps the unemployed women for financial problems.

➜Total Lodha community depends on Occupational information. DudhiLata (Forest Product) is another alternative source of income which fulfills their daily requirements. Some others are engaged in agriculture and others are laborer. So it should be needed for proper occupational or Professional Training Institutes.

➜Drinking water is another important problem for the Lodha Community. There is no such drinking water facility. Still, now the use dug well-drinking water. So the proper awareness programs are requiring for drinking water.

➜The Lodha communities have not such arrangement Lavatory or Bathroom in their home. Government of Odisha gives them such facilities but due to the unaware, they do not use them properly. Still, they use natural toilet and bathing systems. So it should be needed proper arrangement about the hygienic sanitary systems.

Conclusion

The above study has been undertaken to explore the Information Needs of a Disadvantaged Community of Console Village and find out the possible suggestion by which their information needs might be fulfilled. The Lodhas have not yet been able to overcome their marginalized condition. In this study, I have found most of them were surviving their livelihood depend on forest product collection, agricultural and other are a daily laborer. Literary rate is very low, illiterate is bigger than literate persons. The Lodha parents do not send their children to the school; they engaged their children with collecting forest product. The development of Lodha community like any other community depends on their socio-economic condition. So, it is highly needed to explore their information awareness and Literacy.

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#16

SCHOLARLY COMMUNICATION THROUGH INSTITUTIONAL REPOSITORIES: A CASE STUDY OF NIT ROURKELA.

Bharati Pati

Introduction:

In the arena of Scholarly Communication and concerned about the latest trends, the idea of Open Access has been a vogue these days. Among the associates of the intellectual community involving, Science and Technology, Social Sciences and Humanities, it is a very contentious topic. Everyone is talking about either the advantages or disadvantages of the Open Access Movement. A complete hierarchy of academicians, authors, publishers, students and scholars from around the globe are being implicated through the concept directly or indirectly. At a point where the growth of the concept of Open Access has been paved way by the new generation as the latest model of information dissemination, there are still some issues related to it, which need to be resolved such as impact factors, peer reviewing, indexing, archiving, pricing models and stability of the publishing model for scientific literature. Within all these states of perplexity, the notion of Institutional Repositories emerged as a sustainable source of open access to scholarly communications. In terms of knowledge organization, these electronic achieves are gaining acceptance gradually. To deal with the paradigm shift in the cross-disciplinary research amphitheatre, institutional repositories could provide solutions for communication of research publications and moreover research outputs within organizations.

The Institutional Repository (IR) concept has given a new dimension to information management in the Internet age. The introduction of an IR can help to redefine the production, dissent-nation, and the use of resources. The Institutional Repository (IR) concept has given a new dimension to information management in the Internet age. The introduction of an IR can help to redefine the production, dissent-nation, and the use of resources The Institutional Repository (IR) concept has given a new dimension to information management in the Internet age. The introduction of an IR can help to redefine the production, dissemination, and the use of resources The Institutional Repository (IR) concept has given a new dimension to information management in the Internet age. The introduction of an IR can help to redefine the production, dissemination, and the use of resources.

About Institutional Repositories:

The very concept was initialized so as to gather on campus current research outcomes together and made them accessible via a single electronic gateway. This idea of scholarly communication consequently appeared to be a bonus for preservation and dissemination of scholarly literature at the institutional level. At the very beginning of the 21st century, in the

year 2000 to be particular, collections of the electronic theses and dissertations (ETDs) were started in South African Universities. "The Institutional Repository concept has given a new dimension to information management in the Internet age. The introduction of an IR can help to redefine the production, dissemination, and the use of resources" (Bharadwaj, 2014). "An Institutional Repository (IR) is a digital archive where a university community's intellectual work is made accessible and preserved for posterity" (Kamila 2009). The purpose of IRs is multidimensional; it includes "benefit of the researcher, the institution, and individual disciplines. Academic libraries also benefit from being involved in institutional repository initiatives, and there are implications for scholarly communication overall" (Cullen & Chawner,2009). Deciding on technical needs, development procedures, data management, and outreach initiatives are all vital to the success of an institutional repository (Miller, 2016). "Development of institutional repositories as a global phenomenon, comparing their objectives with the core principles of scholarly communication that have preserved and disseminated western knowledge for the past two centuries" (Cullen & Chawner, 2009).

The changing natures of scholarly communication, information technology, and software development have made this shift possible through the development of Internet publishing tools and software systems.

The Website of IR @ NIT Rourkela itself defines: -

"Institutional Repository (IR) is the collection of the scholarly output of the academic community. This involves the process of collecting, organizing, storing/archiving and made accessible to all users. IR constitutes of scholarly publications such as research articles (published in various journals, conference proceedings, and book chapters), theses and dissertations, project reports and any other materials submitted by faculty members, research scholars, staff, and students."

A Brief introduction to NIT Rourkela and the Central Library:

Regional College of Engineering (REC Rourkela) as it was formerly known, National Institute of Technology has been established in the year 1961. NITR is a leading institute for technical Education in Odisha at present. Located at Rourkela, the steel city of Odisha, NIT provides higher learning in the field of Engineering, Science and Technology, Social Sciences and Management. Spread over an area of 262 hectares of land provided by the Government of Orissa. It is a residential campus offering accommodation to faculty, staff, and students. It is one of the 31 National Institutes of Technology in India and ranked 15 by the NIRF rankings of Indian Engineering Universities. In the year 2018 itself, NITR ranked 601 out of 800 in Times Higher Education World University Rankings. Again, NIRF ranked 18 NITs in top 100 in which NIT Rourkela secured the 2nd position after NIT Trichy.

The Central library of NIT Rourkela is named after the former chief minister of Odisha, Mr. Biju Pattanaik and thus called BPCL (Biju Pattanaik Central Library). It is functioning since 1965. At present, the library holds about 65,000 books and 18,000 back volumes of periodicals. It has purchased a license to access over 2000 online research journals on science and technology to foster local research activity. The BPCL is automated with an integrated library software package called Libsys – LSmart and is modernized with the latest radio frequency identification (RFID)-based automation system that facilitates self-check-in,

self-check-out, and an automatic security system. This technology offers the fastest, easiest, and most efficient way to track, locate and manage library materials. The RFID system counts more than 1.2 lakhs of transactions (issue, return, and renewal) in a year.

IR @ NITR:

An academic library plays the protagonist when we speak about scholarly communication within an institution. Since the beginning itself in the traditional forms as well, the role of an academic librarian cannot be deprived of. With the advent of innovative technologies, the librarians' profile grows to be even imperative. We might call them electronic archives, ETDs or institutional repositories, these electronic compilations are managed by the libraries of the parent organizations. In the case of NIT Rourkela also, the central library (BPCL) has taken the charges since 2005. 'DSpace' has been chosen as the open source repository software package for creating the IRs. Presently, NITR possesses and maintain three (03) numbers of IRs.

e-Papers @ NITRKL (DSpace):

This foremost repository with a heading of 'शोध संग्रह' (Institutional Repository) collects research articles authored and published by students, research scholars and faculties of various departments. In this collection, paper submitted to various journals, book chapters' conference proceedings are gathered. And all these items are freely available to the all the users of the library, of course after necessary authentication. From this specified window, users can directly access twelve (12) more links listed as follows:

Useful Links	Submission Guidelines
About NITR	Submission Guidelines
BPCL Home	SHERPA Copyright
ETD @ NITR	Latest Submissions (RSS Feed)
Open Access to Odiya Books	DSpace - Help
Software Vault	Contact Us
NPTEL Video Lectures	
Search in OAIster	

Coming back to the listing of articles, they are classified under three (3) major categories. Author, Subject and Date Issued (Specified by Year). All these indexes are arranged in descending order according to numbers of articles contributed. Interested users can click on the desired keyword and have access to the full-text version of the document by navigating through links.

The following Table-1 shows the current (December 2018) top ten authors name in order of contributions.

Table: 1: Top Ten authors

Rank	Author	Department	Contributions
1	Mishra, S.C	Metallurgical and Materials Engineering	165
2	Roy, G.K	Chemical Engineering	137

3	Ray, B.C	Metallurgical and Materials Engineering	113
4	Mahapatra, K.K	Electronics and Communication Engineering	107
5	Panda, G	Electronics and Communication Engineering	88
6	Sahoo, Bibhudatta	Computer Science Engineering	88
7	Patra, S.K	Electronics and Communication Engineering	78
8	Behera, S.K	Ceramic Engineering	70
9	Satapathy, Alok	Mechanical Engineering	64
10	Dash, P.K	Electrical Engineering	63

Irrespective of the department they belong to, the second category here is subject. Where the theme of the article has been summarised under a single keyword. The particular keyword describes the topic of the article in general. The title, keywords provided by the author and abstracts are taken into consideration while indexing these research papers. The following Table-2 shows the top ten subjects (topic) in which research works have been carried out and the results are also published (subject to the contribution into the IR).

Table: 2: top ten Topics of Research

Rank	Subject	Contributions
1	Fly ash	23
2	OFDM	23
3	SEM	22
4	FTIR	21
5	Mechanical properties	18
6	XRD	17
7	Wear	15
8	Hardness	14
9	Microstructure	14
10	Genetic Algorithm	13

The third category of the listing is chronological. The contributed articles are arranged according to their years of publications. The time period considered is precisely a decade. All the papers are compiled under five (5) groups of decades and has been shown in Table-3.

