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INFOLIB

A QUARTERLY BULLETIN OF
JHARKHAND INFORMATION & LIBRARY ASSOCIATION

Content

Significance of e-Resources in Higher Learning: Problems and Prospects

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Abstract

Present paper focuses on 'Significance of e-Resources in Higher Learning'. Information explosion and rapid growth of information and communication technology forced the libraries to adopt the faster methods of information storage and retrieval devices and replace the traditional methods of information collection and retrieval. In this topic discussion have been made about the relevance of e-Resources for knowledge attainment specially for higher learning. The modern libraries are in the state of change and e-Resources have become challenge for library services. It also deals about the proper meaning of e-Resources, their developments and need in different information centres, required equipments along with assumed barriers with proper suggestion

Key Words : e-Learning, e-Resources, Academic libraries, Higher education

Introduction

Higher learning plays a crucial role to generate new ideas, in accumulating and transmitting knowledge and information.Since long time higher learning is a source of knowledge and research for the purpose to spread information and knowledge. Information societies and knowledge drives economic growth and development of nation as well as individuals in all means. Higher educational institutions have main responsibility for equipping with the advance knowledge and skills required for positions of responsibility in government, business and professions. Before printing, press man preserves their knowledge for their coming generation on the leaves, skins and clay tablets. It is very important for the human being to preserve and maintain the valuable knowledge and information contained in the books and documents because we want to preserve our knowledge and information for the successor generation.

21st century is very remarkable for the development of higher technological and informative skills in order to convert the entire world into a global village. The invention of computer and other technological developments have given a new look and life to the libraries. The importance of libraries is getting momentum both in terms of developing educational and scientific awareness and propagating of human knowledge. India on its part has a long and distinguished record of well-established libraries.

Information explosion and rapid growth of information and communication technology forced the libraries to adopt the faster methods of information storage and retrieval devices and replace the traditional methods of information collection and retrieval. The academic libraries are bound to adopt this change to meet the ever changing needs of the research and development. Most of the library resources are now available electronically and can be access via internet. Computers and related electronic resources have come to play a vital role in educational world. Most of the libraries have replaced their card catalogues with online public access catalogues whereas some libraries provide a web interface to their library. The libraries have subscribing electronic reading materials. At present the e-Resources are one of the products of information and communication technology. e-Resources are the prime attraction of the users in today's electronic environment. This creates new capabilities and opportunities for students, researchers, faculty members and scientists. All the major databases like BIOSIS, ERIC, INSPEC, MEDLINE, CAB Abstract, Ei-Compendex plus, Netadex, Math Sci, ABI, Inform, Agricola, chemical Abstract, ASTM, BIS etc. are available on CD-ROM as well as print and on net.

E-Resources provide information round the clock. E-Resources are basically computer readable file that occupies lesser space beside vast searching facility compared to the traditional resources of information. The electronic resource collections offer a wide range of different types of information held in searchable online databases, electronic journals, electronic books, CD-ROMS and other online resources etc. The developments in e-information system have influenced library resources and services too. Several types of e-Resources have been noticed with the advantages over the traditional resources viz printed material. But e-Resources are not available free of cost, it usually requires licensing and authentication. However, it is very useful to be available on nominal charges for better utilization.

In India one of the major initiatives of the university Grants commission (UGC) through its nodal agency

INFLIBNET is persuading to boost the library automation and connecting the university campuses with local area networks, setting up nationwide communication network among university libraries in India through the INDEST consortium is now expanding the access of e-Resources to the users of the libraries of leading science technology and management institutions of the country. Apart from that use of e-Resources in our country is much less than what we expect. But the ratio in developed countries is reverse i.e. more that 90%.

Definition of E-Resources

E-resource (Electronic resource) is a general term used to describe any resource which is accessed online. The library provides access to a variety of e-resource in the form of multimedia including electronic books (e-books), electronic journals (e-journals), journal indexes, image, sound and music databases, and websites.

Sinha, Manoj Kumar, Gauri Singha and Sinha, Bimal (2011) define as 'E-Resources are those resources which include documents in electronic or e-format that can be accessed via Internet in digital library environment. E-Resources are that electronic product that delivers a collection of data, be it text, image collection, other multimedia products like numerical, graphical mode for commercially available for library and information centres. These may be delivered on CD-ROM / DVD, over the Internet and so on.'

Electronic resources provide an alternative and supplementary access to information. For library collection development, "electronic resources" are defined as resources that require computer access. Examples include, but are not limited to: electronic journals, electronic books, streaming videos, reference databases, Adobe Acrobat PDF documents (government documents, working papers, conference proceedings and theses), and web sites.

Electronic resources are defined in AACR2 as: Material consisting of data and /or computer programs encoded from reading and manipulation by a computer by the use of a peripheral device directly connected to the computer, such as a CD-ROM drive, or remotely via a network, such as the internet (AACR2) E-Subject Guide, E-newsletters, E-White papers, E-conferences proceedings and Web search tools on a range of topic.

In simple words, electronic resources is define as "E-Resources is a collection of information or data, be it text, image, multimedia or any web-based form which can be accessed or retrieved via computer, internet and other closely related devices".

History and development

In the 1960s' the first bibliographic databases were created. First Dialog database created in 1966. DATAPAC (primarily in Canada), were developed in the late 1960s' and made available to the public in 1972. OCLC introduced WorldCat in 1971. By 1974, DIALOG Information Services offered 18 online databases in a dial-up service. The concept of e-journals has emerged from the mid of 1980s with the invention of CD-ROM technology, the CD-ROM technology has became a revolution in the field of electronic full text. By the late 1980s, SDC offered more than 60 databases, primarily covering science and technology. Online catalogs began to replace existing library card catalogs in significant numbers during the 1980s. By 1985, DIALOG had more than 200 databases covering a much broader range of disciplines. Web-based electronic resources were widely available beginning in the mid-1990s. Libraries offered Web-based catalogs, bibliographic and full-text databases, electronic journals and eventually electronic books through the Web. The z39.5 protocol was released in 1995 to share bibliographical information and to overcome the problems of database searching with many search languages. In the decade of 2000's A-Z lists, searchable databases of databases, search engines and MARC records were used in the libraries. By 2007 more than 1000 scholarly journals published in electronic versions.

Need of e-Resources in Libraries

There are several reasons to justify the need of e-Resources in the modern libraries. The academic environment of all round development has compelled to move on new form of information as e-Resources. In this situation it is modus operendi that collection building should be available in each library in the form of e-Resources. Especially in the case of academic libraries, for supporting higher education quick, vast and pin pointed information is required which is much supported by e-Resources. In other words, we can say that the modern library can survive only if it contains much e-Resources for their users. E-Resources become an excellent way in the process of collection building, digitizing and providing information to the user in easy way. E-resource technology creates unprecedented opportunities for the library in the way they organize and make easy to charge and discharge of library development activity. The main considerations for this aspect may be taken as:

- Saving the increasing cost of the print journals and books
- Technological developments
- Easy and fast to access and search 24x7
- Minimal searching time
- Availability of e-Resources in every field of knowledge
- Single source multi user

Why e-Resources

E-Resources have their some specific features which helps users in an appropriate manner. In the present surroundings it has influenced the total activities of the society for taking major decisions in the field of all sphere of life. Now the position has reached to such point that the traditional working method of library is not sufficient to meet the need of information seeker or knowledge attainer. In this situation, the relevancy of e-Resourceshas increased in such a way that it cannot be left out for the success of any major or serious study. The following points may be taken into consideration as the main causes for having e-resources:

- Authenticity and accuracy
- Functionality and accessibility (24x7 round o'clock)
- Availability in all field of knowledge
- Speed – quicker to search and easy to access
- Facility of multimedia access
- Linkage facility
- Multi-user facility
- Supportive in learning of students, researchers and faculty members
- Fulfillment of Dr. S.R. Ranganathan's 4th law of library science i.e. Save the time of reader (user) as well as staff
- Get rid of space problem
- Access huge information on finger tips
- Enhancement in the price rate of the scholarly journals

Types of e-Resources

As the technological development has influenced the physical form of document, thus various types of e-Resourcesare available for user which is being used frequently in present are as follows:

- E-journals and books
- Technical reports
- CD-ROM Database
- Abstract and indexing databases
- Citation databases
- Online Experts and Scientists Directories
- Reference databases
- Full text databases
- E-thesis & dissertations (ETDs)
- E-data archives
- E-content pages
- E-clippings
- E-reports
- Local database of traditional books in machine readable form
- List servers
- Digital collection
- Catalogue/Library catalogues
- Museum and archives
- Maps / e-maps
- E-newspapers
- Digitized manuscripts
- Online encyclopaedias
- In-house Electronic Resource Spreadsheets
- Online databases
- Research News
- E-proceedings
- Electronic Preprints and e-prints

Sources of e-Resource

E-Resourcesare being generated by various sources due to available websites, meeting, seminar, network etc. These sources are responsible for generating new e-Resourcesfor better utilization by the information seeker. The various sources for e-Resourcescan be taken into consideration as follows:

- Library consortia
- Library website
- Search engines
- Digital and virtual library
- Institutional repositories
- Institutional website
- Personal subscription
- VPN (Virtual Private Network)
- Online as well as offline database
- UGC Infonet E-journals consortium
- WebOPAC and Subject Gateway
- Bulletin Board
- ILL (Inter Library Loan)
- JSTOR (Journal STORage)

Equipment/ Technologies Required

E-Resources are the result of technical advancement and it can be utilized through some electronic device. In this purpose the computer system and their peripherals are main equipments for proper utilization of e-resources.

In the lack of these equipments the e-resources cannot be utilize. Therefore, following minimal equipment is essential for all types of attainment:

- PC (P4) having speed and wide storage capacity with proper security arrangement
- Operating System: Windows OS or LINUX/ UNIX
- LAN, WAN with high speed Internet connectivity (2 mbps or more)
- Peripheral Hardware e.g. Printer (Laser / colour), etc.
- Multimedia kit
- Software: web browsing application (Netscape/ Firefox Mozilla/ Google Chrome/ Opera), JavaScript/ Java, Adobe's Acrobat Reader, AFPL/ GNU Ghostscript Package, TIFF viewer (all application and software should be latest version).

Barriers in the path of e-Resource collection

E-Resources are the essence of our development and skill which requires some special attention and facilities for the success of the project. Each and every information centres requires to adopt certain majors for successful result specially in developing country like India. The adopting information centres are bound to face certain hurdles for the project. The following barriers may be taken into consideration for the failure of the project or barriers in development of e-resource collection. They can be taken as:

- Require training programme for new users
- Violation of copy right
- Licensing restrictions
- Power shortage and network error in remote areas
- Reduces personal contact between faculty and students
- Cost effectiveness
- Shortage of skilled staff
- Change in teaching technique
- Problem of annual maintenance cost (AMC)

Uses of e-Resources in academic libraries

Dr. S. Radhakrishnan in his report of Education Commission (1948-49), underlined the importance of libraries and recognized these as central tools of all the academic activities. Library is a store house of materials related to knowledge and information for the purpose of preservation and dissemination of information and knowledge to the right people at the right time.

The main purpose of higher education is to inspire and enable individuals to develop their capabilities to the highest potential levels throughout life, so they may be able to grow their intellectual and can be equipped well for performing the responsibilities of the society.

Academic library considers as the heart and soul of any academic institution which is a non-profitable organization are dedicating to support higher learning and research. The aims and visions of academic libraries slightly varies from institution to institution depending upon the need and types.

The role of library in an academic institution is mainly aimed at realizing the educational goals of the higher learning and research support for the fundamental and applied research. In India, the academic libraries have many challenges to make the best use of electronic media in order to meet the needs and requirements of users. The advent of UGC-INFONET has created a momentum in accessing the e-Resources to faculty, students and researchers. Most of the University Libraries are well equipped with modern gadgets like computers, e-Resources. The use of E-Resources certainly provides common place in all subject field without loosing the precious time and can be attained through multiuser facility, which are the main ambitions of any library attached as auxiliary power for any academic institution. With the change in curricula, students have to complete projects and assignments within a stipulated time. The e-Resources provide them quick and updated information as per requirement. The following groups of users may be benefited in any country specially for developing country like India:

- Learner, academicians and other staff members
- Distance learners
- Campus visitor/ walk-in users
- Regional Centres or branch campuses
- Specific non-university patrons
- Other authorized account holders of university library

Conclusion and suggestions

The e-Resources have brought new dimension for class-room and research activities. It has placed more demands on higher education and their utilization. E-resource is a service to help library users to find e-databases, e-journals, e-magazines, e-books/Wiki Books/e-audios/e-musics, e-news, e-images, Data/GIS, Digital Library Projects, electronic exhibitions, e-subject guides, e-newsletter, e-white papers, e-conference proceedings, e-reports, e-studies, e-directories, web search tools on a range of topic.

The explosion of information and development in technological methodology in place of traditional method of information collection, storage and retrieval in library and information centre has entirely changed the situation of traditional libraries. The process of adopting these

mutations has affected greatly not only libraries but also library professionals are a drastic positive change in the field information profession. In this situation, trend forces (library professionals) must have skill in IT application particularly in information and communication handling. Now the computer has been utilizing widely as a device for this metamorphic situation of the information centre for acquisition, selection, ordering, processing of books and other materials. The resources of various kinds have changed the shape of the library viz. digital or virtual. In these libraries all the activities are controlled by computer for storing, organizing, transmitting and displaying with any application of conversion process in the form of multimedia.

In this situation, e-Resources has reflected in the way which has influenced these institutions to develop e-learning strategies, embedded e-learning imperatives into different strategies and to develop centralized e-learning units which observe the use of e-Resources. Although e-Resources are the main demand of the present information centres for new possibilities in the class room and research activities. It is imperative that e-Resources may be utilized effectively in the universities and colleges for enhancing teaching work in comparison to traditional form of teaching and administration.

It is well known that library is a collection house of materials related to knowledge and information for the purpose of preservation and dissemination of knowledge and information made of the people, by the people and for the people. For development of e-Resources and their proper utilization the following suggestions should be kept in mind for proper development:

- The information centres/ libraries should be fully authorized for enactment of such project
- Separate fund for the success of project should be made available to the concerned information centres
- Proper trained and motivated library personals should be assigned for the work
- All the arrangement should be processed from nodal agencies which are earmarked for non-auditable objection and able for making necessary suggestions like NIC etc.
- The project should be taken into consideration as noble arrangement for information seekers
- Cost effectiveness should be into considerations
- With installation of such project proper arrangement for AMC work should be implemented
- The library professionals having grip over knowledge for various subject area should be entrusted for the work
- Demand or users should be taken into consideration before collecting and purchasing E-Resources
- Higher learning institutions' authority should be organized orientation and awareness programme for their regular users that how they use e-Resources.
- Unnecessary wondering for free availability should be avoided
- If central pool for e-Resources is available that should be utilize

Thus we can say that E-Resources are a convenient way to provide adequate reading material in different form as text, picture and video to distance learning at their door step on finger tips. The exponential growth of information & knowledge and developments in information & communication technologies (ICTs) has made the task of libraries and librarian more challenging. E-Resources and learning is the demand of time and government should initiate to provide infrastructural facility to the academic as well as public libraries in India specially in remote areas.

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The Changing Role of Libraries in Open Access Environment

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Abstract

Due to the changing mode of Information and Communication Technology (ICT) and web centric architecture and application of web 1.0, then web 2.0, the traditional library changed to web based library. In the age of globalization, economic crisis is a big problem in every country. In this time subscription based journal price is very high, so many library are unable to subscribe the e-resources in this critical condition the open access concept is born. In open access environment there are no barrier of price, minimal use, permission for use the e-resources. This paper presents that the concept of open access, definition of open access and benefits of open access, this paper also describe the role play by library in open access environment.

Key Words : Open Access, Information and Communication Technology, Instructional Repository, e-resources

Introduction

In the globally economic crisis and high cost of e-resources moment OA is only way to overcome this situation. So globally many library and institution come the open access environment. Open Access' is free access to knowledge at no charge to the user. It is an elegantly concept, according to Peter Suber (2007) describe open access is literature that is digital, online, free of charge and free of most copyright and licensing restriction. Open access fulfils a fundamental value of librarianship, access to information and is a key to developing an effective, affordable scholarly communication system. Librarians and library association have been among the leaders in advocating an open access environment. Library can adopted many policies to improve and develop the open access environment, such as provide enhanced access to OA works and digital publishers of OA works, build specialized OA systems and Institutional Repository, and can preserved OA material etc.

Open access concept

One of the major barriers for scholars and researchers in universities is the lack of access to the current literature in their subject, much of which may be published in journals that have high annual subscription rates and so are far too expensive for many libraries. The open access environment addresses this barrier by arguing for the "free availability of literature on the public internet, permitting any users to read, download, copy, distribute, print, search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal or technical barriers other than those inseparable from gaining access to the internet itself"

By Open Access, we mean the free, immediate, availability on the public Internet of those works which scholars give to the world without expectation of payment – permitting any user to read, download, copy, distribute, print, search or link to the full text of these articles, crawl them for indexing, pass them as data to software or use them for any other lawful purpose.

'Open access' is normally defined as a situation where content is made available freely, immediately and without restriction. The content may then be used and re-used without restrictive copyright and permission barriers. A classic definition of open access is contained in the Budapest Open Access Initiative (2002) statement.

Definition of open access

Open access (OA) is the practice of providing unrestricted access via the Internet to peer-reviewed scholarly research. It is most commonly applied to scholarly journal articles, but it is also increasingly being provided to theses, scholarly monographs and book chapters.

Peter Suber characterizes the core concept that open access removes "price barriers" (e.g., subscription fees) and "permission barriers" (e.g., copyright and licensing restrictions) to "royalty-free literature" (i.e., scholarly works created for free by authors), making them available with "minimal use restrictions" (e.g., author attribution).