Table: 3: Research contributions

Sl.No.	Year	Contributions
1	1970-1979	1822
2	1980-1989	923
3	1990-1999	99
4	2000-2009	51
5	2010-2018	46

e-Thesis @NITRKL (E- Prints):

With a heading of e-Thesis @ NIT Rourkela, this link directs to a collection of electronic theses submitted by students/scholars of NITR, to the parent institution. With a vision of making all research works globally visible, this repository was formed. All the students and

research scholars are compulsory to submit the final version of their theses irrespective of the department and course. Though the repository facilitates open access of the collection via this link, only an NIT Rourkela student/scholar can upload the respective creation after successful logging in and that too using campus intranet only. This repository is powered by "prints." All the contributed e-theses are again classified under six (6) broad categories. Such as Year, Subject, Department, Authors, Supervisor and Thesis Type. Here, thesis type indicates the degree to which the work has been submitted as a partial fulfillment. Prior to the submission or access to these collections, the repository policy could be followed, a link to which is very much available on the homepage. E-Thesis @ NITRKL powered by E-Prints is indexed by academic search engines like Google and BASE and online bibliographic aggregators like OAlster and Scientific Commons.

Project OAOB (E-Prints):
        Libraries are not just associated with technology and advancement. Rather these are institutions responsible for carrying forward the legacy of our rich ethnicity and culture. NIT Rourkela and BPCL in particular not only believed in the perception but successfully practicing it. Besides compiling the academic and scientific literature, IR @ NITRKL is furthermore involved in a non-profit, noble and social cause. Along with NGOs like Srujanika and Pragati Utkal Sangh, a joint venture of acquiring resources pertaining to Odia literature and culture. It is also an open assess initiative for disseminating Odia language literature to the general users of library interest across the globe. As recorded on the library website,

        "The mission of the project is to preserve the cultural history of Odisha by digitizing old, rare and new literary and other texts written in the Odia language. The primary focus is to digitize rare and copyright-free Odia documents (books, texts, and manuscripts) which are under the deteriorating condition in libraries, archives, and individual collections to make them openly accessible to all. Without any commercial motive the project is for the preservation of the literary work for students, academicians, and research scholars, persons with literary interest, historians, librarians and public with a literary bent of mind for private study only".
The Categorisation of these Odia literary works has been done into 21 broad subjects. The subject wise list is shown in the following table.

Table: 4: Categorisation of these Odia literary works

Sl No	Subject	No of Works	Sl No	Subject	No of Works
1	Anthology	43	12	Literature	215
2	Anthropology	8	13	Music	0
3	Biography	46	14	Novel	338
4	Criticism	17	15	Philology	2
5	Dictionary	1	16	Poetry	34
6	Drama	46	17	Politics	9
7	Epic	22	18	Religion	24
8	Geography	4	19	Review	3
9	Grammar	0	20	Science	5
10	History	26	21	Short Stories	107
11	Linguistic	6		**Total**	**956**

Issues, Challenges, and Prospects in maintaining IRs:

The solitary and basic prerequisite for an institutional repository is its content. And the contributing participants are the members of the concerned academic community. To persuade them to be a part of the open access movement is perhaps the most difficult task. The content recruitment from the skeptical respondents (McDowell, 2007) has to be strategic so as to bring together works of their own onto a single platform. "It appears that members of the academic and research community do not see repositories as part of the publication process" (Cullen & Chawner, 2009). When convinced to contribute for the first time users seems s mission accomplished, a continuation of submission is another assignment in the process. The active engagement of the already busy human resources of a library in the procurement raise might result in exertion. Mediation of the library staff though makes the procedure easier and successful. Advocating could be made in support of the third party engagement in maintaining the repositories. But on second thought, outsourcing will cost the institution more than the existing expenditure. A strong and mandatory policy of submission of each research output could be formed by the organization itself. But that would be again a debatable topic in the academic community. "A high workload involved in managing the process (i.e. modifying metadata, employing version control, checking that intellectual property rights have been observed and overseeing quality control), whether self-deposit or mediated deposit is employed. A more widely adopted solution is to mandate the deposit of theses from any research degree awarded by the institution and encourage the deposit of other staff publications. However, some academics are taking the initiative for themselves" (Henty 2007). In the case of electronic theses and dissertation, this policy is working successfully in many technical institutions including NIT Rourkela.

Conclusion:

Without any ambiguity, this could be concluded that NIT Rourkela and BPCL, in particular, is continuing the maintenance of the institutional repository flourishingly at their end. The team lead by Dr. Bhojraju Gunjal, chief librarian and the repository in charge Mr. Dibyakishore Pradhan (Asst.Librarian) are enthusiastically driven in the project in spite of their tiring schedules.

However, the understanding of positive usability of open access, self-archiving and an institutional repository for scholarly communication is growing each day in developing countries like India. Recommendations on the establishment of institutional repositories for increasing both research output diffusion and knowledge sharing should be proposed from the knowledge community. Through this bold move, not only the transparency of a research outcome will be inclined but the budding researchers will also get a prominent research profile. The future of open access repositories is definitely more promising than open access journals. The success of IRs totally depends on the technological support and a keen interest level of the members of the organization for sure.

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#17

DIGITAL LIBRARY DEVELOPMENT AND DIGITAL LIBRARY INITIATIVES IN INDIA

Dhruba Jyoti Borgohain

Introduction

The information professionals has faced number of challenges in handling, processing, disseminating information since the last decade of the 20th century mainly for information explosion-generation of information incessantly increased with the advancement of Information and Communication Technology in all fields of research and development; use of Internet became popular during 1990s in advanced countries due to which information communication developed to a large extent leading to generation of more and more information resources that too in e-format; popularity of electronic resources due to a large number of advantages over print resources gave the concept of managing these resources for proving easy access to its seekers brought the concept of electronic library that came into being in 1992; information professionals are demanded for handling more information and it involved a greater level of activity; they are in need of greater efficiency than previous; and demand for creating opportunities for co-operation and centralization in the creation and exploitation of shared data.

All these factors lead to the production of enormous electronic resources. Now, these resources are to be organized, managed, preserved, stored and disseminated to users on demand keeping in mind that the users get easy and cost-effective access with a huge variety of content. These demands use of a reliable network like the Internet, which came into being as an essential tool for promoting the digital library. All these lead to the growth and birth of digital environment in information processing and handling works which gave a new addition to library services i.e. digital library services- a step ahead of the traditional form of libraries. Information began to be stored in digital format rather than in print form.

Terminologies and Definitions of Digital Libraries

There is a number of terminologies which are used for the digital library:

    a) Paperless Library (Lancaster, 1982)
    b) Libraries without boundaries/Virtual Libraries
    c) Electronic Libraries (IFLA, 1983)
    d) Hybrid Library

Hybrid Library is a new concept than others, and are those libraries designed to bring a range of technologies from different sources together in the context of a working library and also to explore integrated systems and services in both electronic and print environment.

Definitions of Digital Libraries

Arms (2000) defined digital libraries as, "Managed collection of information, with associated services where Information is stored in digital format accessible over a network". The term "digital library" was used in 1994, in the project funded by the US government called "Digital Library Projects, Phase-1". Clifford Lynch (1995) defined digital libraries as, "Digital Library is a system providing a community of users with coherent access to a large organized repository of digital information and knowledge. The digital library is not just one entity, but multiple sources that are seamlessly integrated." Terence R. Smith (1997) defined as, "Digital Library is controlled collection of information bearing objects (IBOs) that are in digital form and that may be organized, accessed, evaluated and used by means of a heterogeneous and extensible set of distributed services that are supported by digital technology"

From these definitions it can be stated that digital libraries are databases of digital objects that may include text, still images, audio, video or other digital media formats accessible online through a network. In addition to storing content, digital libraries mean for organizing, searching, and retrieving the content contained in the collection.

Digital Library includes-
   a) Full-text databases, digital access to scanned text, photographs, printed texts or digital video segments.
   b) Scientific data sets like protein sequences, or nuclear acid sequences etc.
   c) Online databases and CDROM information products with multimedia or interactive video components.
   d) Software libraries or multimedia works.
   e) Digital audio, video clips or full-length movies.
   f) Computer storage devices like optical disks, jukeboxes, CD ROM/ DVD ROM towers, etc.
   g) Commercial and academic system designed to enable e-access to large corpora of electronic documents to authorized users.

Features of Digital Libraries

Digital libraries are characterized by three characteristics:
   a) **Access**: Supports multiple, instant and remote access to its resources which can be retrieved online, thus digital libraries are so-called libraries without walls.
   b) **Content**: Huge varieties of learning materials are provided through digital library services to its patrons.
   c) **Cost**: Digital access to information resources is cost-effective, comparatively of low cost than printed materials.

Based on these characteristics, digital libraries are found to have the following features:
   a) **No physical boundary**- Users need not visit the library physically, people from anywhere in the world can access information resources through the Internet. That's why digital libraries are called "virtual libraries".

b) **Round the clock availability**- A digital library provides access to its resources 24x7, people can use those resources as per their convenience justifying its title "Library without walls".

c) **Information Retrieval**- The user is able to use any search term (word, phrase, title, subject, and author) to search the entire collection i.e. compatible with the federated search. Digital libraries can provide user-friendly interfaces, giving clickable access to its resources.

d) **Preservation and Conservation**- Digitization is not a long term preservation solution for physical collections but does succeed in providing access copies for materials that would otherwise fall to degradation from repeated use.

e) **Space**- Digital information requires very little physical space to contain them and media storage technologies are more affordable than storage technologies for printed documents. Traditional libraries needed much storage space but digital libraries have much potential to store lots of information in a little space.

f) **Added Values**- Certain characteristics of objects, primarily the quality of images, change from a format to another can be improved. Digitization can enhance legibility and remove visible flaws such as stains and discoloration.

g) **Multiple Access**- The same resource can be used at the same time by a number of institutions and patrons. This may not be the case for a copyrighted material: a license may be issued at the time of lending (achieved through digital rights management).

h) **Easily Accessible** – Demands simply Internet connectivity for accessing the resources.