Benefits of open access

Benefits of Academic Researcher :

- Increase the visibility of your research findings, your work is easier to disseminate, easier to find and easier to read
- Make it easier to manage your list of publications on your personal website and your organization's website
- Enable a simple web address to your piece of work that can be cited in subsequent works or easily

refer other interested parties too

- Make possible easy access to materials previously only available in print e.g. theses, dissertations
- Offer new opportunities for publishing your works e.g. as part of a virtual journal, for others to comment on your work and provide feedback
- Encourage others to do the same, so you can easily find and read the work of your colleagues and others
- Make it easier to keep abreast of the latest research findings (certainly within the University)
- Have a safe, backed-up and secure place to store your scholarly works
- Reduce your workload associated with managing your portfolio of scholarly works (or at least not add to it)
- Improve your understanding of copyright, make you aware of your rights and maximize the return of your efforts

Benefits of Research Administrators, Research Managers, Librarians, and Senior Academic Staff, Heads of Faculty/College:

- Provide new opportunities for the archiving and preservation of valuable digital works
- Provide meaningful reports on scholarly work, which can act as a barometer of research activity in a particular field, help to identify trends and inform managers involved in strategic planning
- Provide timely alert messages on latest submissions which can increase awareness and responsiveness of support functions and managers
- Facilitate cross-boundary research, by cataloguing scholarly works according to the subject material and not (solely) the affiliation of the author
- Reduce duplication of records and inconsistencies in multiple instances of the same works
- Reduce some of the mundane activities of managing digital collections by automating common tasks and harvesting information from other sources

Benefits for the University and Colleges:

- Demonstrate to its employees, in particular the academic community, that individuals and their work are valued, by supporting mechanisms that reduce workload and maximize the benefits to them of their efforts
- Provide a reference point for scholarly works that can interoperate with other systems and maximize efficiencies between them by sharing information
- Increase the visibility, reputation and prestige of the institution
- Improve the accuracy and completeness of the institution's record of scholarly works
- Provide a resource of information for a 'shop window' or marketing tool to show others how the institution is making a difference, this would act to entice staff, students and funding
- Act as a tool to support externally and internally driven audits of research activity e.g. annual reviews, accreditation
- Reduce total cost and risk of ownership, in particular incurred by an institution's component parts who might be supporting equivalent services locally (or at least allow local resource to be allocated to alternative activities)

Benefits for the global community:

- Assist research collaboration through facilitating free exchange of scholarly information
- Aid the public understanding of research endeavors and activity
- Reduce costs (or at least allow their reallocation) associated with publisher subscriptions

The role of libraries in open access environment :

Libraries Can Provide Enhanced Access to OA Works : Providing access to open access materials has inherent challenges similar to those of other freely available digital works on the Internet. Schmidt et al. identify a number of these challenges: the effort required to effectively select and catalogue (or otherwise create metadata for) high-quality OA materials from a pool of candidates that is not restricted by materials cost considerations; difficulties in tracking changes in dynamic OA materials and monitoring their availability when the library has no special relationship with the publisher or other supplier; lack of adequate coverage of OA materials in indexes, aggregator databases, and other conventional finding tools; the necessity of using search engines and specialized finding tools to identify relevant materials; and the broadened scope of information literacy programs to account for the peculiarities of these materials.

Can Be Digital Publishers of OA Works : Libraries are no longer simply consumers of scholarly information. A growing number of libraries have become digital publishers, primarily offering free/open access journals and institutional repositories. High quality free open source software is available to support digital publishing. Hardware requirements will vary according to the scope of the project; however, they may be more modest than you would image, and hardware cost/performance characteristics continue to regularly improve.

Free/Open Access Journals and Books : Libraries

have been published free electronic journals and book for the open access users. The staffing requirements for free/open access journals are proportional to the level of editorial and journal production support services that the library provides. Given the sophistication of contemporary open source e-journal production systems, it is possible to have faculty editors shoulder more responsibility for key functions and to limit the library's role; however, this is a decision that must account for specific local factors.

Institutional Repositories : While the trend for libraries to assume the role of a formal scholarly publisher has evolved fairly slowly, the trend for academic libraries to establish institutional repositories has evolved more quickly.

Although supporting open access may not be the only motivation for such endeavours (especially for institutional repositories), they are highly congruent with it. As was noted earlier, the establishment and operation of permanent institutional repositories is likely to be a critical factor in the success of open access. Other institutional units, such as the information technology unit, could theoretically provide institutional repositories without library involvement; however, this is unlikely at many institutions (especially academic ones) and, if it occurs, may not be as successful as it would be with library involvement.

While institutional repositories and the relationship of libraries to them is a complicated topic, the following list provides insight into how one group of librarians (reference librarians) could effectively support institutional repositories.

- Helping to create sensible IR policies and procedures and to provide feedback about how they work in practice.
- Assisting in designing the IR user interface so that it is clear, easy to use, and effective.
- Helping to identify current self-archiving activity on campus to aid the content recruitment effort.
- Acting as change agents by promoting the IR to faculty and graduate students in their subject areas.
- Informing faculty and graduate students about creative commons licensing options and publisher e-print policies.
- Depositing digital materials for faculty in their subject areas if such assistance is desired.
- Participating in the creation of IR metadata, such as local controlled vocabularies (e.g., subject categories for IR documents).
- Preparing Web-based and paper documents that explain and promote the IR and advocate scholarly publishing reform.
- Training users in IR deposit and searching procedures.
- Assisting local and remote users with IR utilization, answering questions about IR policies and procedures, and using the IR to answer reference questions.

If the library has collection development specialists other than reference librarians, they may also play some or all of the above roles. Depending on local decisions about how to handle metadata issues, IRs could require significant involvement by cataloguing/metadata staff, and require increased staffing in this area. Electronic resources librarians and special collections librarians/ archivists may also be involved, depending on local factors.

Libraries Can Build Specialized OA Systems : Since the dawn of the computer age, libraries have built specialized computer systems to meet their unique needs. Single-function library automation systems (e.g. punched-card circulation system), were followed by integrated library automation systems and in recent years, open-source institutional repository software and OAIPMH search services.

Obviously, there is an extremely strong connection between some recent system development activities and open access support, although libraries may have additional motives for creating such systems.

Libraries Can Digitize OA Versions of Out-of-Copyright Works : Libraries have been an important source of innovative system tools for the open access movement, and there is every indication that libraries will continue to play this crucial role in the future. Needless to say, such system development projects can be expensive and labor-intensive, and they can have significant budgetary impacts on the libraries that engage in them; however, they are also excellent candidates for grant support and for computer industry partnerships.

Library digitization efforts also harmonize with the open access movement, since the resulting digital materials are typically made freely available in whole or in part. While many digitization projects have focused on rare materials housed in special collections, there has been a recent spate of partnership projects aimed at digitizing standard scholarly library books, including Google Library, the Million Books Project, and the Open Content Alliance. While price barriers may be eliminated by such projects, permission barriers may not always be (e.g., some digitized works are not in the public domain).

Libraries Can Preserve OA Materials : Another area of traditional library responsibility is preservation, and libraries have already begun to tackle the difficult task of digital preservation of e-journals. The most pressing need is the preservation of a significant number of

"no profit" open access journals, which can be in real danger of ceasing to be available. Open access journals from conventional publishers have similar preservation needs as their traditional counterparts. While "dark" open access journal archives are unquestionably better than no archives, their contents need to come to light when the journals within them cease to be available on the Internet from their publishers.

As was noted earlier, libraries are likely to view institutional repositories as permanent entities, and, consequently, to have assumed the digital preservation burdens associated with their contents. Other digital archives may be in long-term danger (e.g., disciplinary archives that house digital materials about one or more disciplines created by authors worldwide). The preservation of e-prints has been a controversial topic in the open access movement, with the thought being that the publisher's copy is the archival copy. However, some e-prints may never be published. Moreover, there can be other types of digital objects in non-institutional digital archives, such as technical reports and digital presentations. Should these materials be preserved? If the answer is yes, then libraries may consider doing so.

Libraries Can Subsidize Author Fees : Libraries can subsidize open access journal fees through institutional memberships with publishers, which either eliminate or reduce such fees for affiliated authors. There are several factors to keep in mind when thinking about these memberships. Open access institutional memberships are voluntary, not mandatory. They are not universal in the very diverse open access journal publishing world (only 47% charge such fees68). Since the publishers that offer institutional memberships are specialized, it only makes economic sense to consider them if the publisher's journals are highly likely targets for a significant number of institutional authors' submissions and if the majority of those authors will need assistance in paying fees (as has been noted, there are other potential sources for such payment). Moreover, institutional memberships are part of a broader number of funding strategies that some open access journal publishers are experimenting with. it is difficult to predict their future.

Library can organise seminar about the open access : Library can organise many seminar and conference to collaborate the resource person each other and discussion upon the open access. In open access conference resource person give important matter about open access and they also solved the other library open access problem and they discuss and promote open access publishing etc.

Library can motivate other library to join the open access environment : Library also motivates other same type of library and also gives important information to other library. The open access support library motive other library and gives them the benefit and important of open access and motive them to join the open access environment.

Library can advertise open access news in his web 2.0 application site : The open access supported library also motivates other library and they can advertisement of open access in his own website and other social networking site (Facebook, twitter, blog, Vodcasting, podcasting, etc). The information provide in the website such as what is OA and why, how, and library benefits, some open access implemented rule, and some open access implementation library name and universes name and other organization.

Library can develop a consortium for open access: For example UGC-INFONET provides e-resources in 179 universities in India. UGC-INFONET buys many e-journals in different subject area and gives all university in one gateway and INFLIBNET (UGC) has adopted model of E-journals consortium/ Digital Library Consortium for academic libraries in India. Now the vast collections of peer reviewed electronic journals / publications and secondary databases are being made available through E-journal Digital library consortium to millions of users without any payment. In this way library can develop a consortium for open access environment for the benefit of library and institution.

Library cans advocating and assisting with the implementation of OA policy : Library can advocating and assisting other library and organization to adopted open access policy for benefit of library and organisation and to help the research scholar to complete their research work and library impress all open access supported people for economic benefit and sustainable development.

Library can indirectly through economic support for OA Publishing : In modern world ethics money is all. In such a work economic support is essential for complicit this work. In this situation library can indirectly through economics support for open access publishing.

Challenges of Open Access:

- Even when OA journals are strong, the most widely-used measurement doesn't always show them to be strong. Impact Factors (IFs) discriminate against new journals and most OA journals are new.
- The challenge is that more than 85% OA journals now in the DOAJ don't use any kind of CC license. Some of these might use equivalent non-CC licenses and some may use home-grown language with a similar legal effect.
- Most open access journal are not offering libre OA.
- Doubts about preservation.
- Doubts about honesty.

- Doubts about publication fees.
- Doubts about sustainability.
- Doubts about redirection.
- Doubts about strategy.
- Library budgets in universities are currently spiralling out of control, as a result, almost exclusively, of the vastly increased costs of journal subscriptions – which makes even the virtually unlimited access to knowledge taken as normal by users of very large university libraries something which will soon be impossible to guarantee anywhere.
- In open access environment anti open access lobbying is very important challenges of open access development. Many high profitable publishers create many anti open access lobbying.

Conclusion :

In OA environment many organization try to develop this movement. Many types of OA green, gold, gratis (free to read), libre (free to read and reuse). The growth of open access, on a global scale, is nothing short of phenomenal. There are already million of open access item in institutional and disciplinary repositories and over 3,700 full open accesses, peer-reviewed scholarly journal. Research funders, universities, departments themselves are creating open access policies. In this ongoing open access environment library play the changing role to increase and develop this process for sustainable development of up-coming new generation.

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Open Source Initiative in Indian Library Automation Using Newgenlib and Koha : A Comperative Study

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Abstract

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Key Words : P

Introduction

The major challenge of library automation has to do with choosing appropriate software solutions. The software selection decisions in libraries is based on reports from other colleagues through conferences. They also note that some libraries do not do a thorough needs assessment. Onohwakpor and Anre further note the difficulties of oftware support from vendors. This is true especially where the library staff input is inadequate in the acquisition and installation, with the library ending up with an inappropriate automated system.

The objective of this paper is to compare the two open softwares i.e newgenlib and koha.

Why computerized information management is required?

Developments in electronic and communication technology have affected every profession in the past decades and libraries are no exception. Libraries of all types are challenged to provide greater information access and improved levels of service, while coping with the pace of technological change and ever-increasing budget pressure. Use of software applications in libraries has become essential due to a number of factors. The most visible factors among them are:

Growth of Electronic Resources: Large databases from periodical, magazine, and journal publishers became increasingly available in digital format – at first on CD-ROM, later via online services. Library services are transitioning from local traditional collections to global resources provided on demand via the most advanced networking technologies. Today, library collections are used by people on campus as well as by individuals who are not even located on the library's physical facilities.

Anytime Anywhere Access: Access to online digital information from anywhere is the need of the hour. This is forcing a shift in role of library from a repository to a gateway, with users expecting online libraries that can provide round the clock service. "Library users have grown accustomed to using the Internet as a research tool and do not always appreciate the difference in quality of information available through a library's specialized collections, especially when compared to what can be located through an Internet search engine. Thus, libraries with substantial collections of information often find those collections underutilized if the user interface is not designed to make it easy to locate the required information."

Resource Sharing: Libraries of all types also need to utilize new application systems to automate resource sharing. Union Catalogs and

Libraries in developing countries are in phase of development and require lot of resources to achieve well organized knowledge platform. Thanks to open source software efforts which have made developing libraries competent to meet the international challenges. Now these days many open source technologies are available which have been deployed successfully in Indian libraries. Now web has become a platform foe delivery of infrastructure, software and platform services. Such services are called computing in the cloud. Of course such cloud services are alternative to the conventional web system. Engard, Nicole C. (2010),

Open source initiative (http://en.wikipedia.org/wiki/Open_Source_Initiative) : The Open Source Initiative (OSI) is an organization dedicated to promotingopen source software.The organization was founded in February 1998, by Bruce Perens and Eric S. Raymond, prompted by Netscape Communications Corporation publishing thesource code for its flagship Netscape Communicator product. Later, in August 1998 the organization added a board of directors.

NewGenlib open source soft ware -

Introduction

NewGenlib is an integrated library management system developed by Verus Solutions Pvt Ltd. Domain expertise is provided by Kesavan Institute of Information and Knowledge Management in Hyderabad, India. NewGenLib version 1.0 was released in March 2005. On 9 January 2008, NewGenlib was declared Open Source Software under GNU GPL. The latest version of NewGenlib is 3.0.4 released 1 update 2 on 4th March 2013.] Many libraries across the globe (mainly from the developing countries) are using NewGenLib as their Primary integrated library management system. The system can run on windows xp, linux and Ubnutu 8.0 or above distributions.

Salient Features of NewGenLib Open Source software

- **Licensing:** It is open source under the most widely used open source software Licensing system called GNU GPL (General Public License).
- **Source Code & User Manual:** The open source binaries and source code can be downloaded. Installation notes for Linux and Windows are also available at the site. The user manual is also downloadable.
- **User's Feedback:** The users of the software can post their feedback with views, problems, solutions, discussions, etc to the organization.
- **Architecture & Backend:** It is web-based and has a multi-tier architecture; it uses Java (a swing-based librarian's GUI) the JBoss (J2EE-based Application Server) and PostgreSQL as default backend.
- **Functional Modules:** NewGenlib functional modules are : Acquisitions management (monographs and serials); technical processing; circulation control; system configuration; a desktop reports application and an end-of-day process (scheduler) application.
- **Data Create & Exchange Format:** NewGenlib open source is compliant with MARC-21 format. It has a MARC editor. It allows seamless bibliographic and authority data import into cataloguing templates
- **Mail Server:** SMTP mail servers can be configured for emails that can be sent form functional modules. A special provision of smtp mail server configuration is given for Gmail users in modern version of NewGenlib.
- **Open Access Compatibility:** NewGenlib open source allows creation of Institutional open access (OA) repositories compliant with the OAI-PMH.
- **Unicode Compatibility:** NewGenlib open source is Unicode 3.0 compliant.
- RFID Technology: It is RFID ready.

Technology and Architecture

NewGenlib is integrated Library management system that runs on computer through network of computers. Although internet is important component for this software yet it can run on local area network without support of internet, but in lack of internet many important features of the software cannot be utilized. These important features are Sms and email functionality in circulation module. Marc data import facility in cataloging modules etc. many other features which are based on internet will remain untouched if internet is not present. However still it is very useful if runs without internet particularly In remote areas of India where such facility is not present.

The NewGenlib software is entirely java based. It uses number of well supported and widely used reliable open source component like Apache Tomcat, Postges Sql, and Solr Lucene etc. The main three layer of software is presentation, webserver and database layer.

Technology	Reason and advantages	
Java.6.0	a)	Operating System independent, fast evolving mature and very powerful platform highly used for large enterprise management system software
	b)	Larger support from the market. Many third party open source libraries available
	c)	Proven upward scalability
PostgreSQL (8.3 or above) Database server	a)	More powerful open source enterprise database, more focused on data integrity, and stricter at complying with SQL specifications (wiki.postgresql.org)
	b)	Very stable with large scalability and available on Windows and Linux platforms.
	c)	A number of library-related other projects like DSpace, Evergreen use it.
Apache Tomcat	a)	Most widely used free and open source Web server
	b)	Most stable and Java based.
Spring Framework		Earlier version of NewGenLib used Session EJBs in the service layer. This is replaced by more efficient and light weight service layer using Spring framework Uses lesser memory footprint compared to EJBs
Hibernate framework		Earlier version of NewGenlib used Entity EJBs. This is replaced by more efficient ORM (Object Relational Model) layer powered by Hibernate. It solves object-relational impedance mismatch problems by replacing direct persistence-related database accesses with high-level object handling functions (Wikipedia).

Open Office		Open Source and free office suite, available on Windows and Linux Platforms used for generation of all form of letters.
Commons mail 1.2		Used for auto-email dispatch and connects to any SMTP server and Also Gmail (including Google Apps) SMTP service.
Commons HTTP Client File upload package		To upload attachments and download digital attachments.
Commons FTP		FTP access to digital attachments.
XML and JSON		XML and JSON are used for messaging between Clients and Server. Messages are compressed through GZIP before sending over network.
JDOM		To generate and parse XML documents.
JSON		To generate and parse JSON data.
Jakarta POI		To generate reports and other data in Microsoft XML Format.
HTML Parser		To edit and generate HTML documents.
Lobo browser		Used for displaying HTML content.
C3P		For database connection pooling.
Lucene and Solr		a) Fast evolving and highly popular open source enterprise search platform, used as search engine for indexing Bibliographic and Authority data searches
		b) It has also been used by a number of similar library related projects like Vufind, ExLibris's commercial discovery system, etc (Houser, John 2009)
Twitter4J		To send Twitter messages and Direct Messages to followers.
Marc4j		To read/write MARC data in MARC Communications and MARCXML formats.
Struts, JSTL, JSP		Struts, Java Standard Tag Library and JSPs are used for Web OPAC development (used up to version 3.0.3 U5)
Jquery		Used as Java Script Framework library in Web OPAC
Freemarker template		The OPAC of Version 3.0.4 (will be released soon) uses an open Source template engine called Freemarker. The OPAC is now template Based and one can change the look and feel easily.

Advanced Features

NewGenlib software is unique in sense of Indian Library Management Softwares, but it is equally important for international requirements too. Because it is joint efforts of Experienced Library professionals and information technology experts of India naturally it has given more emphasis on those practices which is usually used by Indian libraries. Like most of the Indian library make payment of subscription while in western world payment are made by finance office or by administration department, hence here NewGenlib had made provision of payment as per the practice followed by Indian libraries.

Main features are as follows

- NewGenlib opac is configured for Twitter; it gives instant information to patrons twitter account directly.
- Mail server configuration is no more separate application for Gmail. Now Gmail can easily be configured my any Gmail account. All the transaction emails can be generated with any Gmail email address. This is the good application for those libraries which cannot maintain their own separate mail server due to several financial and technical reasons.
- New Arrivals can be seen in OPAC by user defined period.
- Now OPAC has provision of RSS Feed.
- Loan period can be defined in hours, days or up to a any date.
- SMS functionality which can be configured etc.
- Radio Frequency Identification Library compatibility
- Android capable
- Catalogue harvesting through Google site map.

5.0 KOHA

Koha is the first open source fully featured integrated library system (ILS) used by a considerable number of libraries in USA, New Zealand, and Europe. The Koha ILS includes catalogue, OPAC, circulation, member management, and acquisitions package. Koha is used by public libraries, private collectors, not-profit organizations, churches, schools, and corporates. Mukhopadhyay, Parthasarathy. (2008).

Special Features

Some of the key features are

- Simple clear interface for librarians and members (patrons) to search right From the front page.
- Customizable search - you choose which fields you want on your search forms when you set it up
- Reading lists for members - now you can find the name of that great book you read last year.
- Full acquisitions including budgets and pricing information (including supplier and currency conversion), being kept so that you can see what you've ordered and received - so handy at end of

year and audit time.

- ❖ Software Tools for Automation
- ❖ Simple acquisitions for the smaller library
- ❖ Able to catalogue websites as items, or have them as links to existing records.

History

Koha was developed in 1999 and the first library went live in January of 2000. Koha's code has been in production since then and is continuing to move towards higher levels of functionality and standards compliance, including embracing the international records and cataloguing standards MARC and Z39.50.

Current Status

The latest stable release of Koha is 3.12.0

Project Sponsors / Administrators : Katipo Communications, and funding by Horowhenua Library Trust and other libraries. Current project leader is Patrick Eyler.

Dependency: Apache, Perl, MySQL (or any RDBMS)

Supported Platforms: Windows (without Z39.50 support), Linux, and UNIX

License: GNU General Public License

Availability: http://sourceforge.net/projects/koha, http://www.koha.org/download/

Further Information :

Project Homepage: http://www.koha.org/
Koha Wiki Page:
http://www.saas.nsw.edu.au/wiki/index.php?page=KohaProject

Comperision between New Genlib Vs Koha Haravu, L J. (2009)

A comparative chart is given below:-

Comparative Features NewGenlib Vs Koha		
General Features	NewGenLib	Koha
Multi Language Support	Yes	Yes
Client server architect	Yes	Yes
Report Generation	Yes	Yes
Graphical user Interface(GUI)	Yes	Yes
Inter Library Loan	Yes	Yes
Post Installation Support	Yes	Yes
Report Administration	Yes	Yes
Retro conversion	Yes	Yes
Standard report administration	Yes	Yes
Support International metadata standard	Yes	Yes
Authority file & controlled vocabulary	Yes	Yes
Support network environment	Yes	Yes
Ability to build digital library	Yes	No
Ability to build repository	Yes	No
Article Indexing	Yes	No
Associate component found in open source	Yes	Yes
Digital library integration	Yes	Yes
No restriction of use	Yes	Yes
Power search facility	Yes	Yes
Scalable and high speed	Yes	NO
Union cataloguing	Yes	Yes

NewGenlib Vs Koha Opac Comparison

Some highlighted similarity and difference of OPAC are as follows-

Features	NewGenlib	Koha
Formatting of Display	Yes	Yes
Index Field Modification	Yes	Yes
Cataloging of Website	Yes	No
Google book Cover	Yes	No
Cataloging of Electronic Document	Yes	Yes
Item Reservation though OPAC	Yes	Yes
New Arrivals Display	Yes	Yes

Conclusion

It has been a major advantage for open source softwares that everybody can make his contribution for development of information management system. Generally people think that writing of source code is contribution in development of system but those who give suggestion for betterment, make complaint, report bugs are also play role in development of system. Both the software has developed their self by this way. Support of Lib Lime to Koha is major contribution in development of software.

Use of technology, Open Standards and well designed system has made both the software highly capable, flexible and user friendly management softwares. Forum of both the softwares has give real time help for user of the softwares. Although installation of Koha is comparative somewhat difficult then NewGenlib though a person without much knowledge of software can install

and use both the softwares. The level of involvement of users in submitting bug reports and participating in the project's mailing list and the number of developers arough the project are also major factors for continuing success of both the softwares.(Crowson et al.)

NewGenlib Developers (Versu Solution Pvt Ltd.) has instituted several initiatives like adoption programme, offering free data conversion, Free SMS sending (Till Recent Time), providing quick response to query/ complaints. All the development work is being done by original developers and there are hardly any external developers for NewGenlib. On the other hand Indian libraries have lack of infrastructure and hardly are they having any IT expert.

Koha is having international support from the world community of users but still lot of work is remaining for development. Especially installation on Linux platform is difficult for Indian users as they are not very use to with Linux environment. Koha is lacking of table of contents, weed out, index glossary, SDI and provision of No Dues Certificate. Location map is also not available with koha.

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Open Source Library Management Software : A study

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Abstract

Articles informs about open source software, who is developing that software. Explains why open source software to be adopted in libraries. Provides brief information about the important open source software used in libraries.

Key Words : Public Libraries, Community Information Centres(CICs), Community Information Services(CISs).

Introduction

LIBRARY is defined as a place in which books, manuscripts, recordings, films, or reference materials are kept for private or public uses. Typically, a library must be able to handle some housekeeping information such as acquisition, interlibrary loan, cataloging, circulation, serials management, statistical reports and references. A library management system software package is designed especially to handle such housekeeping tasks. The rapid growth of information technology adds some features to library management system software packages such as features to handle digital media, e-book, e-journals, online public access catalog (OPAC), a feature to connect and exchange information with a digital library system, an ability to connect with networks of libraries, machine-readable cataloging (MARC) standard support and Z39.50 standard support (Vasupongayya, 2011).

The library management system has three main basic components. The first component is a traditional service such as acquisitions (i.e., ordering, receiving of materials), cataloging (i.e., classifying and indexing of materials), circulation (i.e., lending and receiving of materials) and serials management (i.e., managing magazine and newspaper information. The second component is an interlibrary load management system. Because a library may not have a hold of all materials required, an interlibrary loan is a way for its patron to request such materials from other libraries. The third component is a system to manage electronic materials and digital media. In addition to the above three main components, a library management system software package must contain a commonly shared components such as a user account management feature, a security component, an alert system feature, an accounting system for billing and producing statistical reports or other administrative decision support materials. In order to handle these components a software is required.

Now a days, open source software has become one of the buzz word discussed among software professionals. The increasing interest in open source software has been motivated by mainly three factors : the success of products such as Linux operating system and apache servers, which are gaining increasing shares in their own markets; the uneasiness in the Microsoft monopoly in the software industry; and the increasingly strong opinion that 'classical' approaches to software development are failing to provide a satisfactory answer to the increasing demand for effective and reliable software applications. (sawant, 2011)

What is open source software?

According to wikipedia, open-source software (OSS) is computer software with its source code made available and licensed with an open-source license in which the copyright holder provides the rights to study, change and distribute the software for free to anyone and for any purpose. (http://en.wikipedia.org/wiki/Open-source_software).

Another definition of OSS is 'Open source software (OSS) refers to software that is developed, tested, or improved through public collaboration and distributed with the idea that the must be shared with others, ensuring an open future collaboration.' (http://searchenterpriselinux.techtarget.com/definition/open-source-software)

According to the Open Source Initiatives (OSI), Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria: (http://opensource.org/osd)

Free Redistribution : The license shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The license shall not require a royalty or other fee for such sale.

Source Code : The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such

as the output of a preprocessor or translator are not allowed.

Derived Works : The license must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.

Integrity of The Author's Source Code : The license may restrict source-code from being distributed in modified form only if the license allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The license must explicitly permit distribution of software built from modified source code. The license may require derived works to carry a different name or version number from the original software.

No Discrimination against Persons or Groups : The license must not discriminate against any person or group of persons.

No Discrimination Against Fields of Endeavor : The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.

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 parties.

License Must Not Be Specific to a Product : The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.

License Must Not Restrict Other Software : The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.

License Must Be Technology-Neutral : No provision of the license may be predicated on any individual technology or style of interface.

Who is doing it?

Open source software are developed for the goodness of the community and ownership rest with public. Openness and cooperation in all stages of software development expands opportunity for collaborative work. So professionals and users attracted to open source software projects and make use their spare time for creative contribution.

In the case of popular open source ILS, most of them were initially developed for individual library purposes. Later stages, they moved to open source platform and released software in public domain. Koha ILS was developed in 2001 for Harovenua Library Trust and released under open source license in 2003. Koha gained rapid attention among library professionals and software developers because of its open source nature. Now Koha development activities are coordinated by Liblime, a software company providing open source software services in United States. NewGenLib is another mature open source ILS developed in India released in public domain in 2008. Kesavan Institute of Information and Knowledge Management and Verus Solutions Pvt. Ltd. started NewGenLib as proprietary initiative and they gained substantial user base. They adopted General Public License, popular free software license with the hope of getting more customers and to ensure community participation in development. (http://eprints.rclis.org/13858/1/20.pdf)

Why Open Source Software to be adopted in libraries

According to the Draft report of a meeting convened by the Digital Library Federation on October 5-6, 2001 in Washington DC to consider Open Source Software for Libraries claims for the economical and functional importance of OSS for libraries. These are (http://old.diglib.org/architectures/ossrep.htm) :

1. OSS is an economical alternative to libraries' reliance upon commercially supplied software. That is, despite the real costs involved in the development, maintenance, and use of OSS software but these are lower than those associated with library reliance upon commercial software. Accordingly, OSS economical is not free opens an economical alternative to reliance upon commercial software
2. OSS is essential if libraries are to develop software and systems that meet their patrons' needs. With OSS the IT infrastructure that is essential to library operations and services can be:
   - ❖ open (that is, built according to open standards and as such potentially inter operable with other essential software and systems);
   - ❖ ubiquitously available to libraries;
   - ❖ capable of being tailored to suit the needs and circumstances of individual libraries
   - ❖ documented (and documentation must be available); and
   - ❖ errors can more effectively be identified and corrected ("many eyeballs make bugs shallow")
3. OSS ensures that library systems and online services will be more functional for libraries and their

patrons and as such be good for library patrons. This hypothesis is posited because, through OSS developments, libraries:

- ❖ are reinserted into the research and development process that results in systems and software;
- ❖ share a stake in software development and as such have greater influence over (and as a result take a greater interest in specification of) the functional and performance requirements associated with particular software tools and systems
- ❖ motivate and empower systems librarians and related technical staff by encouraging creativity and positioning them to make a difference; and
- ❖ are able more easily to collaborate with other information science communities involved in common research and development area

According to Chudnov (1999), the factors tempting the use of OSS in libraries are :

OSS licenses allow libraries to cut budget on software and use it to other issues needing more funds.

OSS product is not locked into a single vendor. Thus even if a library buys an open source system from one vendor, it might choose to buy technical support from another company or get it from in house expert.

The entire library community might share the responsibility of solving information systems accessibility issues.

Open Source Software in Libraries

Open source is becoming a trend setter in libraries. Open source ILS (Integrated Library Systems) help to make automation of basic library functions affordable. There are number of open source software available for various automation purposes in libraries and it is not possible to mention all the available open source software in one paper. However, The table below shows the list of some of the open source software which are being used along with the website address/ Originating country :

TABLE I

OPEN SOURCE SOFTWARE FOR LIBRARIES

Name of Software	Website Address/ Originating country
Koha	http://www.koha.org/ originated in New Zealand
Evergreen	http://www.open-ils.org/ originated in USA
OpenBiblio	http://obiblio.sourceforge.net/ originated in Spain
OPALS	OPen-source Automation Library System http://www.mediaflex.net/ originated in USA
PMB	PhpMyBibli http://www.pmbservices.fr/nouveau_site/documentation.html originated in France
Emilda	http://www.emilda.org/ originated in Finland
NewGenLib	http://www.verussolutions.biz/ originated in India
Dspace	http://www.dspace.org/ originated in USA
Greenstone	http://www.greenstone.org/ originated in New Zealand
iVia	http://ivia.ucr.edu/ originated in USA
Eprints	http://www.eprints.org/ originated in UK
BiblioteQ	http://biblioteq.sourceforge.net/
ABCD	http://reddes.bvsalud.org/projects/abcd Originated in Brazil
GNUTECA	http://gnuttca.codogolivre.org.br

Koha

Koha is web-based ILS, with a SQL database (MySQL preferred) backend with cataloguing data stored in MARC and accessible via Z39.50. The user interface is very configurable and adaptable and has been translated into many languages. Koha has most of the features that would be expected in an ILS, including: (http://en.wikipedia.org/wiki/Koha_software)

- ❖ Simple, clear interface for librarians and members (patrons)
- ❖ Various Web 2.0 facilities like tagging, comment, Social sharing and RSS feeds
- ❖ Union catalog facility, Customizable search
- ❖ Circulation and borrower management
- ❖ Full acquisitions system including budgets and pricing information (including supplier and currency conversion)
- ❖ Simple acquisitions system for the smaller library

- Ability to cope with any number of branches, patrons, patron categories, item categories, items, currencies and other data
- Serials system for magazines or newspapers
- Reporting
- Reading lists for members

Evergreen

The Evergreen Project develops an open source ILS (integrated library system) used by over 1000 libraries around the world. The software, also called Evergreen, is used by libraries to provide their public catalog interface as well as to manage back-of-house operations such as circulation (checkouts and checkins), acquisition of library materials, and (particularly in the case of Evergreen) sharing resources among groups of libraries. (http://evergreen-ils.org/about.php)

The Evergreen Project was initiated by the Georgia Public Library System in 2006 to serve their need for a scalable catalog shared by (as of now) more than 275 public libraries in the state of Georgia. After Evergreen was released, it has since been adopted by a number of library consortia in the US and Canada as well as various individual libraries, and has started being adopted by libraries outside of North America.

Because of the nature of ILSs, Evergreen has an interesting mixture of functionality. For example:

- Evergreen is a metadata search engine
- Evergreen is a transaction processing engine
- Evergreen is just another web application
- Evergreen is based on a robust, scalable, message-passing framework - OpenSRF

OpenBiblio

OpenBiblio is an easy to use, automated library system written in PHP containing OPAC, circulation, cataloging, and staff administration functionality. (http://obiblio.sourceforge.net/)

The most important features are:

- Updated to be compatible with MySQL 5.5.
- Updated for PHP 5.3.x deprecated features.
- Updated for PHP 5.4.0 backward incompatible changes.
- Fixes for bugs in OpenBiblio features.
- Check In shows hyperlinked member name (with Days Late and outstanding Account Balance), Override Due Date, Renew All, Offline Circulation, Bibliography Checkout History, Custom Copy Fields, Copy Barcode Number validation less restrictive and optional, new search types Call Number and Keyword, OPAC search, new parameters for reports, Copy Search and Popular Bibliographies, new reports, new layouts for media labels and member cards.

OPALS

OPALS Open-source Automated Library System is a powerful cooperatively developed, Web-based, open source program. This alternative technology provides Internet access to information databases, library collections and digital archives. “Perceptions 2010: An International Survey of Library Automation” published by “Library Technology Guides” lists OPALS among the top two ILS programs for system, company and customer support satisfaction. (http://www.mediaflex.net/showcase.jsp?record_id=52)

PMB

PMB is and Open Source Integrated Library System (ILS). It is Web-based , using PHP, MySQL and ajax. It includes : cataloging module (UNIMARC import, Z39.50 connector), circulation , acquisitions, Serials Management and Reporting, OPAC with Simple or Advanced search, category browsing, RSS feeds, web 2.0 functionalities. It is available in French, English, Spanish, Dutch.

Emilda

Emilda is a complete Integrated Library System that have Z39.50 capabilities and 100% MARC compatibility. MARC compatibility is achieved using Zebra in conjunction with MySQL. Features: - Full featured Web-OPAC, allowing comprehensive system management from virtually any computer with an Internet connection. - Template based layout allowing anyone to alter the visual appearance of Emilda. Extensive configuration made easy with the Emilda Configurator, allowing full customization of the system. (http://www.opensourcescripts.com/info/emilda.html).