Digital Library Initiatives in India

The concept of digital library and digitization has started in western countries in the last couple of years back. In developing countries like India, initiatives are being taken. The Govt. of India has already taken initiatives with help from the USA. The National Science Foundation of USA has initiated "The Million Book Project" at the Carnegie Mellon University in the USA with India as a part in this endeavour. The project at digitizing a million books by 2005 alone. When it was over then it proved to be an important step in the field of digitization in India. As a part of this project, India launched "Digital Library of India Portal" in September 2002 and it was launched by Dr. APJ Abdul Kalam. As a part of digitization efforts, the Department of Culture, Ministry of Tourism and Culture, GoI, also launched the National Mission for Manuscripts in February 2003. It was inaugurated by the then Prime Minister Sri Atal Vihari Bajpayee. The main aim of this mission was to facilitate conservation and preservation of manuscript through digitization, to encourage research in the study of

Indian languages and manuscriptology, and to build a National Manuscript Library. All these projects launched in India for initiating digitization in library operations and services.

There are numbers of Digital Library Initiatives in India which are discussed briefly and arranged under the following categories:

A). Initiatives for Digital Library of Books

[1] **Digital Library of India** (http://www.dli.ernet.in)

It is a part of Universal Digital Library Project of US-NSF and Million Book Project envisaged by Carnegie Mellon University, USA. Initiated in India on 8th September 2003; the coordinating agency is IISc Bangalore, supported by the Ministry of Communication and Information Technology, GoI.

Activities – Digitizes and preserves all significant library artistic and scientific works in its three regional mega scanning center and 21 scanning centers and make it freely available to the world for education and research. At present Digital Library of India hosts 4, 80, 335 books.

Participating Institutes – Indian Institute of Information Technology, Hyderabad; Centre for Development of Advanced Computing (C-DAC), Noida; C-DAC Kolkata; and ERNET, INDIA.

[2] **Vigyan Prasar Digital Library** (http://vigyanprasar.gov.in/digilib/)

It is co-ordinated by Vigyan Prasar, an autonomous council under DST, GoI for communication in the field of Science and Technology. It maintains an open-access digital library to spread scientific knowledge, where digital collections contain digitized full-text versions of all significant scientific works that are being published by Vigyan Prasar.

Participating Institutes – National Council for Science and Technology Communication (NCSTC), New Delhi; NCSTC Network, Delhi; and National Children's Science Congress.

[3] **NCERT Online Textbooks**

(http://www.ncert.nic.in/textbooks/testing/Index.htm)

The National Council for Educational Training and Research has initiated a national portal where school textbooks based on National Curriculum Framework-2005, are freely available on the Internet for students and teachers. This portal provides easy navigation to textbook chapters by title/subject of the book for a particular class. The entire book or individual chapters can be downloaded as per terms of use as mentioned in the copyright notice. The service provides easy access to textbooks of all subjects published by NCERT for class 1 to 12 in Hindi, English, and Urdu.

B). Initiatives for Digital Library of Manuscripts

[1] **Kalasampada**: Digital Library Resources for Indian Cultural Heritage (http://www.ignca.nic.in/dlrich.html)

Indira Gandhi National Centre for Arts (IGNCA) in collaboration with the Ministry of Communication and Technology sponsored this project. This digital library was initiated for the development of databank on cultural heritage. It provides online access to digital images of cultural heritage resources such as manuscripts, rare photographs, rare books, rare paintings, sculptures, handicrafts, monuments, artifacts, festivals as well as a variety of textual, graphical and audiovisual multimedia resources. Kalasampada facilitates scholars access to the materials including 2,72,000 manuscripts, 10000 slides, thousands of rare books, 4000 rare photographs, 400 hours of audio-video clips along with research publications, fifty tutorials produce by IGNCA. It also holds a Sanskrit textbook repository called "Gaudiya Grantha Mandira" that covers more than 400 chapters from different original texts. Kalasampada received an honor namely "Golden Icon Award for Exemplary Implementation of e-governance Initiatives" under the category Best Documented Knowledge and Case Study given by India's Department of Administrative Reforms and Public Grievances in 2005.

[2] **National Mission for Manuscripts** (http://www.namami.org/index.htm)

Sponsored by Dept. of Culture along with Ministry of Tourism and Culture, GoI launched this project on February 2003 with an aim to locate the document, preserve and render a vast collection of manuscripts which are available in a variety of themes, languages, calligraphies, illuminations, and illustrations. NMM established a network of 47 Manuscript Resource Centres (MRCs), 32 Manuscript Conservation Centres (MCCs), 32 Manuscript Partner Centres (MPCs) and more than 200 Manuscript Conservation Partner Centres (MCPCs) across the country for identifying, inventorying, preservation and conservation of endangered documentary heritage collections available in the form of manuscripts. NMM maintains a national database of manuscripts called "Kritisampada". At present 20 lakh data are available on the NMM website.

[3] **Muktabodha: Digital Library and Archiving Project**

(http://muktabodhalib.org/digital_library.htm)

Initiated by Muktabodha Indological Research Institute on July 2003 to preserve scriptural texts related to Tantric and Agamic traditions, as well as India's oral tradition of Vedic Chanting and the ritual philosophical knowledge associated with it. The goal of it is to preserve rare Sanskrit manuscripts and texts in multiple digital formats and make them accessible through the website for study worldwide. For digital preservation and conservation as well as management of digital resources another group of initiatives was started by different autonomous councils, initiatives for digital preservation of Theses and Dissertations.

C). **Initiatives for National Digital Libraries for Electronic Theses and Dissertations**

[1] **Shodhganga** (http://shodhganga.inflibnet.ac.in)

It is an Indian ETD repository launched on 20th May 2010 by INFLIBNET Centre under the support of UGC with an aim to facilitate Open Access to Indian Theses and Dissertations to the academic community worldwide. Aims at improving the quality of research in Indian Universities and avoiding duplication of work. Till now more than 405 Indian Universities have signed MoUs with INFLIBNET Centre to join in Shodhganga Project and deposit their theses. It provides access to more than 20000 full-text copies of theses, with more than 5000 synopses submitted by research scholars of M. Phil. and Ph.D. programs. Shodhganga received the e-India Jury Choice award for the best ICT enabled Higher Education Institute of the Year in 2011.

[2] **Vidyanidhi Digital Library** (http://www.vidyanidhi.org.in)

It is a portal of Doctoral Research implemented by Dept. of Library and Information

Science, the University of Mysore supported by NISSAT, DSIR, GoI; Ford Foundation

and Microsoft India. It is having two different layers providing support to its users- a

metadata layer which is a database and the database with full-text of theses. More than 5000 full-text and 50000 bibliographic records of theses submitted to the Indian

Universities hosted in Vidyanidhi.

D). Initiatives for Digital Library of Journals: These are initiatives started by different scientific societies of India and by some publishers.

[1] **Indian National Science Academy** (www.insa.ac.in)

It was established in 1935 by GoI under the support of NISSAT. INSA initiated an e-

journal project in 2002. The portal of e-journal provides access to current and back

volumes of full-text literature of INSA journals, organizes scientific discussions, proceedings, and monographs, annual report, etc.

[2] **Indian Academy of Sciences** (www.ias.ac.in/pubs/journals)

It provides access to 11 peer-reviewed journals in a digital format with back files and

other publications including reports, newsletter, magazines (Patrika), yearbook and

annual report etc. published by Indian Academy of Sciences.

[3] **NISCAIR Research Journal** (http://nopr.niscair.res.in/)

For preserving its 7 research journals, working papers, technical papers, conference

papers in digital format, NISCAIR developed Online Periodicals Repository (NOPR).

[4] **National Science Digital Library** (http://nsdl.niscair.ac.in)

It was formed to provide Science and Technology information to students pursuing

UG and PG courses in Science and Engineering subjects. NSDL provides curriculum

based access to e-books, lecture notes, presentation for undergraduate science students.

[5] **Indian MEDLARS Centre** (http://inmed.nic.in)

It provides information support and services to the medical research community. It also provides online access to a bibliographic database which has indexes of more than 100 prominent Biomedical journals from India. MEDIND@NIC is also a link providing open access to full-text articles of 62 Indian Biomedical Journals.

[6] **E-ShodhSindhu** (http://eshodhsindhu.inflibnet.ac.in)

It is a consortium formed by merging of UGC-INFONET Digital Library Consortia, N-LIST Consortia, and INDEST-AICTE Consortia. It is executed by INFLIBNET Centre, an initiative of MHRD, GoI. It provides access to more than 10000 e-journals, 31, 35000 e-books to Indian universities, colleges and centrally funded technical institutes. Presently, there are 217 universities, more than 3000 colleges and 91 CFTIs in its membership.

E). Initiatives for Digital Library of Online Courseware

[1] **NPTEL** (www.nptel.iitm.ac.in)

It is a project funded by MHRD started by seven Indian Institutes of Technology and

IISc Banglore. It provides enhanced quality of information support to engineering students by providing curricula-based video and Web courses.