NewGenLib

NewGenLib is a complete Integrated Library System with the following features : (http://www.verussolutions.biz/web/content/features)

- Functional modules are completely web based. Uses Java Web Start™ Technology
- Compatibility - Complies with international metadata and interoperability standards: MARC-21, MARC-XML, z39.50, SRU/W, OAI-PMH
- Uses chiefly open source components
- Scalable, manageable and efficient
- OS independent - Windows and Linux flavours available
- z39.50 Client for federated searching

- Internationalized application (I18N)
- Unicode 4.0 complaint
- Easily extensible to support other languages
- Data entry, storage, retrieval in any (Unicode 3.0) language
- RFID integration, Networking – Hierarchical and Distributed networks
- Automated email/instant messaging integrated into different functions of the software
- Form letters are configurable and use XML-based OpenOffice templates
- Supports multi-user and multiple security levels, Allows digital attachments to metadata

Dspace

The Dspace is a joint project of the MIT Libraries and HP labs. It is a digital asset management system. It helps create, index and retrieve various forms digital content. Dspace is adaptable to different community needs. Interoperability between systems is built-in and it adheres to international standards for metadata format. Dspace is an open source technology platform which can be customized or extend its capabilities. Features includes :

- Dspace is a service model for open access and/or digital archiving for perpetual access.
- Dspace is a platform to build an Institutional Repository and the collections are searchable and retrievable by the Web.
- To make available institution-based scholarly material in digital formats. The collections will be open and interoperable.

Greenstone Digital Library Software

The Greenstone Digital Library provides a new way of organizing information and making it available over the Internet. Collections of information comprise large numbers of documents (typically several thousand to several million), and a uniform interface is provided to them. Feature includes :

- It suits both Windows and Unix (Linux Sun OS) any of these systems can be used as a web server.
- The administration function build in it enables the items to authorize new users to build collection, protect documents so that registered users on presentation of password can only access them.
- It builds collection with effective full-text searching and metadata-based browsing facilities. Collection containing millions of documents up to several gigabytes can be built. Full-text searching is fast because compression is used to reduce the size of the indexes and text users
- can browse the list of authors, titles, date, class no., etc.
- Plug Ins can be written to accommodate new document types. The collection can contain pictures, music, audio, video clips, etc. It also supports multilingual documents.
- Collection can be updated and new one brought online any time with out bringing down the system (Sonkar et al., 2005).

iVia

iVia is an open source Internet subject portal or virtual library system. As a hybrid expert and machine built collection creation and management system, it supports a primary, expert-created, first-tier collection that is augmented by a large, second-tier collection of significant Internet resources that are automatically gathered and described. iVia has been developed by and is the platform for INFOMINE, a scholarly virtual library collection of over 26,000 librarian-created and 80,000 plus machine-created records describing and linking to academic Internet resources. The software enables institutions to work cooperatively or individually to provide well-organized, virtual library collections of metadata descriptions of Internet and other resources, as well as rich full-text harvested from these resources. iVia is powerful, flexible and customizable to the needs of single or multiple institutions. It is designed to help virtual libraries scale.(Mitchell et al. 2003)

EPrints

Eprints was one of the first IR software packages to appear. It is under continual development by its creators at the University of Southampton and the current version is v3.2.3. It has the following features :

- Easy end-user uploads.
- Bulk importing and exporting of records (ASCII, BibTex and more) for uploading established collections.
- Three user roles: administrator, editor and author.
    - Administrator role controls all back-end options such as organization of records, web interface appearance and functionality, and all other server-side settings.
    - Editor role reviews submissions before they are published online and may edit metadata on submissions to maintain consistency or correct errors.
    - Author role allows submission of documents and management of previously submitted documents.
- Easy search and browse features (multifaceted

browsing available, customizable by administrator).

- ❖ All necessary software for full functionality is open-source (Linux, Apache, MySQL, Perl).
- ❖ Provides RSS feeds for entire collections or based on specific criteria such as subject, author, etc.
- ❖ Functions with many file types, including: PDF, HTML, JPEG, TIFF, MP3, and AVI.
- ❖ Thumbnail preview of documents and images is generated automatically upon file upload.
- ❖ Easy to develop plug-ins using Perl.
- ❖ OAI compatible (which means that Google Scholar can index the contents of your Eprints archive).
- ❖ Any materials that cannot be displayed online can be requested with the click of a button.
- ❖ Temporary restrictions to accommodate embargo periods are easy to set.
- ❖ Preset and custom authority files available to maintain metadata consistency and avoid ambiguity (with author names, for example).
- ❖ Custom subject categories for browsing (faculty, department, LC subject headings, etc.).
- ❖ Integration with SHERPA/RoMEO for quickly checking publisher policies and author rights. (Beazley, 2010)

BiblioteQ strives to be a professional cataloging and library management suite, utilizing a Qt 4.x interface and providing connectivity to PostgreSQL and SQLite. The SRU and Z39.50 protocols are used for retrieving data for books, journals, and magazines. The software is available for all major operating systems and should be compatible with any system that supports Qt. Feature are :

- ❖ Embedded hyperlinks for localized searches of similar items.
- ❖ Exporting of views to CSV files.
- ❖ Free and Open Source technology.
- ❖ Front cover image retrieval via Amazon.
- ❖ Internationalization (translation) support. BiblioteQ currently supports the Czech, Dutch, English, French, German, and Greek languages.
- ❖ Rich search capabilities, including custom SQL queries.
- ❖ Support for multiple SRU and Z39.50 sites.
- ❖ Threaded data retrieval via the standard Z39.50 protocol for books, journals, and magazines.
- ❖ Transactional database queries. (http://biblioteq.sourceforge.net/)

ABCD

ABCD (Automation of Libraries and Centers of Documentation) is Open Source tool developed by BIREME (WHO, Brazil) in collaboration with the Flemish Interuniversity Council, Belgium, using UNESCO's CDS/ISIS database-technology. It is multilingual, open source software with Web application for the management of libraries, containing core library functions such as acquisitions, cataloging, lending and database administration. It caters all present needs of 3D libraries and documentation centers. It covers not only International Bibliographic formats (e.g. MARC, CEPAL) but also local and simple formats dealing with any type of documents. It has excellent indexing and retrieval features based on UNESCO's ISIS technology, a web OPAC, a portal to manage online, offline digital resources and a serials management module. (https://sites.google.com/site/pulisaa/events/abcdworkshop)

GNUTECA

The Gnuteca is a system for automation of all processes of a library, regardless of the size of its collection or the number of users. The system was created according to criteria validated by a group of librarians and was developed based on testing an actual library, the University Center Univates, which has been operating since February 2002.

The Gnuteca is free software, which means that it can be copied, distributed and modified freely. The software adheres to standards known and used by many libraries, such as ISIS (UNESCO) and MARC21 (LOC - Library Of Congress). Because it was developed within an environment CDS / ISIS, Gnuteca provides easy migration of such collections, and several others. Being a free software, and use as a basis only other free software, there is no practical limit on the number of service stations, islands to query or access via the Internet. (http://www.ohloh.net/p/Gnuteca).

Conclusion

It is apparent that the open source model has established itself as an important and successful alternative to proprietary development models. OSS has much potential for libraries and information centers. There are number of projects like Greenstone, Dspace, Koha, NewGenLib etc. which demonstrates its viability in this context. It gives library staff an option to be actively involved in development projects which includes, reporting errors, suggesting enhancements and testing new versions. Organisations adopting OSS should have long term commitment to the projects and they should also provide their staff additional training so that the staff may be able to take on these role effectively and efficiently. Librarians as well as library managers should watch this trend for future development.

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Innovative Library Services / Practices in the Modern Age with Special Reference to Higher Education in India

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Abstract

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Key Words : Innovative Library Services/practices, Higher Education, India, Web 2.0 & Lib 2.0.

Introduction

The Modern age is the era of information and knowledge revolution where Information and Communication Technology (ICT) and other technological innovations are enriching the life style and brought a sea change in all walks of the society including education. The current century is being, acclaimed as the "Knowledge Century Era" and today's society is termed as 'Knowledge society' where information and knowledge is the key element. Indian higher education encompasses opening of new vistas of learning academic restructuring, upgradation of technology, traditional technologies redefined, sharing of expertise, innovation, technology transfer, knowledge management, training, employability, entrepreneurship, media convergence and globalization etc. Universities entering into partnership with other institution and universities are found to be mutually beneficial, rewarding and productive.

Given below is the latest information on higher education of India, available from University Grants Commission of India [1] [http://www.dreducation.com/2013/08/data-statistics-india-student-college.html]

With 700 universities and more than 35,000 affiliated colleges enrolling more than 20 million students, Indian higher education is a large and complex system. The structure of degree-granting institutions is cumbersome primarily due to "affiliation" and funding sources. More than 85% of students are enrolled in bachelor's degree programs with majority enrolling in three-year B.A., B.Com. or B.Sc. degrees. One-sixth of all Indian students are enrolled in Engineering/Technology degrees.

Higher Education Institutions (Universities and Colleges) in India

Type of Institution	Number	E.g.
Central Universities (Public)	44	University of Delhi
State Universities (Public)	306	University of Mumbai
State Universities (Private)	154	Amity University
Deemed Universities (Private or Public)	129	Tata Institute of Social Sciences
Institution of National Importance (Public)	67	Indian Institute of Technology
Total Degree-granting Institutions	700	
Affiliated Colleges (Public or Private)	35,539	

Enrollment of Indian Students by Level of Education

Level	Number ('000)	% of Total
Graduate (Bachelor's)	17,456	86%
Post-Graduate (Master's)	2,492	12%
Research (Doctoral)	161	1%
Diploma/Certificate	218	1%
	20,327	

Enrollment of Indian Students by fields of study

Field	Number ('000)	% of Total
Arts	7,539	37%
Science	3,790	19%
Commerce & Management	3,571	18%
Engineering & Technology	3,262	16%
Education	733	4%
Medicine	716	4%
Law	373	2%
Others	218	1%
Agriculture	97	0%
Veterinary Science	28	0%
	20,327	100%

Libraries play vital role in facing the challenges of the knowledge society. They have important role in Higher Education through providing gateways to information/ knowledge. A Library is the centre of any academic unit. It disseminates a wide range of knowledge which is required to attain intellectual heights. Librarians supplement the instructional work of class-rooms and carry forward the ideals of education. Dr. S. Radhakrishanan, Chairman of University Education Commission (1949) described the role of University Library in following terms:

"The Library is the heart of all university's work: directly so, as regards its research work and indirectly as regards its educational work, which derives its life from research work. Scientific research needs a library as well as laboratories, while for humanities research, the library is both library and laboratory."

The Mehrotra committee of the UGC (1986) prescribed the follows vital roles of an academic Library: "The Library performs a crucial role in the educational process. It expands and supplements curricular learning. It widens the horizon what is more important, the Library even as it satisfies the quest for learning, spurs it to greater effort. While passing on to the youthful generation the distilled wisdom of human mind as it has evolved over the ages, the Library sharpens the mind and clarifies concepts. It is most durable bridge across time: The easiest way to assess the climate, temper and academic achievements of an educational institution is to visit its Library and see how it is being maintained and utilized."

LIBRARIES IN INDIAN HIGHER EDUCATION IN THE MODERN AGE

Today, in Indian higher education, Libraries provide various mechanism for acquiring knowledge, and become a platform for conducting self-education. Academic Libraries are centre for self-education and self-learning. The function of a Library are:-

i. Conservation of knowledge resources.

ii. Preservation of culture of different heritage though knowledge media.

iii. Information dissemination on a wider scale

iv. Information resource sharing.

v. Information resource services.

vi. Self-learning and self-education.

vii. Social information for intellectual and academic activities.

viii. Support to Research publication Teaching etc.

In order to strengthen the Library and Information Science in India the National Knowledge Commission (NKC, constituted on 13th June, 2005) has recommended to constitute National Mission on Libraries (NML) for a period of three (3) years. The mission should subsequently be converted into a permanent commission with creation of library fund of 100 crore.

The Role of the NMLs [2]:

- To develop libraries and Information services.
- To advise the government on Libraries and Information sector.
- To set standards for collection, service and technical processing.
- To encourage public- private participation.
- To interact with State Govt.
- To conserve cultural heritage.
- To review and assess LIS education and in-service training needs.
- To support R & D and technological development.
- To ensure access to all publications including government and institutional public documents.
- To set up a system for monitoring the working of public libraries.

In India also, on the line of global trends in library and information services, higher education institutions' libraries are witnessing following innovative library services/practices in the modern age:

LIBRARY AUTOMATION

Many of the Modern Academic Libraries have been automated and others are also being automated through Library Management Automation Softwares such as SOUL, LIBSYS, Librarian, CDS/ISIS, e-granthalay, Koha, Newgenlib etc. They are providing Library

services in an automated way in efficient and effective manner.

RFID (RADIO FREQUENCY IDENTIFICATION) TECHNOLOGY

"RFID is an Automated Data Collection(ADC) technology that:

- uses radio-frequency waves to transfer data between a reader and a movable item to identify, categorize, and track.
- Is fast and does not require physical sight or contact between reader/scanner and the tagged item.
- Performs the operation using low cost components.
- Attempts to provide unique identification and backend integration that allows for wide range of applications.

Other ADC technologies are Bar codes, OCR." (www.cse.iitb.ac.in, accessed on 26August, 2013) [3]. These technologies are used by various Indian academic Libraries

LIBRARY 2.0

The term Library 2.0, first coined by Michael Casey in 2006 on his blog Library Crunch, means the impact of a number of social and technological changes on libraries as a whole. Here, "the focus is on user-centred change and participation in creation of content and community"(http://en.wikipedia.org/wiki/library-2.0) [4]. It is the new generation of library and information services in order to meet the current information needs and expectations of users through application of the concept and technologies of Web 2.0 in the library operations, services, and collections etc. Indian higher academic libraries have also started to use this new concept for effective and efficient library services.

WEB 2.0

O'Reilly coined the term Web 2.0 to refer a collection of ideas on perceived services. Minsk explains that " in recent years, new software design patterns and business models are observed on the Web which is commonly referred to as Web 2.0 (Minsk, 2007, 315p.). Today, Web 2.0 include the services such as Instant Messaging(IM), steaming media, Blogs, RSS, Tagging, social networking and other advanced technological services. "The concept Library 2.0, OPAC 2.0, and Librarian 2.0 are the offsprings of Web 2.0 ideas"(Kataria & Anbu K., 2009) [5]. Thus, Web 2.0 is the upgraded and advanced generation of Web 1.0. Many of the Indian University Libraries are using this concept as per their needs.

IM

Instant Messaging (IM) is a real time text/audio/video communication among more than one person. Through this technique, users of the libraries are served and their reactions may be found instantly and effectively.

WIKI

Wiki is the part of server software which permits users to freely create and edit Web Page content using any web browser. Modern libraries are using Wiki tool in their library and information services for efficiency and effectiveness. This helps librarians to work in a collaborative manner with users.

BLOG

The Weblogs (popularly called Blogs) are the platform on the web to disseminate/share information among individuals. Modern libraries are having Blogs to have effective communication with users on library issues etc. Few Indian University Libraries have created their Blogs.

PODCASTING/VODCASTING

Podcasting is the process by which the digital audio files are shared over the internet using either feeds or by any other distribution media and Vodcasting is the same service in video format. This process may be used for effective library services in higher academic libraries of India.

STREAMING MEDIA

This is another important Web 2.0 advance service under which sequential delivery of multimedia content over the network mostly on demand, is done instantaneously. In libraries this service is provided for users to satisfy the needs of multimedia content.

RSS (REALLY SIMPLE SYNDICATION)

RSS is a service which provides users news feeds and other current awareness information on their desktop. In libraries CAS/SDI can be provided using RSS effectively. This innovative library service may be applied by Indian libraries also.

TAGGING

This is another popular Web 2.0 feature in library community. Tagging is the process through which the information resources of collection, are assigned tags in the form of words, phrases, codes or other strings of characters. This permits the users to add and modify the data and the metadata to satisfy their local needs. The benefit of Tagging is that it helps users to search data more easily. Some of the example of web based Tagging are Flicker and Del.icio.us. This service may be also by Indian higher academic libraries.

SOCIAL NETWORKING

Today, there is a social revolution called Social Networking on Internet. It involves a software based networking human communities which have common interest. Various virtual forums are good examples

of social networking where discussion groups with common interests join together to share ideas and thoughts such as LIS links (for Library professionals etc.), Facebook, Myspace, Twitter, Orkut etc. Indian higher academic libraries have now started to use this platform for effective library services.

MOVING WITH WEB 2.0 / LIBRARY 2.0 TECHNOLOGY

Library 2.0 is not about searching, but finding; not about access, but sharing. Library 2.0 recognizes that human beings do not seek and utilize information as individuals, but as communities. Some examples of the move from Library 1.0 to Library 2.0 are as follows [6]

Library 1.0	Moving	Web 2.0/Library 2.0
Catalog of largely reliable print and electronic holdings	➔	Catalog of reliable and suspect holdings web-pages, blogs, wikis, etc.
Cataloging	➔	Tagging in OPACs
Controlled classification schemes	➔	Tagging coupled with controlled schemes
Email mailing lists, webmasters	➔	Blogs, wikis, RSS feeds
Email reference Q & A pages	➔	Chat reference
Online communities via mailing lists	➔	Online Comamunities via Social Networks
OPAC	➔	Personalized social network interface
References with traditional means	➔	References with Blogs, I.M. RSS, Tagging Wikis
Text-based tutorials	➔	Podcast-based & Streaming media tutorials with interactive databases

CONCLUSION

Academic Libraries play a major role in the development and promotion of higher education in India They enable the students, scholars and teachers to achieve excellence in academics and research. A University Library is the sum around which teaching, learning and research revolves to achieve the goal of the university. Today, many of these Higher Education Institution Libraries are applying modern technologies/ practices such as Lib 2.0, Web 2.0, RFID, Library Automation etc. for providing effective and efficient services. For example Libraries of IITs, IIMs, JNU, DU, BHU etc. Many other libraries are having limitations in implementation of these technologies/practices, but the opportunities are open for them also, when they will get potential for the same. It may be hoped that all Libraries of higher education institutes will be equipped with all the modern facilities in the current age for quality library and information services in near future.

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Global innovation in Library Management Systems

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A

Abstract

The paper discusses' briefly the evolution of library management systems (LMS) and how changes m technology, information environment, user expectations and searching behaviours, competition from related application streams and the availability of enterprise-wide systems particularly in academic and research environments have influenced changes in LMS functionality and design. The drawbacks of current IMS offerings, both commercial and open source, are then described followed by a description of major new initiatives that have taken place in the last two or three years leading to new ways of freeing the LMS from its monolithic nature into one which supports new workflows via services -oriented architectures (SOA) and web services.

Key Words : P

Introduction

Library Management Systems (LMS) or computer-based systems that automate one or all functional areas of a typical library have had a history of evolution going back to the mid 1950s. LMS have also been referred to as Integrated Library Systems (ILS) in later years to reflect the fact that all functions are managed ...via a central database (what is today being called a siloed application) with processes that transparently exchange data between functional components such as catalogue records and circulation transactions. This paper examines current initiatives that will determine the future of LMS. To understand and appreciate these initiatives it is important to briefly look at the past and recount the influences that have played a role in the evolution and how new influences both within libraries and outside have made it necessary to rethink the design of LMS.

The paper discusses the drawbacks of current commercial and open source LMS and the need for new design principles that take advantage of new software and interoperability paradigms such as services-oriented architecture (SOA) and web services that have arisen from the distributed nature of the web, changing user behaviours and the need to manage both core functions of a traditional LMS, new electronic resources plus the capability for interoperating with external applications, e.g., course management systems, personnel directory systems, that are now becoming an integral part of institutions. Initiatives of the OLE Project, the extensible Catalog Project,1 the proposals of the Digital Library Foundation2 (DLF), the National Information Standards Organization's (NISO) proposals for best practices3 and OCLCs recent proposal to use cloud computing paradigms to move the traditional LMS to becoming a fully web-spaced one (as opposed to just web-based) are discussed as pointers to the emerging future of LMS.

A SNAPSHOT OF THE EVOLUTION OF LMS

The evolution of LMS since the mid 1950s till the present day is seen to have taken place in five different phases as below. This division is, more for convenience and obviously there are overlaps in the phases.

FIRST GENERATION SYSTEMS (1950S - 1960S)

- Stad-alone un -integrated applications beginning with circulation;
- No standard metadata in use;
- The emphasis was on library housekeeping efficiencies, little or no concern for user access;
- Most applications were home grown; very little vendor interest in LMS; and
- Mostly main-frame computer based and batch processed systems. MIDDLE GEERATION SYSTEMS (1960S - 1970S)
- Metadata standard for bibliographic records (MARC) became available;
- Emphasis was on exchanging bibliographic data, centralized cataloguing and distribution of catalogue cards;

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- Systems were developed by vendors which leveraged the catalogue data in other modules
- Circulation, acquisitions;
- First generation integrated LMS came into being;
- These were targeted to single libraries;
- Proprietary backend designs (e.g., flat files) were common; and
- Mostly mini-computer based; character-based interfaces;

- Some systems were still home-grown.

PRE-INTERNET GENERATION (1970S - UP TO 1990S)

- Networking via LANs and WANs became possible and libraries began to ask for networking of closely related libraries;
- Microcomputer-based systems with richer interfaces;
- Client-server LAN systems became the nomi;
- Interactive applications became possible with GUIs;
- Vendor systems with networking capabilities became available;
- Marketplace soon made home grown systems unnecessary and not cost effective;
- Most integrated systems had similar functionality with small differences;
- First generation OPACs made their experience. The OPACs were heavily librarian-centric in
- Federated searching became possible via the z39.50 Information Retrieval protocol; and
- Movement away from proprietary to RDBMS-based backend systems and SQL-based search systems.

INTERNET GENERATION (WEB 1.0) (1900S - 2000)

- Initial move was to host the OPAC on a web-server; other functional modules were still locally administered;
- Rich GUI front ends using tools like Visual Basic, Visual C++ became available;
- When reliable Internet connectivity became widely and cheaply available in the 1990s, new client server systems that used the web for data storage and transaction processing became available;
- Platforms like JAVA and .NET became the development options for web applications;
- Open source OS platforms like Linux made an entry. Few applications and quite geeky; and
- Backends were still predominantly RDBMS-based and search systems were SQL-based.

POST 2000 - THE WEB 2.0 ERA

- 240 The Web became the platform of choice for software. Development philosophies'changed from finished product to work-in-progress and frequent updates delivered over the web;
- The web has become from an information delivery only platform to a participative platform. Ordinary individuals contributed via blogs, wikis, podcasts ancf social networks. This has impacted the expectations that library users have from libraries and LMS;
- Web services via protocols and APIs resulting in information reuse, greater interoperability, RSS/ Atomfeeds, mashups enhanced user experience in discovery applications, e.g., Amazon, Library Thing;
- Open source offerings make a serious entry into the marketplace;
- Dissatisfaction with the monolithic nature of the LMS and the OPACs is increasingly voiced; The consolidations and mergers in the commercial market place is evidence of upheavals in the industry;
- New kinds of enterprise applications have become available to institutions and there is a demand for better integration of LMS with such systems.

The snapshot overview of the evolution can also be seen from the point of developments in technology, e.g. changes from using mainframe to mini-computers to microcomputers; from software for un-integrated systems to integrated systems; from single library systems to multi-library and networked systems; from using proprietary to relational database backends; and from LAN-based systems to web-based systems. Developments in both hardware and software technology and the use of new paradigms such as the relational model, object-oriented analysis and design, client-server architectures and languages particularly well-suited to the world wide web have had an influence on the evolution. A major technological influence has been the growth of the web and its distributed environment under different platforms, formats, languages and data models requiring that the LMS supports interoperability Equally important influencing factors that have challenged LMS with new demands from librarians as well as users have been:

CHANGES IN THE INFORMATION ENVIRONMENT

The emergence of new forms of information, e.g., the web page, electronic forms of conventional infonnation objects such as audio and video, full-text, e-serials. The plethora of formats in which information objects could occur (e.g., in proprietary ones (MS-Windows-based) or as open formats such as HTML, XML, PDF, open document format, MP3, MP4, WMV, JPG, TIFF, etc.) have also required that LMS should be able to deal with new information objects.

CHANGES IN USER BEHAVIOURS AND DEMANDS

- This has probably been most challenging of all influences on the evolution of the discovery interface or OP AC built into LMS. Some of the searching and use behaviours that have challenged LMS are:

- ❖ Users want greater freedom in managing their access to information.
- ❖ Users want access not only to just library-held information but to other material types and on the web in general.
- ❖ Users seek a simple search interface that is not only easy to use but also retrieves items ranked by relevance and points to related items, reviews, recommendations, and allows a degree of faceted searching
- ❖ Users want access to full-text and other digital content and expect the library to assist them in obtaining the full text or other digital content via the LMS;
- ❖ The Google generation (the teens of today, who have been brought up on the web and its resources unlike their predecessors) demand the freedom to tag items of their interest, access to information by their own tags or those of peers in a social network. They also value access to reviews, recommendations, and peer ratings of materials that may be useful to them.

DEVELOPMENT OF NEW METADATA STANDARDS AND PROTOCOLS

Although the MARC metadata standard has been a long-standing one for bibliographic records, its complexity and the need for a high level of training for its use to create metadata records is a shortcoming in its use by non-librarians, e.g., authors, painters, musicians, social activists who are today also generators of infonnation. These require to be described in institutional and web-based search systems including generic-search engines. This has led to the development of simpler and more generic metadata schemas such as Dublin Core. Other information objects, e.g., courseware and learning objects require metadata that is not covered well enough by bibliographic standards. It is important to recognize that today's users, particularly in the academic world, require access to other materials as well and they expect that the LMS should be able to inter-operate with such systems in meaningful ways. The open access movement and the development of the OAI-PMH has enabled the development of institutional archives of scholarly contributions. These are valued by researchers and faculty and there is demand for the interoperability of such resources with the LMS.

EMERGENCE OF RELATED APPLICATION STREAMS LEADING TO PRESSURES FROM LIBRARIANS, END-USERS AS WELL AS INSTITUTIONS

Database producers, e-joumal publishers, providers of data, audio and video feeds and content, subject portals, learning management systems, enterprise-wide information systems have their own workflows, search interfaces, applications and metadata standards. There is a growing demand from librarians, users and institutional heads that libraries should interoperate their systems with these related applications to permit access to a wider information base and to avoid unnecessary duplication of similar data across applications and avoidable errors in transactions that may take place between LMS and other applications, e.g., between a LMS's acquisitions system and the Institution's. Purchase Management System.

LIMITATIONS OF CURRENT CROP OF LMS IN TODAY'S CONTEXT

One of the advantages of current offerings of LMS is that it tightly integrated all functions within a common application as a means of increasing efficiencies. However, what was once considered to be a virtue, has many drawbacks in the changed times of today. Some of the drawbacks are:

‘ The LMS is a complex, closed system, the software uses proprietary code and is expensive to license and difficult to customize even if the software is open source. The complexity of the code militates against customization by a third party. Even if this is theoretically possible, it is expensive in terms of development costs. The LMS imposes rigid workflows. These are suitable for conventional materials. The management of electronic resources requires different workflows, e.g. management of: digital rights, management of access rights to e-journals, implementing consortial borrowing, document delivery and access to full text via applications (e.g. open URL) and protocols. Libraries are faced with two options: cither to use the inefficient workflows to manage e-resources with their LMS or to implement a parallel system for the management of electronic resources. Parallel systems are obviously an additional burden in terms of costs and maintenance.

New enterprise -wide information systems, personnel directory systems and purchase management systems are being implemented. Current LMS do not integrate with the new systems. Libraries create complicated processes for extracting data from the enterprise systems, reprocess data inside the LMS, and then send data back to the enterprise systems, e.g. student or patron data; library acquisitions data. Lack of integration with widely used tools, e.g. database search systems, institutional repositories is a serious deficiency. Libraries cope with these problems by developing add-on components or by purchasing new LMS components and writing programs to connect them to them to the LMS. It is nearly impossible for a library to integrate its commercial ILS with tools outside the LMS, such as a course/learning management system or social-networking tools. Current OP AC offerings of LMS, most of which are librarian-centric do not provide the discovery experience that many users are accustomed

to in collateral systems such as Amazon.com, eBay, Google, LibraryThing, social network applications.

New OP AC offerings in the cpmmercial space, e.g. Endeca, Primo, Aquabrowser, improve user experience, but purchasing and implementing a second OPAC is an extra expense and an extra support burden on top of costs and support for the LMS. New open source OPAC offerings such as Scriblio, VuFind have also become available, but use of these requires programming effort on the part of libraries and the need for the vendor of the LMS to expose ways in which third party applications can use the data embedded in their application. The work done and experience gained to add-on new workflows in existing LMS to cater to the management of newer resources is not easily transferable to other LMS products or to other libraries trying to solve the same problems.

NEW INITIATIVES IN THE REDESIGN OF LMS

The drawbacks of current LMS products have simmered in the discussions4,5,6 in the past few years now. Librarians and vendors; bodies such as the NTSO, DLF and associations such as the ALA; and active web forums (e.g. the List on New Generation Catalogs, NGC4LIB) have discussed these in several live meetings, online forums and webinars. In the last two years there have been very proactive initiatives. Among these, the following initiatives have made significant progress and their findings will undoubtedly have a great impact on the future shape of LMS. Significantly, all the initiatives, except the OCLC proposal are predicated on open source principles and on using open standards.

- The NISO Best Practices for Designing Web Services in the Library Context
- The extensible Catalog project of the University of Rochester, USA
- The OCLC proposal for a web-scale, cooperative library management service
- The OLE Project (www.oleproject.org) under the leadership of the Duke University, USA
- The DLF Discovery Interface (DLF-DI) Task Force

Now in this paper describes the above-mentioned initiatives in some detail and their projected outcomes.

THE NISO BEST PRACTICES FOR DESIGNING WEB SERVICES IN THE LIBRARY

CONTEXT

In a parallel move but not confined to discovery interfaces, the NISO too has come up with broad principles which may guide tine design of web services (http://www.niso.org/publications/rp/rp-2006-Ol.pdf) of the following categories:

DISCOVERY SERVICES

Web services to discover metadata, full text or a seivice; web service to create and maintain a directory (such as a directory of services, a directory of policies, or a directory of members)

LOCATE SERVICES

Web services to communicate requests and circulation transactions between peer circulation systems, e.g., between members of a consortium of libraries.

REQUESTING SERVICES; DELIVERY SERVICES; COMMON SERVICES

Like the DLF-DI task force recommendations, NISO guidelines are targeted to developers of LMS products. The OLE build project, no doubt, will take notice of the NISO guidelines and to that extent there is a common thread that will bind these apparently independent initiatives in the years to come. Both the DLF and NISO speak of 'Services', clearly indicating that the future of library applications will be firmly founded on the principles of SOA.

THE EXTENSIBLE CATALAOG (XC) PROJECT OF THE UNIVERSITY OF ROCHESTER

- The XC Project is to design/develop a set of open-source applications that will:
- Provide libraries with an alternative way to reveal their collections to library users.
- Provide easy access to all resources (both digital and physical collections) across a variety of databases, metadata schemas and standards.
- Enable library content to be revealed through other services that libraries may already be using, such as content management systems and learning management systems.
- Make library collections more web-accessible by revealing them through web search engines.

As can be seen the objectives of the XC as indeed the OLE initiatives spoken of earlier are similar. However, the XC's uniqueness lies in the fact that it has developed and released various Tool Kits as open source implementations.

The following tool kits have been released:

- OAI. This will allow integration of XC with an existing ILS and digital repositories.
- NCIP. This tool kit will allow RFID functionality to be enabled within An existing LMS Learning -Management.

The following tool kits are under development:

- Metadata services - four types of metadata will be available to XC: bibliographic, holding, item and authority data The tool kit will also have live access to circulation status, authentication mechanisms

and native ILS circulation request functionality.

- Drupal (Content Management System) Tool Kit - XC will offer a number of user interfaces including one that is embedded into the Drupal CMS.
- A tool kit that will be embedded into the Blackboard Learning Management System.

Toolkits will incorporate unanimously agreed-upon standards for searching through library resources including faceted browsing interface and compliance with the Functional Requirements for Bibliographic Records (FRBR) which lays stress on the usefulness of bibliographic displays rather than just the Hunching ul search terms with catalogue records.

The fact that XC is open source will provide possibilities for customization, although this may be a Ihcorclical advantage since the cost of such customization is not known. The XC Project and its tool kits are already recognized by the OLE Project as resources that can be leveraged in its Build Project plan. To this extent (he-work will contribute to the future of LMS and open source initiatives in this area.

WEB-SCALE SERVICE PROPOSAL OF OCLC

in an announcement made by OCLC in 2009, they have proposed to offer "the first Web-scale, cooperative library management service." This will ultimately, it is hoped, bring into WorldCat Local the full complement of functions traditionally performed by a locally installed integrated library system (ILS) via the web. In this, the OCLC will be using the World-Cat database, undoubtedly the world's largest bibliographic database of over a billion records plus OCLC's "cloud", or bank of servers and communications infrastructure. OCLC's vision involves shifting increasing portions of activity managed library-by-library through locally or consortially implemented automation to the network level, under its global WorldCat infrastructure. OCLC plans to work with the more than 1,000 libraries and partners that are currently using OCLC library management systems in Europe and Asia Pacific to help build the new service. Like in the full version of WorldCat, WorldCat Local users search against the massive WorldCat.org database, with their local library's holdings presented first in result lists.

The proposal envisages the use OCLCs' enriched WorldCat Local with article-level content including the material from its ArticleFirst service plus a vast body of articles from EBSCO to those who subscribe to FirstSearch and EBSCO host. Other providers may be added in course of time. WorldCat's metasearch enhancement will allow search also of a library's licensed content. The WorldCat Navigator (an extension of WorldCat Local) will enable consortial borrowing. OCLC plans to move circulation and acquisitions functions in time. Circulation is planned to be implemented via a web-based client

Acquisitions through WorldCat Local will include functionality of the ILS print acquisitions module and an electronic resource management (ERM) system.

These moves could bring the local ILS in use at the libraries which may use this web-scale service, redundant. Since the users of OCLC are among the biggest libraries in the world, their influence on the rest is bound to be significant.

However, there are also concerns about the OCLC proposal:

A library using the OCLC cloud services route, will be exposing themselves to the risk of giving away to OCLC control of how all their data is used and shared.

The planned OCLC system would probably appeal mainly to smaller- to medium- sized institutions. Large libraries may not like to compromise on functionality and customization to be "web scale," as OCLC is describes it.

Developing country libraries, many of whom are not members of OCLC will not find the option appealing. The plan is presently confined as being applicable to a few ILS vendor systems.

CONCLUSIONS

The LMS industry is going through a profound transition thanks to the initiatives presented here. The end of an era and the beginning of a new one in the evolution of LMS is seen - from that of a library-specific one to that of an enterprise-wide one. Vendors are evaluating how to respond. Theywill not become redundant if they adapt. Commercial and open source offerings incorporating the ideas and work of the initiatives mentioned above among others will, no doubt, become available. Open source initiatives, particularly the Community-Sourced ones, arc likely to significantly expand the options for libraries, worldwide. Services to libraries will probably be the next big opportunity rather than products.

Status of Automation of Public Library (State Central Library) Itanagar, Arunachal Pradesh: A case study.

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Abstract

Advancement in information technology have revolutionized the management of library information and have shifted the documentation and cataloging of library information very hard and complex manual updating in the form of hard copy to easy and time saving computer based updating to soft copy. Computer based updating, cataloging and circulation of information is called library automation. In the language of library, "mechanization of all housekeeping operation predominated by computerization is known as Library Automation". Present article discusses about the automation status and mode and extent of chemical changes brought about for the maintenance and user services of the public library, Itanagar Arunachal Pradesh. The data has been generated by randomly distributing fifty numbers questionnaires among the users and by contacting library staff and authority.

Key Words : Public Library, Information Technology, Library Automation, Arunachal Pradesh.

Introduction

Few years back, card catalogues, typewriters and manually assigned due date slips were used for systematic use and collection of information from library. Now a day, computer based cataloging and circulation is taking smart position in most of the libraries rapidly as it is easy, time and man power saving approach over manual mode of maintenance and circulation. Library automation has emerged as an easy and effective tool for categorization and circulation of library resources by librarians and to library patrons with the help of computer software. "Automation is a process of using the computer machineries for easy working and saving the human power and time. Library automation is the process of automating the typical processes of manual cataloging and circulation (hard copy) into computer based cataloging and circulation (soft copy). It has now emerged as a streamline tools and also eco-friendly in terms of avoiding use of papers that was earlier used to maintain the records. Moreover, it also minimizes the use of manpower, space for maintaining the records (hard copy) and is cost-effective. In the simple language, when we use machineries for collection processing, storage retrieval of information, and, do another works of library with the help of machineries that called library automation"1. At present use of the computer technology in library keeping operation such as administrative work i.e. acquisitions, cataloguing, circulation, serial control, OPAC etc. known as library computerization.