[2] **e-Gyankosh** (www.egyankosh.ac.in)

Started by IGNOU for the establishment of a National Digital Repository of learning resources. It stores, index, preserve, distribute and share digital resources of Open and Distance Learning (ODL) institutes in India. It provides learning resources in different formats such as self-instructional study materials, audio-video programs, and archives of radio and television based live interactive sessions.

[3] **e-PG Pathshala** (http://epgp.inflibnet.ac.in/about.php)

It is a portal under INFLIBNET Centre sponsored by UGC, New Delhi which provides access to e-content of 77 subjects at PG level. Contents of high quality which are interactive and purely based on curriculum are provided in this portal in all disciplines of Social Sciences, Arts, Fine Arts and Humanities, Natural and Mathematical Sciences, Linguistics and Languages are being developed under this initiative.

[4] **UGC- INFONET Digital Library Consortium** (http://www.inflibnet.ac.in/econ)
Currently, it is merged under e-Shodhsindhu. Before merging, it provided access to e-resources to 206 universities and 150 institutes covered under associateship program. It had the current and archival access to 8500 core and peer-reviewed journals as well as 10 bibliographic databases from 28 publishers.

F). Special Initiatives for Digital Library

[1] **TKDL** (www.tkdl.res.in)
TKDL stands for Traditional Knowledge Digital Library and it's a collaborative project of NISCAIR, CSIR, Ministry of Science and Technology, Department of AYUSH, Ministry of Health and Family Welfare and being implemented by NISCAIR. Public domain traditional knowledge related to Ayurveda, Unani, and Siddha in 5 international languages (viz. English, German, French, Japanese and Spanish) are documented in this initiative of the digital library. The researcher can access study materials and documents having a scientific value of medicinal knowledge and remedies in the collection protecting from foreign pharmaceuticals to copyright such medicinal information.

[2] **Librarians Digital Library** (http://drtc.isibang.ac.in/)
Developed by DRTC Bangalore providing access to full-text research papers and research articles related to Indian Librarianship. DRTC Seminar papers, theses, and
dissertations submitted by LIS professionals in the institute are in its holdings.

[3] **National Digital Library** (http://ndl.iitkgp.ac.in)
It's a pilot project initiated by the Ministry of Human Resource Development in May 2016 under its National Mission on Education through Information and Communication Technology (NMIECT) and implemented by IIT Kharagpur. Presently it hosts 18,907,705 items with more than 1,200,000 memberships. Its aim is to provide an online search facility to a huge variety of virtual repository of online resources and integrate many national and international digital libraries at one portal. It provides support as an interface for studying and learning Indian languages and holds content of many Indian languages. It is designed to help students to prepare for various competitive exams and entrance exams providing access to the best learning resources from all over the world and facilitate researchers to perform interlinked web explorations from multiple resources.

Learning resource types in NDL portal includes- Technical reports, Manuals, Monographs, Albums, Books, Theses, Audio lecture, Articles, Video lectures, Manuscripts, Question papers, Web courses, Data set, Annual reports, Solution, Law judgments, etc. A subject domain which NDL holds is Religion, Language, Natural Science and Mathematics, Computer and Information Science, Social Sciences, Philosophy, Psychology, History, Geography, Literature and Rhetoric, Arts, Fine Arts, and Decorative Arts, and Technology. There are some featured sources in NDL portal which are discussed previously Includes: NPTEL, e-Shodhsindhu, e-Granth, NCERT, libriVox, Krishikosh (it includes 50000 agricultural books, journal, articles, and reports). News and Events portal maintained by NDL gives CAS to its users regarding various Scientific and Technical Seminars and programs being held across the country and also the latest development in NDL services.

Conclusion

The online availability of Theses and Dissertations through centrally managed digital repositories like Shodhganga is helping in raising quality and standards of research of an institution besides minimizing duplication of works and providing easy access to these resources. National Digital Library is a major initiative that is striving to create a digital environment in India showing the world that India has travelled far ahead in Digital Library Movement. For the libraries which are aiming to develop a digital library must make careful planning, proper agenda through feasibility study of projects that have been already successful in digitization. Digital project implementation requires careful selection of hardware, software, materials, and standards to be used in the process. Digital Library Initiative in India is still in a nascent stage and digital environment in India is a new concept which can become a reality through more and more projects funded by government and India's participation in international initiatives like "Million Book Project", U.S.A.

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#18

OPEN SOURCE PHILOSOPHY AND INITIATIVES IN INDIA AND THE WORLD

Lianhmingthangi Hnamte

Introduction

Open Source is nothing but a term denoting software for which the original source code is made freely available and may be redistributed or modified. It is usually developed as a collaborative public matter. The emergence of Information and Communication Technology provoke penetration of software and computing as part of the inevitable component in the digital era. The revolution in software development envisages the initiation of open source software which guarantees the freedom of access to the programming through the source code. While the proprietary system does not allow freedom to the user, open source software facilitates the maintenance of application and encourages access to multiple users. Open source has resulted in the academic collaboration and societal development by offering practitioners with tools, options and a value system for implementing systems. The government of India has recently embarked on a new shift towards enhancing open source software as part of the digital initiatives. This paradigm shift has enabled decision- makers to procure a broader range of benefits and maximize its utilization in the sphere of economy, jobs and innovation and the government itself.

Open Source Philosophy

The genesis of Open Source Software (OSS) began around 1969-1970 when Kenneth Thompson, Dennis Ritchie and others at AT & T Bell Labs developed Unix, the first widely used operating system. However, in the late 1960s and mid-'70s, proprietary software started making progress into the market. The proprietary vendors hid the source code and made a profit by charging a license fee. Richard Stallman, a programmer at MIT was one of the earliest proponents of free software who stood against this trend.

In 1985, Stallman formally founded the "free software foundation" whose objective was to create free software, including a free operating system. In the year 1998, Christine Peterson coined the term Open Source. Part of the free software community began using the term Open Source Software rather than Free Software so that free as in liberty to copy or modify would not be confused with free as in free of charge. OSS came into library community in 1999, when Daniel Chudnov, founder of the Open Source System for Libraries project, wrote an introductory article in Library Journal.

The term "Open Source" derived its literal meaning from the term "Free Software". In spite of the fact that free in English word denotes "no cost", the word "free" in Free Software pertains to freedom, not price and connotes liberty to view and modify the source code. The open source philosophy emerges extensively out of the demand from the vendors,

developers, and users as it integrates technology and encourages collaboration. The term open source software refers to software that can be publicly accessible, viewed, altered, enhance and re-distribute any portion of that code. For example, Linux Operating System offers a programming background which enables its user to modify any aspect of the computer software to suit their personal needs. You can change the way a button looks or the way a menu opens or anything that is appropriate to your preferences.

There are two popular open sources which we used daily but most frequently we are not aware of it. These are:

a) ***Mozilla Firefox***

It is currently one of the most popular open source software projects going around. With features such as tabbed browsers, integrated search, live bookmarks, and generally faster user experience, it is a lot more feature packed and friendly than proprietary products such as Internet Explorer. Despite the fact that Microsoft and Apple have multi-million-dollar development budgets, their browser software is currently being beaten by something developed by the people.

b) ***Wikipedia***

It is an open-source encyclopaedia, is also taking the World Wide Web by storm. Containing over five million articles in a large number of languages, the site is claimed to be one of the top twenty most visited sites on the Internet (Alexa Internet, 2006). Anyone can modify the content on Wikipedia, which is one of the key ingredients to its success.

The functionality of Open Source Software (OSS)

The Open Source Initiatives (OSI) defines OSS as software providing the following rights and obligation:

a) Free Redistribution – Anyone who received the software legally can share all of it with anyone he/ she like without additional payment.

b) Source Code – Source code of the software must be distributed as well or be available at reasonable reproduction cost.

c) Derived Works – The modification of the software and the distribution of this derived work must be allowed.

d) The integrity of the Author's Source Code – The distribution of modified source code must be allowed although restrictions to ensure the possibility to distinguish the original source code from the derived work are tolerated.

e) No Discrimination against Persons and Groups – The license must not discriminate against any person or group of persons.

f) No Discrimination Against Fields of Endeavour – The license must not forbid the usage of the software in the specific field of endeavour.

g) Distribution of License – The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parts.

h) The license must not be specific to a product- The right given by the license must not be different for the original distribution and any other one even when it takes place in a totally different context.

i) The license must not contaminate other software.

Open Source Initiatives

Open Source Initiatives is a non-profit organization dedicated to promoting the non-profit organization. The organization was founded in late February 1998 by Bruce Perens and Eric S. Raymond, part of a group inspired by the Netscape Communications Corporation publishing the source code for its flagship Netscape Communicator product. Later, in August 1998, the organization added a board of directors. Raymond was president from its founding until February 2005, followed briefly by Russ Nelson and then Michael Tiemann. In May 2012, the new board elected Simon Phipps as president and in May 2015 Allison Randal was elected as president when Phipps stepped down in preparation for the 2016 end of his Board term. Phipps became President again in September 2017.

Open Source Initiatives in India

The Open Source Initiatives within India can be enumerated as follows:

a) National Resource Centre for Free/Open Source Software (NRCFOSS)

National Resource Centre for FOSS was set up in April 2005. It was supported and funded by the Department of Information Technology.

Objectives:
- o Bridge the digital divide
- o Bring ICT to the masses
- o Strengthen the Indian Software Industry with FOSS technology
- o Encourage community participation.