Aims of the Study

i). To know about the collection of the public library (State Central Library, Itanagar, Arunachal Pradesh),

ii) To know about the automation status for the State Central Library, Itanagar, Arunachal Pradesh

iii) To study about the future planning of State Central Library, Itanagar, Arunachal Pradesh

Methodology

The documentation of status of automation of state central library (public libraries) of Arunachal Pradesh was performed by visiting the library personally as well as by consulting the users. The data was generated by consulting library staff and by getting the response of users with respect to fifty Nos.of questionnaires distributed among the users.

About the Arunachal Pradesh

Arunachal Pradesh, earlier known as NEFA (North East Frontier Agency) is situated in the extreme North East corner of India covering nearly 84000 sq.km in the trans-Himalayan Region between the latitude of 26.20N and 29.330N and Longitude 91.310E and 97.300E .It is bounded by the famous Mac-Mohan line on the eastern border and inner line with about 618.5km of Assam and 58.6km (approx.) of Nagaland in the foothill region. It is also known as Land of Rising Sun. After independence, the area was organized as NEFA with headquarter in Shillong. It becomes union territory in 1972 and full fledged state in 1987. However the opening of separate Research Department for Arunachal Pradesh paved the way for development of public library in various parts of the state. According to 2011 census the total population of he state is 13,82,611 out of which 7,20,332 are male and 6,62,379 are female. The overall literacy rate is 66% .

Public Library Development in Arunachal Pradesh

Public library in Arunchal Pradesh, Tripura, Nagaland, Manipur, Mizoram, Meghalaya and Assam are functioning to provide non-formal education, entertainment etc. in the North Eastern region. Government of Arunachal Pradesh passed the library legislation bills on 10th August 2009. Public libraries in Arunachal Pradesh are functioning to provide lifelong education, recreation, non-formal education etc. to all the people of Arunachal Pradesh. The year 1956 to 1968 marked the introduction of library services in Arunachal Pradesh (formally known as NEFA). During this period, libraries were opened in all district head quarters like Pashighat, Changlang, Daporijo and Roing (in 1962), Tirap, Tawang and Seppa (in 1966) and Koloriang and Tuting (in 1967-68). Another library services was started in the remote area at Mechuka.

In 1978 the capital of Arunchal Pradesh was shifted to Itanagar from Shillong. The central library was shifted to secretariat building and a new name was given to it "State Central Library" Itanagar. Presently the public libraries system of Arunachal Pradesh is run by the Directorate of Public Libraries under the government of Arunachal Pradesh. Rajaram Mohun Roy Library Foundation (RRLF) is also playing a very crucial role in promoting libraries services in Arunachal Pradesh since 1976. At present the following are the public libraries functioning in the Arunachal Pradesh:

State Central Library	01
Branch Library	31
District Library	16
Sub divisional Library	22
Divisional Library	02
Block Library	31
Circle Library	38

State Central Library presents Scenario

News Paper	Books	Magazines	Lib. Professional	Non Prof.	Group D
17	56083	14	6	4	4

Library Automation in State Central Library

The state central library, Itanagar started automation project in the march 2013 by the ECOL Solution, Bangalore. All the books have been entered and database with the help of KOHA software has been generated. Presently library is providing OPAC services to the user's and very soon circulation will be also started. And one by one all housekeeping of library services will be provided to the users in near future. The total forty one lakhs of rupees was sanctioned by the Department Science and Technology, Government of Arunachal Pradesh. The library is planning to introduce RFID in Sate Central Library for security region and also introduce in all District Library also

Hardware and software used in automation

The hardware and software used in state central library has given bellow

a)	Software of KOHA:	1
b)	PCs	5
c)	Server (HP)	1
d)	Ups	5
e)	Barcode Scanner	2
f)	Scanner	2
g)	Printer	2

Suggestion and Recommendation

I) Sufficient grant should be provided to the whole libraries for automation and other purpose by the state government according to the library and information policy

II) Library should take initiative for training programme to the users for software and hardware for development of library staff users

III) Library authority must take initiative in the beginning for selection of software and hardware for library.

IV) Library authority must take initiative to uninterrupted power supply to the library

V) User awareness programme should be organized by the library authority for the users.

VI) Orientation programme must be organized for new users .

VII) All the data and information should secure with the help of different security tool such as use of antivirus, firewall and taking a backup of data time to time

Conclusion

Public libraries exist in most of the world and are often considered an essential part for educated and literate population. Public libraries differ from research libraries and academic libraries in their mandate to serve the public information need s generally as well as of erring materials for general entertainment and leisure purpose. Situation in some states having a public library law is comparatively better than the rest. It is positive sign that the State Government of Arunachal Pradesh has taken steps towards the modernization of Public Library in

whole Arunachal Pradesh. They have passed the library legislation act also in 2009. Proper implementation of the plan projects by the concerned authority will only make the picture bright in future.

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INFOLIB: STUDENTS' CORNER, 28.01.2014

MR. SANJAY KUMAR KARN, MR. BASANTA KUMAR DAS & MR. SHIVA PRAKASH

Q.1. Who used the term " Statistical Bibliography" in 1923 to refer to the application of quantitative techniques to libraries?

Q.2. When did Dr. S.R.Ranganathan coined the term " LIBRAMETRY"?

Q.3. Which term was first used by ALAN PRICHARD in 1969?

Q.4. Expand DOI?

Q.5. When was The Bihar State Public Library & Information Centre Act passed?

Q.6. When was Jharkhand Information & Library Association (JILA) formed with its H.Q. in Ranchi?

Q.7 Where is Sri Krishna Seva Sadan Library located?

Q.8. Who started the Journal named " SCIENTOMETRICS" in 1977?

Q.9. According to Brookes, the term "INFORMETRICS" was first proposed by OTTO NACKE of West Germany in which year?

Q.10. When was Sinha Library (the Bihar State Central Library), Patna was opened for the public for the first time?

ANSWERS: Q.1. MR. E.W.HULME; Q.2. 1948. Q.3. BIBLIOMETRICS. Q.4. DIGITAL OBJECT IDENTIFIER. Q.5. 2008. Q.6. APRIL 15, 2007. Q.7. MONGHYR (MUNGER), BIHAR. Q.8. T. BRAUNIN. Q.9. 1979. Q.10. FEB. 1924.

HAPPY READING & QUIZZING!

Soft Skills for Library Professionals

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Abstract

In early days, if library professionals possess subject skills related to library and information science, it is enough to run the library effectively, later stage library professionals forced to learn ICT skills to provide the better library services to its user community and also it is more useful to run the library successfully and to save the time of library professionals/users. Now there is one challenge is to be faced in the corporate world is soft skills, now it is mandatory to learn the soft skills to cope up with the present competitive world.

Key Words : Soft skills, Library professionals, Listening skills, Communications skills, Interpersonal skills, Leadership skills, Negotiating skills and Presentation skills

Introduction

For today's librarians having professional degrees in library and information science is not sufficient unlike in the past. There is demand for librarians having multidimensional aptitude in the areas of technical work, administrative work and also in providing user oriented services along with soft skills. Like any other profession, the soft skills are required in day-to-day working for carrying out routine jobs more effectively. The librarians working in large organizations like corporate offices are already practicing these skills through by experience or training. One may learn these soft skills easily provided they are aware what these are.

Skills for library professionals

In this corporate world, to become a successful librarian or library professional, the librarian should possess following skills

- Subject skills
- ICT Skills
- Soft Skills

Soft Skills

Need for Soft Skills

With the changing times, the face of the library world is also changing, wherein the need-of-the-hour is to have state-of-the-art professionals who are agile enough to meet the growing demands of library users community. Hard skills are the technical expertise and knowledge needed for a job related activities. Soft skills are interpersonal qualities, also known as people skills, and personal attributes that one possesses. Library professional consider soft skills a very important attribute in job related activities that to in the time of communication with library users, vendors, publishers, government/private agency and others1. Technical skills have little value if we have poor soft skills; we need soft skills to create opportunity for our self. The use soft skills will help us to grab opportunity with both hands. It's wakeup time - keep the right perspective of our value, not just for our technical expertise, it is our power of soft skills2. The soft skills not only improve our professional career but they offer personal growth also.

Barriers for Soft Skills

Library professionals with barriers to learning are continually knocked down by societal pressure and many feel they have failed both in learning and in life. Mainstream training programmes are often beyond the reach of the seriously disadvantaged who may have a psychological block to learning. Sometimes, without realizing it, one might be creating barriers to effective communication by making assumptions, being sarcastic or joking when someone is serious about an issue.

There are six 6 common barriers that library professionals can be avoided:

- Differing expectations: if we are not on the same page we cannot achieve a common goal.
- Assumptions: we all know what assume means
- Sarcasm: no one wants to deal with sarcasm when they are trying to discuss a problem.
- Kidding: no one wants to hear jokes when they are trying to discuss a serious issue.
- Insufficient feedback: when we do not know how we are doing we are likely to "assume" everything is okay; constructive criticism and encouraging praise are the most prized rewards an employee can receive. Money is rarely the reason people leave a job, nor is it what will keep them. Rather feeling appreciated, respected and empowered will engender purpose and loyalty toward an organization3.

Benefits of Soft Skills

The main benefits of soft skills for library professionals are

- Lifelong credential
- Professional accomplishment
- Increased credibility with library users
- Increased satisfaction library users
- More productive library professionals
- Strong team and leadership in library
- Demonstrated dedication to user service and support
- Measurable results and improvements
- Demonstrated knowledge and expertise of service and support strategies, processes and technologies.
- Incentives, rewards, and challenges for Employees and others[4]

Types of Soft Skills

We can see wide and varied soft skills which should be possessed by library professionals. Some of them are as follows

Listening skills

Listening is one of the most important skills that our library professional can have. How well we listen has a major impact on our job effectiveness, and on the quality of our relationships library users or with others. Normally we listen to obtain information, we listen to understand, we listen for enjoyment and we listen to learn. Even it is ability to accurately receive and interpret messages in the communication process7. It become listening is so important that many top employers provide listening skills training for their employees. This is not surprising when we consider that good listening skills can lead to better library user's satisfaction. Many successful library professionals credit their success to effective listening skills. So our library professionals should be active listener but not passive listener5.

Communications skills

Effective communication helps us better understand a library user or situation and enables us to resolve differences, build trust and respect, and create a good library environment, where creative ideas, problem solving, affection, and caring can flourish. As simple as communication seems, much of what we try to communicate to others—and what others try to communicate to us—gets misunderstood, which can cause conflict and frustration in personal and professional relationships. By learning these effective communication skills, we can better connect with our library user/professionals. Positive communication will certainly increase the opportunities to us, to find in our professional world, good communication skills will enable us to get ahead in certain areas where others who are less assertive may not succeed10.

Interpersonal skills

To succeed in library environment library professionals need good interpersonal skills, interpersonal skills are measures of how adept we are at interacting in library environment. To succeed in library management library professionals need good interpersonal skills. Strong interpersonal skills create more satisfying interactions in all environments. When library professionals have good interpersonal skills we are able to develop social skills and can effectively communicate with someone using various techniques. Interpersonal skills are the life skills we use every day to communicate and interact with other library community, both individually and in groups. Professionals who have worked on developing strong interpersonal skills are usually more successful in both their professional and personal lives.

Leadership skills & Teamwork

The ability to lead effectively is based on a number of key skills. These skills are highly sought after by employers as they involve dealing with people in such a way as to motivate, enthuse and build respect. Ideally a leader wants people to follow them because of the trust and respect they have earned – not because they are told to. Leadership roles are all around us, not just in a library environment, leadership skills can be applied to any situation where you are required to take the lead, professionally, socially and at home in family settings. Library professionals can of course learn about effective leadership skills and practices but being able to implement them yourself may require an altogether different set of skills and attitudes. Perhaps the most important skill a leader needs is to be able to make decisions; leadership is all about having a vision of where you want to be and making decisions along the way to get closer to achieving this vision8.

Negotiating skills

Library management function techniques will never be complete without the librarian and even various other library professionals being able to negotiate effectively. Any library runs well based on the skills of their library professionals. From communication skills to negotiation skills, every library would need to hone these skills in their workers to ensure the efficient running of a business organization. The very thought of negotiating sounds intimidating, yet we are all experienced negotiators. Any time we come to an agreement on anything, we are negotiating. Some of it we may do somewhat subconsciously, such as deciding who says hello first. Negotiation skills include being well prepared, showing patience, maintaining integrity, avoiding the presumption of evil, controlling our emotions, understanding the role of time pressures, breaking down bigger issues into smaller ones, avoiding threats and manipulative tactics,

focusing first on the problem rather than on the solution, seeking for interest-based decisions, and rejecting weak solutions.

Writing skills

Writing is an essential skill upon which all library professionals rely. . Good writing skills allow us to communicate our message with clarity and ease to a far larger audience than through face-to-face or telephone conversations. The better our writing skills are, the better the impression we'll make on the library users around us – including our boss, our colleagues, and others. Before writing anything we should think, who will receive it, the composition and style of the letter, its structure, grammatical error, spelling, punctuation and even proofing is necessary. However, the best way to improve is to write. Try writing practice pieces that you do not even need to show anyone else.

Presentation skills

Presentations skills are very useful in many aspects of library professional life. The formats and purposes of presentations can be very different, for example: oral (spoken), multimedia (using various media - visuals, audio, etc), PowerPoint presentations, short impromptu presentations, long planned presentations, educational or training sessions, lectures, and simply giving a talk on a subject to a group on a voluntary basis for pleasure. Even speeches at weddings and eulogies at funerals are types of presentations. They are certainly a type of public speaking, and are no less stressful to some people for being out of a work situation. Many library professionals feel terrified when asked to make their first public talk, but these initial fears can be reduced by good preparation which will also lay the groundwork for making an effective presentation.

The library professionals can make use of following tips for effective presentation skills

- Dress smartly
- Say hello and smile when you greet the audience
- Speak clearly, firmly and confidently as this makes you sound in control.
- Talk naturally to your audience
- Stand, rather than sit, and move around a little
- Vary the tone, pitch and volume of your voice to add emphasis and maintain the audience's interest.
- Make eye contact with your audience
- Use visual aids where appropriate, g
- Rehearse your talk and check your timings.
- Prepare and structure your presentation carefully.
- Stay focused throughout your presentation
- Learn to channel any nervous energy,
- Don't speak too quickly: you are likely to speed up and raise the pitch of your voice when nervous
- Use silence to emphasise points.
- Eye contact is crucial to holding the attention of your audience.
- Walk around a little and gesture with your hands
- Answer any questions as honestly and concisely as you can.
- Keep within the allotted time for your talk8.

Conclusion

Knowingly or unknowingly, in our day-to-day personal or professional life, we are making use of soft skills. But, if we are using the soft skills in the systematic way, there will be no doubt, our library professionals will reach their goals along with llifelong credential, professional accomplishment and increased credibility in and around library environment.

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Growth and Development of Library Systems in India

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Abstract

This paper describes about the growth and development of library system in India since ancient period to the modern 21th century. The paper states about the role of different authorities such as central/state government, UGC, UNESCO, Library Associations, corporate and an individual who played a vital role in the development of library system in India.

Key Words : P

Introduction

India has been the cradle of one of the earliest civilizations. Intellectual enquiry and philosophical thinking were the factors that shaped the Indian civilization. Library system's development in India is a saga of organized growth and development of libraries, giving the details of establishment, maintenance and functioning of libraries in India. These aspects viz., establishment, maintenance, functioning and development make a library a growing organism. No country in the world can progress without providing free public library services to the citizens. It is imperative on the part of the democratic country like India to establish the service institutions like public libraries system in order to strengthen the democratization of information and to promote the social, cultural, historical and scientific and technical knowledge in the public at large (Kumbar, 2005). The growth and development of library system in India can be easily studied by categorizing it into three groups:

1. Ancient Libraries; 2. Medieval Libraries; and
3. Modern Libraries.

Ancient Libraries :

The first libraries were only partly libraries, and stored most of the unpublished records, which are usually viewed as archives. The archeological as well as literary evidence make it clear that writing and reading of manuscripts were regularly practiced in ancient period since the fourth century B.C. to the sixth century after Christ. This must have led to the growth and development of collection of manuscripts in important centers of learning. The important library of that period was that of Nalanda University of Bihar in the fourth century AD. The library was said to be in three grandest buildings, the area of which was called "Drama Ganja". The other important academic library of that period was Vikramsila, Odantapuri, Somapuri, Jaggadal, Mithila, Vallabhi, Kanheri, etc. (Sharma 1985, p.97). During that period there was a considerable activity in South India too, and there was a tradition about the libraries in that period known as sangam age.

The Buddhist of India laid special emphasis on the writing of manuscripts and maintaining their collection. The Jains and Hindus also made immense contribution in the field of learning. They patronized education and literary activities, established innumerable institution called Upasrayas and Temple College. Acharya Nagarjuna, the founder of Mahayana Buddhism is known to have maintained a library on the top floor of the university building. It was also said that Taxila has a rich library.

Medieval Libraries :

The medieval cycle may be roughly taken to have ended with the seventeenth century. It was during the ascending phase of this cycle that the giant intellectual and spiritual leaders such as Sankara, Ramanuja and Madheva flourished. This was the time when personal as well as public Libraries were established in different part of India.

1. **Personal Libraries :** From the earliest times the kings and nobles of India patronized education and encouraged writing of manuscripts and their preservation. Even the princes of small states maintained their manuscripts libraries. The tradition was continued till the nineteenth century. The emperors of Timuride dynasty were patrons of learning. With the exception of Aurangzeb all the early Mughal rulers extended their support to art, music and literature. The libraries also made remarkable progress during their times. Humayun converted a pleasure house in purana quila in Delhi into a library. Akbar maintained an "imperial library"; he was also instrumental in introducing reforms in the classification and storage of books. Jahangir is said to have maintained a personnel library which moved with him wherever he went (Khursid 2004, p.6).
2. **Public Libraries :** In the seventeenth and the eighteenth century, the development of libraries received an impetus due to rise of European settlement in India. From 1690, Calcutta began to develop as one of the principal English settlement,

when a large number of British began to settle there. Subsequently, the circulation and subscription libraries came into being.

The East India Company established the Fort St. David library in 1707 at Cuddalore. In the year 1709, the society for promotion of Christian Knowledge sent out a circulating library to Calcutta, the first of its kind in India. Subsequently, a number of such libraries were established in India, the notable among them were Fort St. George library (1714), East India Company's library, Bombay (1715), John Andrews circulating library at Fort William, Calcutta (1770), The Calcutta Circulating library (1787), etc (Datta 2004, p. 172).

Modern Libraries:

Library Development till Nineteenth Century-

1. **Public Libraries :** The role of Mughal rulers and missionaries in establishment of some libraries also find their way to modern cycle. Some of the scattered manuscripts of the early periods have been collected and preserved in many modern manuscripts libraries. These are found in many states in India. Those of Baroda, Banaras, Bombay, Calcutta, Madras, Mysore, Poona, Tanjavur and Trivandrum are well known.

   The year 1808 is considered an important period during which the then government of Bombay initiated a proposal to register libraries which were to be given copies of books published from "funds for the encouragement of literature". This has been the first attempt to register the libraries and assist them with literature by the government (Bhattacharjee 2002, p.82).

   In the early 19th century John Andrew's circulating library at Fort William, Calcutta (established in 1770) was converted into a public library. A few public libraries started appearing sporadically here and there during the same period in this country. The notable among them are Asha Granthalaya, Waltair (1800), Calcutta Literary Society's Library (1818), United Services Library, Poona (1818), Raghunandan Library, Puri (1821), Bombay General Library (1830), etc (Sharma 1987, p.99).

   In August 1835, the Calcutta public library was established. It was meant to serve the needs of all ranks and classes without distinction. In 1860, a small library was established by Jean Mitchell in Madras as a part of the Museum. It was opened to the public in 1896. It was named Connemara Public Library, this library can be claimed to be the first true public library, only a nominal refundable deposit was required. In 1948, it becomes State Central library.

   In 1867, the Government of India enacted the Press and Registration of Books Act (XXV) under which the publisher of a book was supposed to deliver free, to the provincial government concerned, one copy of the book and one or two more copies, if the provincial government so desired, to be transmitted to the central government.

   In 1876, Khuda Baksh Oriental public library (Patna) was established. Maulvi Muhammod Baksh Khan, on his death left a collection of 1500 manuscripts. It formed the nucleus of the library. In 1891, the library was opened to the public (Patel and Kumar 2004, p.10).

   The imperial library was also established at Calcutta in 1891. Lord Curzon, the viceroy of India promulgated the imperial library act 1902, which is based on Registration of books act of 1867, amalgamating Calcutta public library with imperial library. Soon after independence the Government of India passed the National Library Act in 1948 following which the imperial library was renamed as the National library of India (Nagar 1983, p.3).

   By the end of nineteenth century, all the provincial capitals as well as many of the district towns, especially in the three presidencies (Bombay, Calcutta and Madras) had so called public libraries. Even princely states such as Indore and Travancore-Cochin had public libraries in their capital. However, the masses in general did not take full advantage of these institutions.

2. **Academic Libraries :** The first college was started in this country is the Fort William College in 1800. Sir John Colville in 1857 introduced the bill to establish universities in India. In the same year Lord Dalhousie, then the Governor General of India, gives immediate consent to this bill. As a result, the first three modern universities were started at Calcutta, Bombay and Madras in 1857 based on the patterns of London University.

   a. Calcutta University Library: Calcutta University was the first university which established on January 24, 1857. On February 24, 1869 Mr. Joy Kissen Mookherjee donated Rs. 5,000 to the University for purchasing of books for the library. The senate in the year 1872 succeeded in constructing a beautiful building at a cost of Rs. 4, 34,697(Naidu 1990). This is the first and oldest university library that was established in British India. In 1874, the library also started a collection of periodicals. In 1876-77, Calcutta University library had a good collection of books with printed catalogue service to the user. In 1934, a new library building was set up in the Calcutta University. In 1937, the Calcutta University Library appointed the professionally

qualified Librarian, Dr. Nihar Ranjan Roy. He, for the first time in India introduced the DDC and AACR rule for providing effective library services to the user.

b. Madras University Library: The Madras University Library was opened in 1907. The government of India gave a special grant of Rs. one lakh to the library to develop its book collection. In 1924, Dr. S. R. Ranganathan joined the Madras University Library as Librarian. He was the first professionally qualified Librarian in Indian history. Due to his active involvement he was able to receive grant of Rs. 10, 00,000 in the year 1926 for Mardas University Library (Jambhekar, 1995). This was the first grant to be received from the government in the history of the university libraries in India. As a result of this grant, the University Library that was in-house at the Connemara Public Library since 1908 was shifted to the new location in 1936. Again five well-trained reference librarians were appointed to provide special reference service to the user. This was done for the first time in the Indian history.

c. Bombay University Library: The Bombay University library was established very lately due to the lack of donation. It was the university authorities of Bombay that offered a donation of Rs. 20,000 for construction of library building. In 1931, a very special grant of Rs. 10,000 was given by Kikabhai and Meneklen the sons of late Premchand Roy Chand (Jambhekar 1995). In 1939, the Central government provides a special grant of Rs. 50,000 to the University of Bombay library to strengthen its collection.

3. **Research Libraries :** The Asiatic society of Bengal that was established at Calcutta in 1784 started building up a good research library since its inception. The Asiatic Society of Bombay, founded in 1804, also developed a good library. The first technical library to be founded in this country is the Victoria Technical library at Nagpur in 1806. The Madras Literary Society had founded its library in 1812.

Library Development in Twentieth Century

1. **Role of Individual :** The development of public libraries as a movement may be said to have started by Maharaja Sayajirao Gaekwad III, the ruler of Baroda state in 1906. During his visit to USA he was impressed by the public libraries system in that country. In order to organize libraries along modern lines, the Maharaja appointed an American librarian by name William Allenson Borden as curator of libraries of his state. During his tenure of office that is in between 1910-13, Borden could organize a very good network of free library services in the state. However, this example did not set a pace in the later development due to lack of interest on the part of the state government. But the contribution made by Maharaja Sayajirao III would be written in golden letters in the history for developing public library system in Baroda.

The library movement in Baroda originated as the peoples movement under the leadership of Motibhai Amin (a public leader) in the form of Mitra Mandal (Society of Friends) as early as 1906 which received state patronage in 1960. Newton Mohan Dutta, curator of libraries at Baroda also did good work (Nagar 1983, p.22).

There have been a number of pioneers who made contribution to the library movement in Andhra Pradesh. Out of them Sir Iyyanki Venkata Ramanayya holds a place of pride. From Bengal we have the name of Monindra Dev Rai Mahashaya. Master Motilal (1876-1949), by his own effort and meagre resource established Shri Sanmati Pustakalaya (a public library) in Jaipur in 1920. From Punjab we had Sant Ram Bhatia, who played an important role in promoting the cause of public libraries in Punjab. In Assam, the library movement at its true spirit was led by Late Kumudeshar Barthakur (1893-8th November 1966), a retired Secondary School teacher under the brand name of Assam Library Association (Nagar 1983, p.23).

The contribution of S.R. Ranganathan is unique and remarkable. He is regarded as the father of Indian library movement. The idea of an integrated library system was first introduced by him at the first “All Asia Educational Conference” held at Benerai in 1930. There he presented a model library act that form the basis of the Tamil Nadu, Andhra Pradesh and Karnataka library legislation and as a whole the subsequent library legislation in India.

2. **Role of Library Association and Organization :** Library association also played a vital role in the progress and development of library system in India.

The Andhra Desa Library Association, founded in 1914, is the first of its kind in India. It started the first full fledged professional periodical in 1925 under the title “Indian Library Journal”.

All Indian Library Association was also set up in 1920, but it could not do anything for libraries and their development. By Dr. S. R. Ranganathan’s effort Indian Library Association was set up in 1933 in its present form. The association published a quarterly periodical named ABGILA (Jambhekar, 1995). In the same line, Indian Association of Special Library

and Information Centre (IASLIC) were established in 1955 at Kolkata for the systematic growth and development of special libraries in India.

Raja Rammohun Roy Library Foundation (RRRLF) was set up in 1972, on the occasion of the bicentenary of Raja Rammohun Roy who raised the banner of revolt against obscurantism in the society and devoted his life to fight against injustice. RRRLF is an autonomous organization of Dept of Culture, Govt. of India and it provides different types of grant to different public libraries.

Bengal Library Association (1925), Madras Library Association (1928), Punjab Library Association (1929), Assam Library Association (Sadau Assam Puthibharal Sanga) (1938), etc. played vital roles for the growth and development of public libraries in the respective states of origin (Buragohain 1999, p.8).

3. Role of Union and State Government

a. First Five Year Plan: The government of India in its first five year plan of educational development includes the scheme of "Improvement of Library Service". This scheme envisaged a network of libraries spread all over the country. The proposal of setting up a National central library at New Delhi was also made. During the first five year plan nine state governments i.e. Assam, Madhya Pradesh, Punjab, etc. decided to set up state central libraries (Sharma 1965, p.89).

b. Second Five Year Plan: Under the second five year plan the government of India allocated about Rs. 140 lakhs for setting up a country wide network of libraries in 320 districts. Under this plan, the "Institute of Library Science" at University of Delhi was also established. The refresher course on "The public library and national development" on March 2, 1959 also started (Planning Commission India, 1956, p. 522).

c. Third Five Year Plan: During the third plan period besides the Institute of Library science, University of Delhi other universities also upgraded the facilities for training library personnel and enhanced the facilities for research in library science (Panda 1993, p.36).

d. Fourth Five Year Plan: The government of India announced on July 16, 1964, appointment of a 16 member education commission to make a compressive review of the entire field of education and advice the government on evolving a national pattern at all stages of education. The commission has formed various sub committees to prepare report on various aspect of education including the libraries, which plays a great role towards the betterment of libraries in India. During the fourth five year plan, the government of India set up the Raja Rammohan Roy Library Foundation in 1972 to make the bicentenary of the birth of Raja Rammohan Roy, the father of modern India (Thomas 1997, p.29).

e. Fifth Five year Plan: This plan included measures to strengthen the buildings, collections, and staff of the central and state libraries, as well as strengthening the district, block, and village libraries. During this period, attempts were made to develop a district-level library system, so that district library could act as a leader for the smaller libraries in the district. The adult education programme was the hallmark of this plan. The programme was to be supported by a network of libraries at the village and block levels and various community centres. Thus steps were taken to strengthen not only the village and block libraries, but also the central, state libraries and the district libraries (Thomas 1997, p. 30)

f. Sixth Five Year Plan: This plan emphasized establishing a network of rural public libraries to sustain literacy and disseminate information to rural areas. It discussed the necessity of integrating school and college libraries with the system of public libraries. During this period, 26 states or union territories out of 31 (in 1982) had established state central libraries and 291 district libraries (Thomas 1997, p. 31).

g. Seventh Five Year Plan: During this period, the Commission's objective was to address the needs of 90 million people in the Adult Education Programme. The network of libraries was to play a role in the development of literature for neo-literates. Library systems were to be strengthened, with specific attention given to improvement of facilities at national level institutions. An important development was the 1986 adoption of National Literacy Mission, which emphasised the education of women and the establishment of rural libraries. In addition, the RRRLF set up an Integrated Research Cell-cum-Computer Unit for promoting research in librarianship and database of public libraries in the country (Planning Commission India, 1991, p. 258).

h. Eighth Five Year Plan: During this period it was proposed to reorganise the Central Reference Library into the National Bibliographical and Documentation Centre, which would also have a computer centre. The Delhi Public Library set

up two new libraries in its service area. RRRLF created programmes to help state central libraries to purchase reprographic equipment, to help libraries process rare books, and to give special assistance to networks of public libraries that were at least 100 years old (Planning Commission India, 1992).

i. Ninth Five Year Plan: Funds were provided to the Delhi Public Library and Central Secretariat Library, Delhi, for acquisition of new material in different languages and media as well as for modernizing their infrastructure. Funds for modernizing and computerization were also provided from central grants to the Connemara Library, Chennai, Thanjavur Maharaja Serovji Sarasvati Mahal Library, Thanjavur and the State Central Library, Mumbai. Besides these, the RRRLF provided assistance to public libraries across the country for collections and storage, construction, and seminars and workshops (Planning Commission India, 1997).

j. Tenth Five Year Plan: The Tenth Plan focused on upgrading existing libraries, including private collections, and widening the programme for bibliographic control and documentation. The Commission resolved to strengthen public library infrastructure through the RRRLF. To make readers services more comprehensive and effective, the National Library is expected to act as the ultimate referral centre for various subjects. To keep pace with the latest developments in information technology in public libraries, the upgrading and networking of central and state libraries was also planned (Planning Commission India, 2002).

k. Eleventh Five Year Plan: Eleventh plan was focused on National Archives of India (NAI) to revitalize its programmes of expansion of records management and repair and reprography. Developing a National Bibliographic Database in electronic format to encourage resource sharing, networking and to improve reader services is the hallmark of modernization activities in the library sector (Planning Commission India, 2007).

l. Twelfth Five Year Plan: During the Twelfth Plan, public library system in the country should be rejuvenated by taking advantage of the technological developments that have transformative potential to change the public libraries. Existing public libraries must modernise their collections, services and facilities and become pro-active in resource sharing, professional development of staff, extending library facilities right up to the grassroots through the Panchayats (Planning Commission India, 2012).

4. Role of UGC : The UGC gave a new life to the university and college libraries. It gave librarian a status, prestige and a better life. The major commission and committees formed by UGC for the growth and development of college and university libraries are

a. Library Committee (1957): The UGC programme (Commission) appointed a committee under the chairmanship of Dr. S. R. Ranganathan to advise on a wide range of subjects including the standards and principles for the designing of library building, fitting and furniture, administration of university libraries, training of librarianship etc.

b. Review Committee (1961): In order to consider the question of improving and coordinating the standards of teaching, and conducting research in the department of library science in Indian Universities under the chairmanship of Dr. S. R. Ranganathan a review committee was formed in July 1961. The first meeting of the committee was held on 15th July 1961, in which a questionnaire was finalized on the basis of data supplied by the Indian Universities. In response to this questionnaire a note was prepared by the UGC, which form the back bone of many developments in the subject of library science.

Other mentionable Committees and Commissions are

- ❖ Education Commission (1964): Chairman D. S. Kothari.
- ❖ Pal Committee (1970): Chairman A. B. Lal.
- ❖ Mehrotra Committee (1983): Chairman R. C. Mehrotra.
- ❖ Committee on National Network System for Universities (1988): Chairman Yash Pal.
- ❖ Curriculum Development Committee on LISc (1990): Chairman P.N. Kaula

c. Work Flow Seminar: UGC organized a seminar on “work flow” in libraries in New Delhi from March 4-7, 1959, Dr. C. D. Deshmukh, the then chairman of UGC, extended assistance to libraries for constructing building and furniture as well as for the engaging the staff on a scale which is, relatively speaking, larger than found in many other countries. The recommendations of the seminar were circulated to the

universities and colleges all over the country. These comments were considered by the commission and were accepted.

d. Revision of Pay Scale: Another great improvement in the history of universities and college libraries is the revision of salary scales of professionally qualified librarian under the third five year plan.

e. Establishment of INFLIBNET: UGC established an Inter University Centre (IUC) named INFLIBNET at Gandhinagar in 1988 to make network of all the libraries of the universities and colleges of the country and help in automation and up gradation of it.

5. **Role of UNESCO :** The great contribution of UNESCO towards the library profession in India is that it gave it an international status. UNESCO for the first time started the first pilot project by establishing the Delhi Public Library in October 1951. The main aim of this project was to provide information on the problem of public library services for the parts of India in particular and for Asia in general.

   The Indian National Scientific Documentation Centre (INSDOC) was set up in 1952 by the government of India with technical assistance from UNESCO. In 1964, UNESCO assisted INSDOC again in setting up its regional centre in Bangalore.

   The second important step that the UNESCO took in this direction was the holding of a seminar on the development of public libraries in Asia in Delhi from October 6-26, 1955. It was the first international meeting on this subject to be organized in an Asian country. On the whole, the seminar was a great success for the library profession in India.

   Another UNESCO seminar which had far reaching effect on library profession in India was the "Regional seminar on library development in South Asia". It was held in the University of Delhi library from 3-14 October 1960. The most significant achievement of this seminar was the "grading of staff", "salary scales" and "status of librarian".

   Besides these, the UNESCO honored the Indian librarians by inviting them to advice on various library projects meant for the member country. The prominent among those are Dr. S. R. Ranganathan, B. S. Kesavan, S. S. Saith and a few others (Sharma 1996, p.37).

   Indian National Commission is the official agency of UNESCO, the National Information System for Science and Technology (NISSAT) in Department of Scientific and Industrial Research (DSIR) is the focal point for UNISIST (PGI) and is also the coordinating centre for ASTINFO programme. NASSDOC of ICSSR is the focal point for UNESCO supporting APINESS programme.

6 **Role of Corporate :** Some Indian corporate has also contributed through donation/grant in the establishment/ development of the different academic/public libraries in different parts of the country. Apart from that, in late twentieth century, Due to globalization and high competition in the market many Indian corporate have established their own well stoked, advanced and networked library system for (R & D purpose) use to their staff members that help (indirectly) in knowledge gain to the peoples of India.