Achievements
- o Large deployments of Gnu/Linux.
- o Huge saving of revenue.
- o More than 100,000 students got introduced to FOSS.
- o FOSS support center established in many parts of the country.

b) Open Technology Centre

Open Technology Centre is a division of National Informatics Centre which was set up in March 2007 in Chennai. It was funded by DIT and MCIT.

Activities
- o Assistance in National Policy on Open Standards for E-Governance
- o Recommending and Promoting the adoption of Open Source Software Stack.
- o Provisioning support mechanism for Open Source Software Stack.

Achievements
- o NIC mail Server 2, 00,000 mailboxes
- o E-Procuring system tendering across states.
- o E- Court Project -12000+ Linux Laptops across India.

- o Common Integrated Policy Application
- o Trained around100 teams on FOSS at various government departments.

c) Bharat Operating System Solution (BOSS)

BOSS is a GNU/Linux based localized Operating System distribution that supports 18 Indian languages - Assamese, Bengali, Bodo, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Maithili, Malayalam, Manipuri, Marathi, Oriya, Punjabi, Sanskrit, Tamil, Telugu, and Urdu. BOSS has been certified by Linux Foundation and is expected to meet the stringent demands of e-governance. Desktop and Server versions are available for BOSS. Also an educational variant EduBOSS has been brought out for schools.

d) Open Source E-Learning Laboratory

Open Source e-Learning Laboratory has been established at C-DAC Hyderabad. E-Learning solutions such as LMS, CMS, Authoring Tools, Video streaming tools and e-Learning standard compliant solutions have been developed. Certificate courses in "Linux System programming", "Linux Kernel Programming & Device Drivers" and "Web Application Development using Open Source Software" are being run online by the Centre. Also, an On-line course on `Financial Literacy' to be offered through e-Shikshak and Moodle, has been developed. It is available in ten languages (Assamese, Hindi, Marathi, Bengali, Gujarati, Kannada, Malayalam, Tamil, Telugu and English).

e) Assam Electronics Development Corporation Ltd. (AMTRON)

AMTRON was developed for the promotion of communication and Information technology. It is a prosperous technology hub for Assam and other Northeast state.
Achievements
- o FOSS labs set up in 1610 secondary school.
- o 900+ schools, students are taught on the GNU/ Linux platform.
- o 2, 00,000+ students learn FOSS based computing every year.
- o More than 43.78 million INR saved in five years.

Open Source Initiatives in the World

The Open Source Initiatives at the global level can be enumerated as follows:

a) Apache Software Foundation

Apache Software Foundation provides organizational, legal, and financial support for a broad range of open source software projects. The Foundation provides an established framework for intellectual property and financial contributions that simultaneously limits contributor's potential legal exposure.

b) The Document Foundation

The Document Foundation is proud to be the home of LibreOffice, the next evolution of the world's leading free office suite. It is an independent self-governing meritocratic entity, created by former leading members of the OpenOffice.org Community, in the form of a charitable Foundation under German law.

c) The Eclipse Foundation

The Eclipse Foundation hosts a large community of over 300 open source projects and 8 industry working groups such as IoT, Automotive or Aerospace. The Foundation provides a set of services and best practices to enable vendor-neutral collaboration on open source technology.

d) Free Software Foundation

The Free Software Foundation (FSF) is a "non-profit with a worldwide mission to promote computer user freedom and to defend the rights of all free software users." Free software is about having control over the technology we use in our homes, schools, and businesses, where computers work for our individual and communal benefit, not for proprietary software companies or governments who might seek to restrict and monitor us.

e) Linux Foundation

Founded in 2000, the Linux Foundation sponsors the work of Linux creator Linus Torvalds and is supported by leading technology companies and developers from around the world. The Linux Foundation is the non-profit consortium dedicated to fostering the growth of Linux.

f) Linux Professional Institute (LPI)

Founded in 1999, LPI is a Canadian non-profit that advocates and assists in the professional use of Linux, open source, and free software.

g) Open Courseware Consortium

The Open Courseware Consortium is a worldwide community of hundreds of universities and associated organizations committed to advancing Open Courseware and its impact on global education. Open Courseware (OCW) is a free and open digital publication of high-quality university-level educational materials.

h) Open Source Matters

Open Source Matters (OSM) is a not-for-profit organization, incorporated in the United States, created to serve the financial and legal interests of the Joomla project. OSM will also engage in regular self-assessment to ensure it is accountable to Joomla! acting in Joomla!'s interest and ensuring that it is the right shape and size to support Joomla!

i) Open Source Geospatial Foundation

The Open Source Geospatial Foundation is an umbrella foundation for the support of collaborative development of open source geospatial software. All major GIS related software projects are involved; furthermore, it includes educational outreach, public geodata, and growing communities.

j) Open Source for America (OSFA)

Open Source for America (OSFA) seeks to raise awareness in the U.S. Federal Government about the benefits of open source software. OSFA hopes to encourage the government's utilization of open source software participation in open source software projects, and incorporation of open source community dynamics to enable transparency.

k) OpenStack Foundation

The OpenStack Foundation promotes the global development, distribution, and adoption of the OpenStack cloud operating system. As the global independent home for OpenStack, the Foundation serves more than 30,000 Individual Members from over 170 countries around the world.

l) Oregon State University (OSU) Open Source Lab

The Oregon State University Open Source Lab is the home of growing, high-impact open source communities. Its world-class hosting services enable the Linux operating system, Apache web server, the Drupal content management system and over 50 other leading open source software projects to collaborate with contributors and distribute software to millions of users globally.

Conclusion

The last two decades have seen revolutionary changes in ICT that have transformed the way we work, communicate, inform and entertain our lives. During the same time, the free and open source initiatives have emerged as an ethical and technological framework that ensured that this rapid growth in technology was subject to reasonable checks and balances. Open Source Software is very vigorous in national and international level and a number of institutions are participating to promote the OSS application in general and library oriented. Hence OSS is playing an important role in satisfying user current needs and is very essential for information management in libraries.

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#19

ASSISTIVE TECHNOLOGIES FOR USERS WITH VISUAL IMPAIRMENT IN LIBRARY & INFORMATION CENTRES: A STUDY

Shibashis Pradhan
Rudra Narayan

Introduction

In the present age, information is essential for all human beings. The library and information centers play a vital role in catering the day to day information needs. The basic aim of every library and information center is to make available the right information at the right time and in the right format to its users regardless of race, religion, age, sex, nationality, and language. At all times the library treated as an important element of any educational institution and center of learning activities where all the user community can explore the information resources. In order to assure equal opportunities to all, the convenience of ICT educational tools is worldwide considered a major issue for disable users. In this context, users can take benefit of a large number of effective Assistive Technologies (AT) to use electronic material for learning purposes. Bhattacharya & Roy, (2013) identified four categories of people with special needs which include mobility impairments, blindness/low vision, hearing or speech impairments and specific learning disabilities. The visually-impaired and blind population constitute a major segment of society all over the world. According to the World Health Organisation (WHO), there are about 285 million visually-impaired people worldwide, out of which 39 million are blind and 246 with low vision. Statistics also indicate that 90 % of the world's visually- impaired population live in developing countries. India is home of 26,810,557 (26.8 million) disabled persons which represented 2.21% of the total population of the nation. Five million people are visually impaired (disability in seeing) which is 18.8% of the total disabled sections in the country (Census of India, 2011). In this regard, the fundamental duty for all libraries is that the information they preserve and disseminate in many formats should be made available to all including disabled users. Hence, the differently abled users can access to knowledge and information on an equal basis with the other sectors of the society.

Review of Literature

Eligi and Mwantimwa (2017) argued on the various accessibility requirements for e-learning products recognized by the laws in force in the different European and non-European countries. The products should be considered an important step to foster the actual "usability" by the visually impaired community. Abdelrahman (2016) conducted a study to find out different facilities and support available for the visually impaired and blind students at the University of Khartoum in Sudan. The study exposed the services and facilities offered at the University of Khartoum are insufficient and recommended to provide

more training according to the need of the visually impaired and blind students by using the available assistive technologies. Ejedafiru and Oghenetega (2014) examined the need to develop public libraries services for virtually impaired persons by adopting assistive technology. The study highlighted the difficulties facing by public libraries in the use of assistive technologies in Delta state and Nigeria while implementing these technologies to ensure inclusive services to the visually impaired. The study also suggested that ICT and its related technologies should be embraced in all the branches of public libraries and library policy statements and it should be translated to reality, in order to provide a comprehensive service to the differently abled user community. Sanaman and Kumar (2014), studied the current status of the different assistive technology facilities available for persons with disabilities in libraries of the National Capital Region, India. The study found the lack of assistive technology facilities and suggests to the LIS professionals to strengthen ICT and related adaptive technology implementation to cater to the information needs of the people with disability in National Capital Region libraries. Pal et. al. (2011) discussed the status of various technologies in the context of the developing world and proposed directions in scientific and community-contributed efforts to amplify the importance and access to assistive technology and accessibility in the developing world. The research revealed that the people with vision impairments – market-prevalent technologies are very expensive and are built to support the language and infrastructure typical in the developed world and the initiatives were taken for the developing world is inadequate.

Objective of the Study

The objectives of the study are:
- To highlight the technologies and facilities available for providing visually-impaired users according to their information needs.
- To make aware and sensitized library professional the different aspects of assistive technology and its implementation in libraries and information centers.
- To suggest the ways and means improve the library facilities for visually impaired as per the changing environment.

What is Assistive Technology?

Technology has been defined as "systematic knowledge and action, usually industrial processes but applicable to any continuing activity". In providing tools and techniques for action, technology at once adds to and draws from a knowledge base in which theory and practice interact and compact (Rayani, 2017). At its most general level technology may be regarded as a definable and specifiable way of doing anything. In other words, we may say technology is a codified, communicable procedure for solving problems.

The technology linked assisting to the persons with disability (Act of 1988) defined assistive technology as any item, piece of equipment or product system, whether acquired commercially, off the shelf, modified, or customized that is used to increase or improve functional capabilities of individuals with disabilities. Assistive technologies usually focus on improving access and freedom for persons with disability. Assistive technology provides the ability to students who are visually impaired with the capability of achieving educational success and gaining competitive employment by the help of effective communication and the

tools for increased independent access to information (Anis, 2017). Assistive technologies are specialized pieces of equipment or software intended particularly for disabled users. The technology may be hardware, software or another device that allows a person with a physical, sensory, communication or learning challenge to work around his area of disability. Assistive technology devices can be of two types; Low tech and High-tech devices.

- **Low Tech Devices**: Assistive technology low tech strategy includes colour coding, enlarged print books, handheld magnifiers, highlighter tape, eyeglasses, tape recorder, voice projector, etc.
- **High Tech Devices**: High technology requires high maintenance of the electronic system and hence more costly. This includes Braille writer, Braille translation software, Braille printer, computer with speech output, operating system, etc.

Assistive Technologies in Library and Information Centres

Information can be provided to the persons with disabilities, if libraries can make essential arrangements to offer their computing environments to the users for the utmost utilization of electronically published materials, despite their abilities. Library staff should be aware of all the accessible adaptive technologies which deal with different disabilities and should be acquainted with how to help out the users with contemporary library technology. In this way, the libraries can build successful assistive technology programmes to establish an improved solution for providing access to the library resources and the service. Libraries, as treated as a caterer of information, should be at the forefront to eliminate the barriers, which are obstructing access to information. Most significantly library staff members need to know what technology barriers user may face and how staff members prove themselves to overcome them. Assistive technology makes the library and its resources work for patrons with disabilities. When designing a library database or website, priorities should be focused on the individuals with extremely low vision or no vision, who are accessing electronic resources. Libraries must accommodate the needs of users who depend on electronic resources for access and assistance. Assistive technology facilitates a person with a print disability to access reading materials and other collections in a library. The area of assistive technology is growing rapidly and making various assistive software applications available for users with disabilities ranging from simple to highly specialized. The assistive technology services in academic libraries provide new opportunities for students with disabilities to function more efficiently in a variety of circumstances as it improves access to information, allowing students with disabilities to independently search for solutions to meet their individual needs. There are thousands of assistive devices available nowadays that can be applied to address a variety of personal needs. Due to the high cost and complex nature of some assistive devices, the library personnel to be trained well with the technological aspects before providing such services to the users.

Assistive Technology in Information Access for Visually Impaired

Assistive technology options for the visually-impaired ranges from basic and relatively inexpensive magnifiers to expensive electronic devices used as adaptive communication

technology. Preference for suitable assistive technology and output systems (auditory, visual or tactile) will depend on the user's level of functional vision.

- **For low vision users'** image and text magnification are available for computing and communication technologies, tactile and audio technologies are being applied for blind and legally blind users, and tactile devices exist for blind and deaf-blind users.
- **For the low and sensitive-vision users**, devices such as high-resolution screens, oversize monitors, glare guards, and screen magnifiers are available.
- **For no vision or hearing users**, major means of communication would be Braille displays which allow for tactile information display along with Braille keyboards, as well as other forms of Braille material.
- **For users with hearing, but no vision**, in addition to the Braille technologies, there is existing of screen readers that communicate computing screen output in audio formats.

Libraries and information centers around the world have developed specialized information services to meet the information needs of visually impaired users. Assistive technology is comprehensively related to navigation or communication. Further assistive technology is categorized into back-end tools, input tools, and output tools.
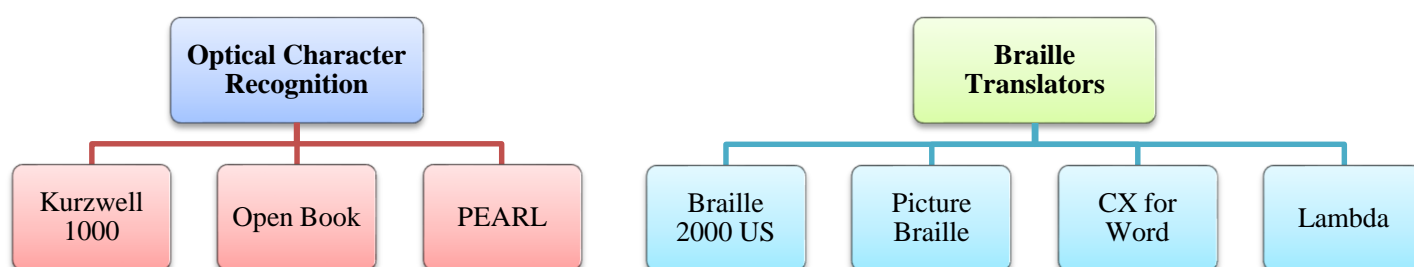
Back-End tools

The back-end tools refer to those technologies that conduct either the operating system or application-level functions but do not directly interface with the AT user. Such back-end tools may execute the functions pertinent to one specific or a range of AT, irrespective of the output format.

Optical Character Recognition (OCR)

Optical character recognition technology offers visually impaired with the ability to obtain an image of text and have it spoken aloud, using speech output, displayed in Braille, using a Braille display. The technology exists to convert graphics into tactile images. There are three essential elements to OCR technology in order to obtain image recognition and reading the text. Initially, a printed document is captured by a camera, OCR software then converts the image into recognized characters and words, and the synthesizer in the OCR system then speaks the recognized text aloud or display it on a Braille display. Kurzwell 1000, OpenBook and PEARL are few examples of OCR software.

Braille Translators

A Braille translator is a software program that translates a script into Braille and sends it to a Braille embosser/printer, which produces a hard copy of the original print text. Braille translator software is required to make text to Braille documents for any Braille printer. Some Braille translator software are Braille 2000 US, PictureBraille, CX for Word and Lambda.

Fig 6.1: Backend Tools

Input Tools

Input tools refer to the means by which people with visual impairments communicate with the computing interface. Depending on the user's level of functional vision, the input devices may vary in different levels.

Speech Recognition

A tactile system such as Braille has been used since the 19th century to help the visually impaired to communicate. In recent times, technology has also made life much easier for people living with disabilities to use a computer. One such innovation is software based on speech recognition. It gives users the option to use a speech to text system, which means users talk to the computer and their input is converted to electronic text. Dragon Naturally Speaking, Braina, Sonix, and SpeechTexter are some speech recognition software.
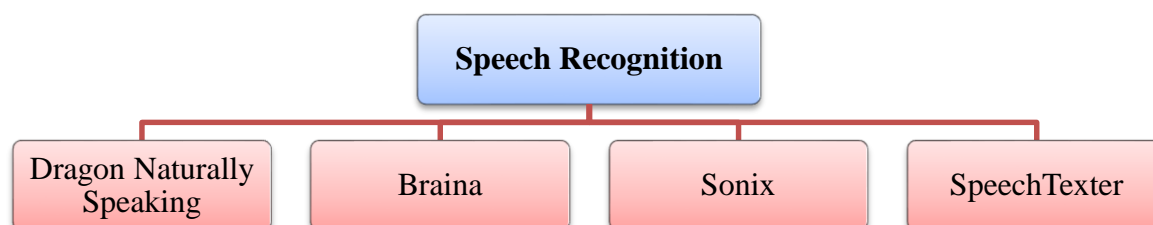
Fig 6.2.1: Speech Recognition

Output Tools

As with the support of input technologies, the use of output tools certainly consider for people with vision impairments depends on their level of functional vision and hearing. Accordingly, an appropriate tactile, visual, or audio output support system can be provided to the users. Visual output devices are usually magnifiers which can be either handheld or integrated into the computing environment. The audio output would include the range of products such as screen readers. Tactile output devices allow users to perceive through touch – broadly either a range of Braille-related products or advanced Haptic devices, that not only allow access to textual material as in the case of Braille but also feedback on texture, shapes, vibrations, and motion.

Screen Readers

Screen readers are software programs that allow blind or visually impaired users to read the text that is displayed on the computer screen with a speech synthesizer or braille display. A screen reader is an interface between the computer's operating system, its applications, and the visually impaired user. The most widely used screen readers are JAWS (Job Access with Speech), NVDA (Non-Visual Desktop Access), System Access, Window-Eyes, Supernova, and ZoomText.
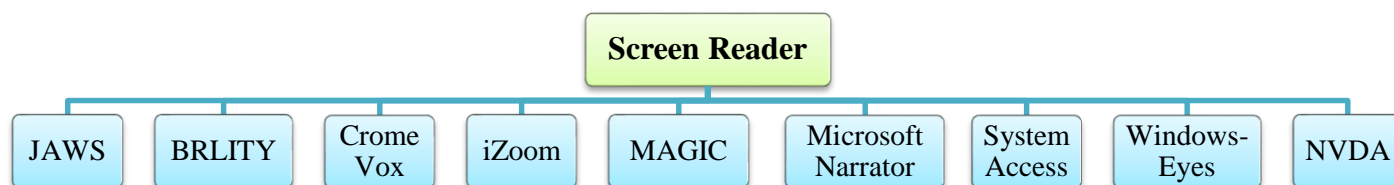

Fig 6.3.1: Screen Reader

Speech Synthesizer

A speech synthesizer is the artificial production of human speech. A computer system used for this purpose is called a speech computer or speech synthesizer and can be implemented in software and hardware products. The quality of a speech synthesizer is judged by its similarity to the human voice and its ability to be understood clearly. Speech synthesizer is text-to-speech systems used with computers. An intelligible text-to-speech program allows people with visually impaired to listen to words on a computer. DECtalk Access32, DECtalk PC2, DoubleTalk, Eloquence and the Microsoft Speech Engine are some of the speech synthesizer software.
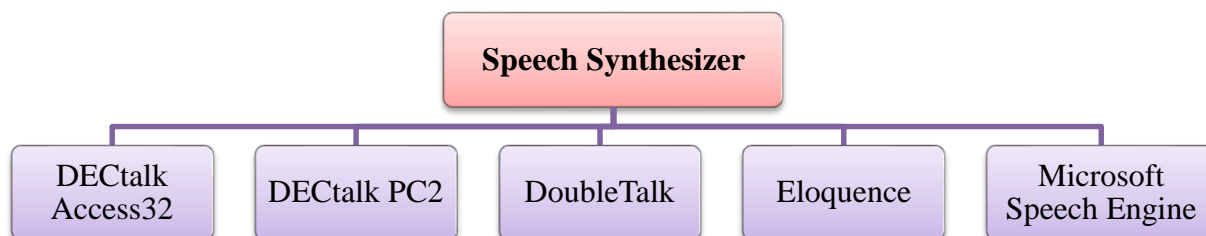

Fig 6.3.2: Speech Synthesizer

Braille Embossers / Printers

Braille Embossers are printers with the Braille output. Braille printers typically print on heavyweight paper and use up more pages for the same amount of information than pages printed on a regular printer. They are also slower and noisier. The price of a Braille printer is directly related to the volume of Braille it produces. Some braille printers are Braille Express, Braille Place, Gemini, Index Basic D, and PED-30.

Braille Displays

Braille displays provide access to information on a computer screen by electronically raising and lowering different combinations of pins in braille cells. These are the primary means of communication, where the user is Deaf-Blind. A braille display can show up to 80

characters and advantage of braille displays over synthetic speech are that it provides direct access to information, allows the user to check format, spacing, and spelling. Actilino, Active Braille, Braille Star 80, Braille Wave and Easy Braille are some examples.
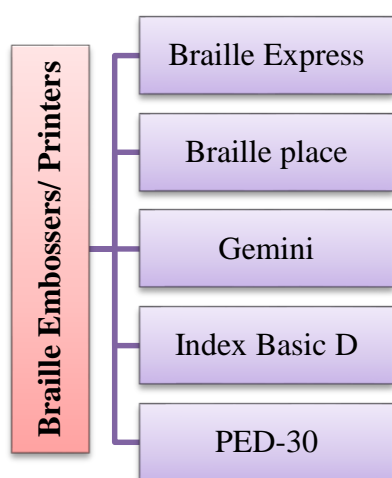
Braille Embossers/ Printers	Braille Display
Braille Express	Actilino
Braille place	Active Braille
Gemini	Braille Star 80
Index Basic D	Braille Wave
PED-30	Easy Braille

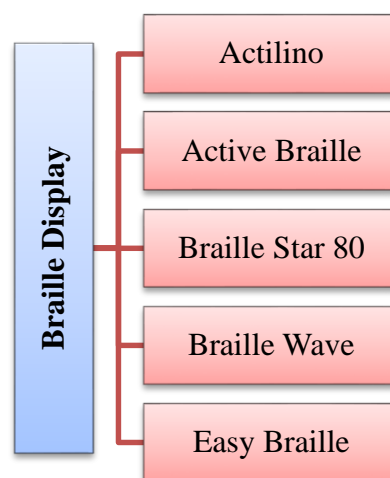**Fig 6.3.3:** Braille Embossers / Printers   **Fig 6.3.4:** Braille Displays

Screen Magnifiers

The essential task of screen magnification software is to magnify the screen. Some screen magnifiers enlarge text, icons, and other graphics up to 20 times or more. If you are typing an email while using a screen magnifier, the program will enlarge the words you type to make them easier to read. Screen magnifiers can also enlarge and enhance mouse and text cursors to make them easier to see. Magnifying Glass, DesktopZoom, Magnifixer, 1ClickZoom, EzMagnifier, Super Magnifier, ZoomIt, and Dragnifier are some screen magnifier being used as assistive technologies to the visually impaired.
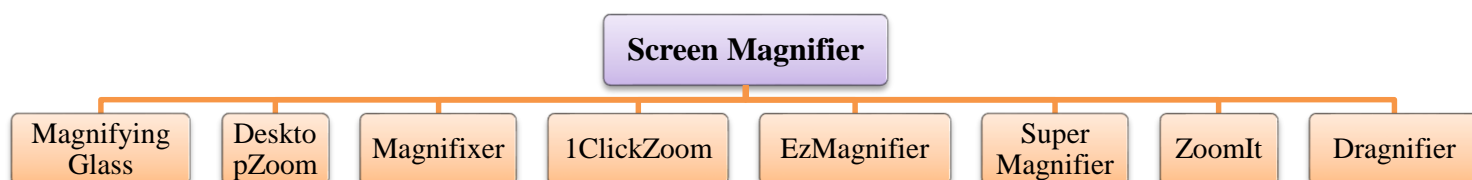
Screen Magnifier

Magnifying Glass	Deskto pZoom	Magnifixer	1ClickZoom	EzMagnifier	Super Magnifier	ZoomIt	Dragnifier

Fig 6.3.5: Screen Magnifier

CONCLUSION

The Libraries need to be dedicated to ensuring complete access to various services and facilities to their whole user community. Visually impaired have limited opportunities to access information especially those available in print. For this reason, library and information centers require to be updated with the latest technological transformation taking place in the digital environment to deal with the resources and services of the library for visually impaired. Libraries should be aware of the variety of software and hardware solutions for designing networks and electronic delivery mechanisms, which is used by print disabled people as they create and expand digital collections. Staffs of library and

information centers should be competent in helping users to resolve technical problems. Libraries need to develop a policy for engaging readers and providing them with training. Regular training to the users in the use of new services with updated technologies helps to achieve the goal of any library system. The visually impaired, particularly those living in developing countries like India have been marginalized for too long because of the dearth of accessible resources and technologies. Therefore, Indian libraries in collaboration with other stakeholders must stand up to their moral responsibility in ensuring an inclusive and equitable library and information services to the visually impaired.

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#20
APPLICATION OF ICT IN PUBLIC LIBRARY: A STUDY OF MIZORAM STATE LIBRARY

Prof. S N Singh
Florida J. Ngurhmingliani
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Introduction

Technology has made modern society possible. It has increased the human life span and allowed a healthier life. It has added to leisure time and reduced the long hours of work. It can allow the world to feed itself. Today's world can be considered as a smaller place, where people can communicate easily with each other.

Computer and other advances in technology have made information processing, storing and communicating in the library easier. As a result, libraries are facing new challenges, new competitors, new demands and a variety of information services. Information and Communication Technology (ICT) transformed and developed the library and information services like automation and mechanization of every function of the libraries.

Mizoram State Library

The development of Public Libraries in Mizoram started with the mechanism and contribution of two Christian missionaries, Rev. James Herbert Lorrain and Dr. Frederick W. Savidge. In 1958, the first college under the name of Aijal College (now known as Pachhunga University College) was established under their initiatives and Mr. Lalmakthanga was appointed as Librarian-cum-College Clerk in 1961 which was regarded as the first professional appointment in the field of Library in Mizoram. Afterward, the first public library, known as Aijal District Library was established in 1969 at Aizawl. The Government of Mizoram, in 1974 established three public libraries, State Library of Mizoram which is situated in the heart of Aizawl, District Library at Lunglei and District Library at Saiha. It was followed by the establishment of two Sub-Divisional Libraries at Kolasib and Champhai.
In 1972, after Mizoram attained Union Territory, Library service was looked after under the Director of Education, Government of Mizoram until 1988. However, in 1989, the Director of Education divided into three departments namely Higher and Technical Education, School Education, and Art & Culture Department. Since then, Public Library service is under the control of the Department of Art & Culture.

Literature Review

Md. Ashikuzzaman (2018) opined that the application of ICT in multifarious sectors has altered the library services such as circulation including acquisition, cataloguing, serials control, indexing. Bhoi (2017) on his study expressed the usefulness of the different ICT for quickest and approachable information dissemination. Navin Prasad (2016) in his study on Public Library System and Services in India found out that, a massive investment in public

libraries is needed to make them true information resource centers for the layman. In the Indian situation, the new generation of librarians has to face these challenges and risk to remain in the information business in all the sectors. Inter-changeability and capabilities to adjust from one sector to the other will be the biggest challenge for Indian librarians. Kanwar (2015) from his study found that there is a scope of improving library facilities and developing well-qualified staff to provide better services. Parveen Kumar (2013) in his paper compared the application of ICT in Public Libraries of Haryana and Chandigarh and found that library automation is one of the effective and efficient applications of ICT. Md. Shariful Islam and Md. Nazmul Islam(2007) in their studies viewed that, many libraries and information centers in Bangladesh use the computers as stand-alone devices and restrict its use to only bibliographic database maintenance and word processing.

Objectives:
     The objectives of the present study are to:
1. Ascertain the prerequisite of ICT infrastructures in the library.
2. Know the hardware and software used in the library.
3. Identify various problems faced by the library workforce in using ICT facilities.

Methodology
     The study used a questionnaire for getting information. Mainly close-ended questions were used. The question was framed in order to obtain the data of the current application of ICT in Mizoram State Library. The questionnaire was given to the Librarian and even observational visit to the Library was conducted in order to get the required information.

Data Analysis and Findings
Library Manpower
     Library staff is one of the key components who shoulder the responsibilities of providing effective library services and the management of library resources. Data relating to the present study is placed below in Table-1.

Table-1: Manpower

Sl. No	Name of Library	Professionals	Non- Professionals	Total
1	Mizoram State Library	2 (20%)	8 (80%)	10

     It shows from the Table-1 that, out of a total number of personals engaged in the Mizoram State library surprisingly, 2 (20%) are the professionals leaving behind a major chunk 8 (80%) non-professionals. While the professionals are engaged in the technical services of the library, the non-professionals are engaged for other activities such as administration. This, indeed, gives a sorry figure and it requires more engagement of professionals to impart effective services.

Library Collection
     Collection Development in the library happens to be one of the pragmatic activities of the library under certain guiding principles. The strength and weakness of a library are judged through its collections as it reflects on the users. It goes without saying that, Information and Communication Technology opened new multiple vistas for the library to conglomerate intellectual wealth both in the tacit and explicit form so as to extend a wide

range of services to the patrons. This also has become imminent on the part of the libraries due to the growth of literature and awareness among the users. The adaptability of Information Technology in Libraries altered the complexion of the present library scenario. The library has no longer been regarded as a storehouse of knowledge but becomes an effective platform to disseminate information in electronic form. Data relating to the library collections of the Mizoram State Library is placed below in Table-2 and supplemented with Graph-1.

Table-2: Library Collection

Sl. No	Type of Collection	Total
1	Books	65962
2	Periodicals: a) Newspapers b) Magazines	 16 19
3	Audio Mp3 Format	Competitive exam materials
4	Digital Library (Rare books and copyright books)	316
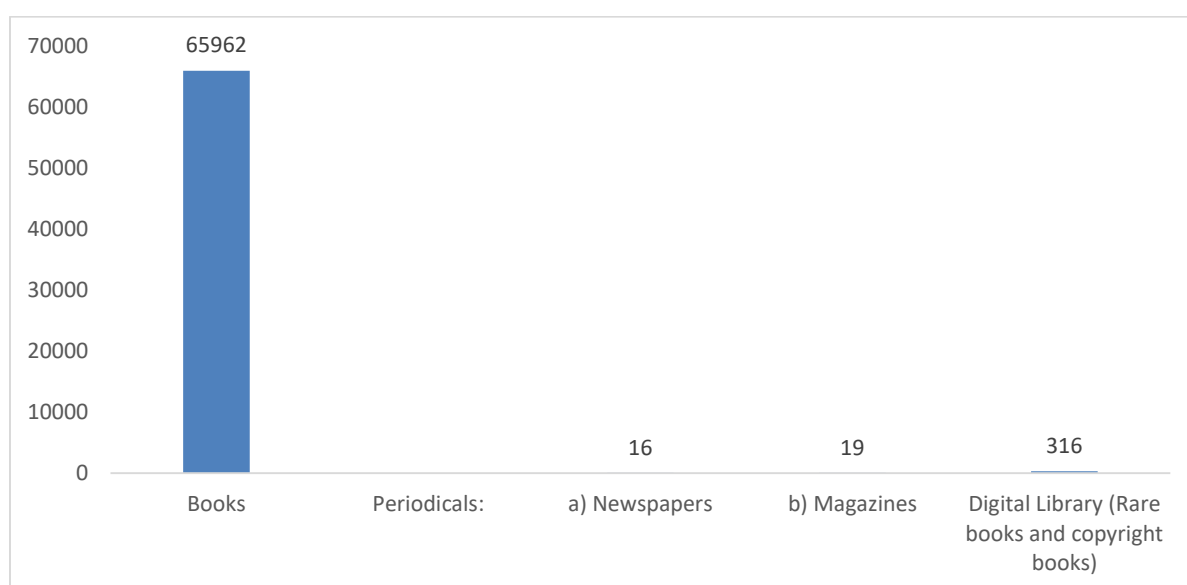
Graph-1: Library Collection

While analysing the Table-2 it was revealed that, the library stress upon much on the print collections. However, for current information, it also subscribes to the newspaper. The library, due to the demands of the readers is also adding MP3 and some digital resources. It could be inferred that, in the present scenario, the library needs more digital collections to meet the varied demands of the readers.

Availability of ICT Infrastructure

ICT Infrastructures are essential to provide effective services as it enables the professionals to provide the need-based resources. Many of the libraries irrespective of the

types are generally equipped with computers and other accessories to provide the services and take day-to-day operations. The library under study is equally equipped with such Infrastructure. Data relating to the present study is shown in Table-3.

Table-3: ICT Infrastructure

Sl. No	Name of the Hardware	Number
1	Computer	5
2	Photocopier	1
3	Barcode	1
4	Scanner	1
5	Modem (BSNL)	1
6	User Wi-Fi (Jio 4g)	

On analysis of the Table-3, it could be found that the ICT Infrastructures available in the said library are not adequate which may be due to the budget constraint. However, the library is taking initiatives developing the ICT Infrastructure for providing services to the readers. It is surprising to know that, the users of the library are using their own wifi from the private network and are accessing the information.

Automation of Library

Automation has become imminent in view of the proliferation of literature in the library coupled with the varied and instant information by the library. It not only disseminates information quickly but also manages the resources scientifically including access. The automation status of the library under study visualized that, it is fully automated using the Libsys software and it is an encouraging step of the library. Consequent upon the automation of the Mizoram State Library, many housekeeping operations were undertaken by the library and the same is presented in Table- 4 below.

Table-4: House Keeping Activities

Sl. No	Housekeeping Activities	Yes/No
1	Acquisition	Yes
2	Circulation	Yes
3	Barcode	Yes
4	Cataloging	Yes
5	OPAC	Yes
6	Web OPAC	No

While analyzing the various ICT activities placed in Table- 4 it could be found that, the library is undergoing a fast change in disseminating the services including undertaking latest activities like a barcode but it is surprising to note that, the library is yet to provide Web OPAC services. However, all the other housekeeping activities are being provided through automation which is an encouraging step.

ICT Based Services

ICT application undoubtfully resolves pertinent issues of the library. The library under survey equally provided ICT based services. The services so provided by the library is placed below in Table-5.

Table-5: ICT Based Services

Sl. No	Name of LIS Service	Yes/No
1	CAS	Yes
2	SDI	No
3	OPAC	Yes (within Library)
4	Online Search	No
5	Mobile Search	No

On analysis of the five variables placed in Table-5 it could be found that CAS and OPAC services are being provided while, the most important services like SDI, On-line search facilities are not being provided. The personal approach to the library revealed that it is due to a shortage of technical hands.

Major Problems faced

While taking an assessment of the library under survey, the authors encountered with three primary problems.

1. Staff are over age and are hardly conversant with the operation skills of the computer
2. Due to inadequate conversant with the technology, the scholars were deprived of getting instant information.
3. Insufficient technical hands equally created hindrances in getting relevant and timely data.

Findings

- The Mizoram State Library is well equipped with a number of PC's and other hardware infrastructure to accomplish the different type of works.
- The number of professional staffs is less compared to non-professional staffs.
- It is found that the library is using ICT in most of the housekeeping activities.
- It is found that SDI, Web OPAC, Mobile Search are not yet provided in the Library.
- Internet and Wi-Fi facility are provided in the library.
- The Librarian suggested that although the Library Act 1993 has been impeccant, it is not yet implemented.
- The Librarian also mentioned that there is a need of having course work class regarding ICT among the staffs.

Conclusion

The present scenario demands updated technology for faster and effective library services. New technologies are developed and hen, there is a need to develop skills and capacity to provide better library services. The successfulness of a library and the

professional always depends on the quality of the service. The emergence of Information and Communication Technology is a new way to extend the level of library operations and services. So, there is a necessity to update with the technology for providing better and easier library services.

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In a traditional sense, libraries are storehouses of books. They are repositories of knowledge and ancient wisdom. Civilizational footprints are markedly found in a well organised and soundly managed library-may that be in the public domain or privately owned. But are the resources stocked and stored in a library accessible to the discerning scholar, the inquisitive student, the lay reader? Can the desired book, journal, or article be retrieved with ease and at the right time? Can a person seeking information and knowledge from a distance be able to access the resources without moving out of his or her space.? Or is there a gap, a chasm that separates the source and the resource from the intended beneficiary-the user of the library? These are a few questions that were raised and answers were attempted at a two-day Seminar jointly organised the Sambalpur Public Library and the Odisha State Open University. The theme was 'Public Library and Digital Divide: Opportunities and Challenges'. This book is the outcome of that exercise. In the essays derived from the proceedings of the seminar and collated here by senior academics and library professional throw light on interesting aspects of knowledge flow and the need for digitalisation of library for easy and universal access to knowledge sources and academic resources.