Library Networks

Indian information professionals, education specialists and scientists have realized that the time has come to share the information resources and to coordinate mechanisms. This has resulted in discernible change in the Library scenario in India. A large number of library resource sharing networks like the Metropolitan Area Networks such as CALIBNET in Calcutta, DELNET in Delhi, BONET in Bombay, PUNENET in Pune, MALIBNET in Madras, HYLIBNET in Hyderabad, ADNET in Ahmedabad, and countrywide ones like ERNET (Educational and Research Institutions), INFLIBNET (Universities and Research Institutions) and DESINET (Defence Laboratories), and sectoral ones like BTISNET (Biotechnology Networks) etc. are under various stages of conceptualization, design, development and implementation. These networks of library play a vital role in the growth and development of library system.

National Knowledge Commission

Indian National Knowledge Commission (NKC) was established in 2005 by the union government which eventually formed a Working Group on Libraries. This Working Group on Libraries along with other related working groups of NKC re-established dialogs with national and state actors and other stakeholders through public consultations. The Commission envisaged the future road map for the growth and development of the libraries by imbibing core issues such as, set up a National Commission on Libraries (NCL), prepare a national census of all libraries, revamp LIS education, training and research facilities, re-assess staffing of libraries, set up a central library fund, modernize library management, encourage greater community participation in library management, promote information communication technology applications in all libraries, facilitate donation and maintenance of private collections, and encourage public private partnerships in LIS development, etc.

1. **National Mission on Libraries :** NKC envisaged

a transformation of India's public library system through a newly formed institution called "National Mission on Libraries". National Mission on Libraries set up four working groups and after deliberating on the recommendations of the working groups formulated the scheme "National Mission on Libraries (NML) – up gradation of libraries providing service to the public". The scheme consists of four components:-

- ❖ Creation of National Virtual Library of India (NVLI)
- ❖ Setting up of NML Model Libraries,
- ❖ Quantitative & Qualitative Survey of Libraries
- ❖ Capacity Building

The NML has started its functioning and we may hope it can make a revolutionary change in the growth & development of library system in India.

Status of Library Legislation in India

Since independence of India the following States have passed Public Libraries Acts-

S. No.	Year	State
1.	1948	Tamilnadu
2.	1960	Andhra Pradesh
3.	1965	Karnataka
4.	1967	Maharashtra
5.	1979	West Bengal
6.	1988	Manipur
7.	1989	Haryana
8.	1989	Kerala
9.	1993	Mizoram
10.	1993	Goa
11.	2000	Gujarat
12.	2001	Odisha
13.	2005	Uttaranchal
14.	2006	Rajasthan
15.	2006	Uttar Pradesh
16.	2007	Lakshadweep
17.	2008	Bihar
18.	2009	Chhattisgarh
19.	2009	Arunachal Pradesh

So far, only two third of the States of the Indian Union have successful passed the library legislation, However, in the coming few years, there is greater possibility for a library law being enacted in the remaining States. Many of the state have just passed the legislation but it has not been yet implemented properly.

Conclusion

The Development of Library System in India has moved a long way. The different societies have played a vital role in the development of library system in India. But there is still need to focus on establishment of Libraries in the remote locations/disadvantaged area of the society. The central and state government should implement the Library legislation effectively and provide better library services to the mass of the peoples. India has a great scholarly past and there was a time when it was called "Vishva Guru". If India would like to gain its old glorious status of Nalanda and Taxshila period, it should must encourage and promote the Library services for every sphere of society.

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Exploring Library Resources by the Engineering Colleges Community in Goa : A Study

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Abstract

Engineering College Library and Information Centers play a pivotal role in providing information sources and services to its users and thereby shaping the modern well informed engineers. The article attempts to understand and evaluate the use of the Library Resources by the faculties and students of engineering colleges in goa state. The study was performed through a well structured questionnaire survey of library users and confined to engineering colleges only. Collected data was analyzed with the help of X2 test and ANOVA test. Study aims to determine the utilization of various library resources and services provides introduction to information sources, insight into the various forms of library resources, library visits of the students and faculties of engineering colleges, convenience of library hours, location etc. How many hours spent in the library and purpose of the visit of the respondents, awareness of reference sources, satisfaction regarding access to electronic information resources in their respective libraries, dependency on the library sources by the respondents etc is discussed in detail. At the end, this study concludes with findings and suggestions for the improvement of the library infrastructure.

Key Words : Library Resources, Engineering College, Goa

Introduction

For hundreds of years, printed information sources have been used either by users purchasing them directly from the shops, or by using them through the libraries. The situation began to change about four decades ago with the introduction of computers in information handling, and there has been a dramatic change over the past few years. 'Recent developments in information and communication technologies, especially the Internet and the web, have brought significant changes in the ways we generate, store, access and make use of information in our day to days life. Being an effective carrier of nascent information, internet plays a significant role in the process of dissemination of information. Internet is now assumed the role of public educator making formal and informal education possible in a large scale, particularly in developed nations where modern communications are easily available. Both academic and professional college libraries have started building up their collections both in print and electronic form in order to facilitate the users in using according to their requirements. In recent years the use of electronic information has become prominent in the drive for making information and data transfer available to users, especially students. The Internet thus, finally made the whole world as a global village. The use of Internet in libraries and information centers increased in today's internet era. By providing library services through internet, libraries can increase their efficiency and provide services to users within a fraction of minute. It can be said that Information Communication Technologies will help the libraries to overcome the time and space barriers along with efficient dissemination of the information in a suitable format. Information communication technologies made the libraries to provide its services in a better manner.

Objectives of the Study

The main objective of the study is to know the electronic services available in the engineering College Libraries and their utilization by the library users especially Faculties and Students. The present study is designed to accomplish the following objectives:

- To know the purpose of the use of Library Resources among the Faculties and Students of the professional colleges in Goa State.
- To know the awareness and use of the library resources among the Engineering Faculties and Students.
- To know what are the existing library facilities available in the existing Engineering College Libraries.

Methodology

Survey method was adopted; and a suitable structured questionnaire was designed in keeping view of the objectives of the study, and same was distributed among the Faculties and Students of the Engineering Colleges to get full information about the functioning of their college libraries.

Literature Review

Kumar, Rajesh (2011) discussed the development of library resources and IT infrastructure of selected engineering and technology libraries of University of Delhi and GGSIP University Delhi. Conducted survey method using questionnaire and personal interview technique, analyzed the collection of print and digital resources for the period of 2004-05 to 2008-2009.

Assessed the expenditure incurred on reading resources and IT infrastructure. Further, the author presented the status of library automation, internet connectivity, development and growth with comparative statement of selected libraries during the period.

Mulla, K. R. and Chandrashekara, M (2006) had made an attempt to study libraries by region within the State of Karnataka, India, including the level of effort taken by the engineering college libraries in Karnataka to build electronic resources. Concludes that the collection and service infrastructure of the libraries in the sample regions are not up to the mark. Engineering college libraries are struggling in building digital collection and disseminating digital information, due to the following factors: lack of ICT infrastructure; lack of IT trained manpower; lack of awareness of the digital resources; lack of user demand; lack of financial support; lack of access like computer facilities; lack of knowledge about the digital preservation methods; and lack of training for the digital access.

Patel, Preeti, Verma, Vandana and Lodhi, Phool Singh (2011) in their study on Information Communication Technology provides a gigantic area to Library and Information Centers. It develops their collection and services on the click of mouse. Changing user's needs forced LIS professionals to be changed. New services including access to internet and internet based tools and services, access to electronic information sources and digital library of local and institutional documents. This reading helps to investigate the ICT skills and its use by LIS Professionals of the Private Engineering Collages of Indore city. Through this study they found the ways in which the Library Professionals are using ICT in PEC libraries, identify problems of the Library Professionals faced in the use of ICTs and enable to find the needs of ICT training in Library Professionals in PEC libraries. Further they explained the current ICT facilities in Private Engineering collage libraries of Indore City. Journals, books, dissertation and theses, course material and patents are some of the important sources of information that are now available in electronic form. Digital libraries provide local contents in the electronic form through internet to global clients.

Kumbar, Mallinath and Shirur, Shiddayya (2003) had made a survey on elicit opinions from the users of Sree Jayachamarajendra College of Engineering regarding the exploitation of Internet resources. A questionnaire was used to make a survey of the use of Internet facilities at SJCE. The analysis of the data thus collected covers characteristics of study population, purpose of Internet use, most used Internet services, problems faced by the users while using the Internet services, satisfaction level of the users, opinion about facilities available in SJCE and finally its highlights the suggestions made by the users for the further improvements of Internet services at SJCE - Mysore.

Gowda, Vasappa and Shivalingaiah D (2009) employed questionnaire method to gather data from researchers of humanities, social science and science disciplines in six universities in Karnataka. Responses received from 845 research scholars shows that in general the research scholars prefer print resources and there exists significant differences in the preference of print and electronic resources among various disciplines. Indentifies, the gaps in the need and availability of electronic resources like online journals and databases in the university libraries. Reveals that the electronic resources have created a positive hope among the research community in searching the information.

Singh, R.K. Joteen, Devi, Th. Madhuri and Raychaudhury, Arup (2009) examined the utilization, purpose, difficulties and satisfaction level of users about Internet based e-resource services provided by the library. Identified the low speed internet access, erratic power supply and lack of required full text journals are problems with regard to the use of internet based e-resource.

Data Analysis

Table 1: Gender-wise distribution of respondents

Sl. No.	Respondents	Male	Female	Total
1	Faculties	18 (52.9)	16 (47.1)	34 (100.0)
2	Students	582 (55.0)	476 (45.0)	1,058 (100.0)
3	Total	600 (54.9)	492 (45.1)	1,092 (100.0)

Source: Field survey.

It is very important to take due attention in selecting the respondents for primary data collection because human behavior is irrational. The primary data is usually collected from human beings who have irrational behavior. Therefore, the selection of male respondents and female respondents is to be given equal preference. Then only it will be possible to draw inference with the collected data by applying some statistical test which will be logical and universal.

The data in the above table shows that there is no wide gap between male and female respondents. In other words, both the category of respondents is given equal preference.

Table 2: Age-wise Distribution of respondents

Sl. No.	Age Group (in years)	Respondents		
		Faculties	Students	Total
1	15 – 20	-	182 (16.7)	182 (16.7)
2	20 – 25	-	724 (68.0)	724 (66.3)
3	25 – 30	9 (26.5)	127 (12.0)	136 (12.4)
4	30 – 35	-	12 (1.1)	12 (1.0)
5	35 – 40	1 (2.9)	12 (1.1)	13 (1.2)
6	40 – 45	10 (29.4)	1 (2.9)	11 (1.0)
7	Above 45	14 (41.2)	-	14 (1.3)
8	Total	34 (100)	1058 (100)	1092 (100)

Note: Figures in parenthesis denotes percentage to the total

It is studied that both male and female respondents are to be given equal preference. Similarly, same importance is to be given to all the age groups also while selecting the respondents. This is because when inferences are drawn based upon the opinion of younger generation along with the experience of the old generation, it will be more appropriate than anything else. Of course, the range of students is restricted, but the faculties range from 25 to more than 65 years. With this respect the selection of faculty respondents have wider scope than that of students.

With respect to the age group of the respondents, in the study area there is a very slight gap between faculties and students. As 83 percent of the students are within 25 years it can be clearly understood that they are still undergraduate students. Like that another 12 percent of the students are in between 25 to 30 years and the remaining 5 percent of students are aged between 30 to 45 years. This clearly indicates that they are post-graduate students or research students. On the other hand, about 26.5 percent of the faculties are in the age group of 25 to 30 indicating younger generation with less experience in teaching field and around 70 percent of faculties are above 40 years representing experienced respondents. It is also noticed that the faculties are either in between 25 to 30 years or above 40 years except one faculty who is in between 35 to 40 years. Therefore, the distribution of respondents among different age groups indicated that in the selection of respondents all age groups are given equal preference and importance.

Language wise Distribution

Table 3 : Language-wise distribution of respondents

Sl. No.	Languages Known	Faculties	Students	Total
1	English	27 (79.4)	907 (85.7)	934 (85.5)
2	Hindi	27 (79.4)	953 (90.1)	980 (89.7)
3	Konkani	34 (100.0)	1,058 (100.0)	1,092 (100.0)
4	Marathi	31 (91.2)	1,049 (99.1)	1,080 (98.9)
5	Other Languages*	4 (11.8)	101 (9.5)	105 (9.6)

Note: Figures in parenthesis denotes percentage to the total, * = Portuguese, Sanskrit, French, Kannada and Malayam

In communication, language plays an important role. It is one of the strongest means of communication. Language is essential means to interact with computer and with other students of different states/nations. With that respect, it is seen in the study area that some of the important languages used are like English, Hindi, Konkani, Marathi, so on.

From the above table it is clear that Konkani followed by Marathi plays an important role in communication when compared to Hindi which is national language and English which is accepted as international language. However, it is a good sign that majority of the respondents accounting for about 80 percent are aware of the above said four languages. A small portion of respondents are aware of other languages like Portuguese, Sanskrit, French, Kannada and Malayam. This denoted that respondents from other states also study in these institutions. It is also noticed that the percent of awareness about different languages is more among students when compared with faculties.

Table 4 : Respondent's frequency of visit to library

Sl. No.	Frequency of library visits							Total
	Respondents	Every Day	Once in a week	Twice in a week	Thrice in a week	Occasionally	Very Rarely	
1	Faculties	29 (85.3)	0 (0.0)	2 (5.9)	3 (8.8)	-	-	34
2	Students	1,011 (96.7)	14 (1.3)	11 (1.1)	10 (1.0)	-	-	1,046
3	Total	1,040 (96.3)	14 (1.3)	13 (1.2)	13 (1.2)	-	-	1,080

Source: Field survey.

Usually the timings of college and library differ from each other. Generally library will have more working hours when compared to college working hours. With this respect visits to library dependent on the convenient time of the user and at the same time on the availability of infrastructure, resources and information at the library. At the same time visit to library depends upon the requirement of the user. It may be every day, once, twice or thrice in a week, occasionally or very rarely.

In the study area, majority of the respondents visit library every day. Its percentage is around 85 with respect to faculties and about 97 with respect to students. Like that the percentage of over all respondents visiting library thrice in a week and twice in a week is almost same. As there are no respondents who visit library occasionally and very rarely, it indicates the importance of library in education. It is clearly noticed that the percentage of students visiting library is more when compared to the faculties indicating that students are more users of library than faculties. When data was tested by applying ANOVA, following summary were drawn:

ANOVA Analysis:

H0: There is no significant difference regarding frequency of visit to library by the respondents. H1: There is significant difference regarding frequency of visit to library by the respondents.

ANOVA						
Source of Variation	**SS**	**df**	**MS**	**F**	**P-value**	**F crit**
Between Groups	128018	1	128018	1.024726	0.350468	5.987378
Within Groups	749574	6	124929			
Total	877592	7				

At 0.05 level of significance, the calculated F value for degree of freedom 1 and 6 was 1.024726 as against the table F value of 5.987378. As the calculated F value is less than the table F value, it can be concluded that there is an insignificant association between respondents and their frequency of visit to the library.

Table 5.5: Respondents-wise satisfaction regarding working hours of library

Sl. No.	Respondents	Satisfied	Not satisfied	Total
1	Faculties	31 (91.2)	3 (8.8)	34 (100.0)
2	Students	958 (90.5)	100 (9.5)	1058 (100.0)
3	Total	989 (90.6)	103 (9.4)	1092 (100.0)

Note: Figures in parenthesis denotes percentage to the total

Although the use of library is required round the clock, it is not possible due to several reasons. The working hours of library differ from location to location, from purpose to purpose and even from institution to institution. As such with regard to the working hours of the library in the engineering institutions, in the study area, it is found from the survey that majority of the respondents are satisfied with the working hours of the library. Faculties are more satisfied than students as the percentage of faculties is around 91.2 which are greater than the percentage of students which is very close to faculties that is 90.5. This indicates that almost all the respondents are satisfied with the working hours of library.

When X^2 was applied to the data in the above table, following results were derived:

X^2 Analyses:

H_0: There is insignificant difference regarding satisfaction with the working hours of the library among the respondents. H1: There is significant difference regarding satisfaction with the working hours of the library among the respondents.

Level of significance = 0.01

Degree of freedom = 1

Table X^2 value = 6.635

Calculated X^2 value = 0.05

At 0.01 level of significance with 1 degree of freedom, the calculated value was 0.01 as against the table value of 6.635 which reveals that the difference in satisfaction among the respondents regarding the satisfaction of library working hours is insignificant. That means respondents are satisfied with the existing working hours of the library.

Table 5.6: Respondents-wise opinion regarding convenience of library location

Sl. No.	Respondents	Yes	No	Total
1	Faculties	34 (100.0)	0 (0.0)	34 (100.0)
2	Students	963 (91.0)	95 (9.0)	1,058 (100.0)
3	Total	997 (91.3)	95 (8.7)	1,092 (100.0)

Note: Figures in parenthesis denotes percentage to the total

The maximum use of library will be achieved when it's working hours, resources available, infrastructure availability, skilled staff, it's location, etc., are at satisfactory level and convenient. The accessibility of library depends mainly on its location and working hours. This is because whenever any users find time they must be able to use library facilities available.

With this regard, the data in the above table indicates that all faculties are convenient with the library location. Its percentage is 100 percent. Like that students are slightly less satisfied with the location of library. Their percentage is around 91 percent. Like that when overall respondents is taken into consideration, around 91 percent of the respondents feel that they are convenient with the location of library. However, even though there is some difference regarding convenient of library location among the respondents it is only out of chance and not significantly. This is also evident from X2 test also where the result is as follows:

X^2 Analyses:

H_0 : There is no significant difference among the respondents regarding convenience in the location of library. H1: There is significant difference among the respondents regarding convenience in the location of library.

Level of significance = 0.01

Degree of freedom = 1

Table X^2 value = 6.635

Calculated X^2 value = 3.34

As the calculated X^2 value (3.34) is less than the table value of X^2 which is 6.635, the null hypothesis is accepted and concluded that the difference of opinion among respondents regarding convenience in the location of library is insignificant.

Table 5.7: Respondents time spent in the library

Sl. No.	Hours spent	Faculties	Students	Total
1	Less than 1	26 (76.5)	760 (71.8)	786 (72.0)
2	1 – 2	7 (20.6)	296 (28.0)	303 (27.7)
3	2 – 3	1 (2.9)	1 (0.1)	2 (0.2)
4	More than 3	0 (0.0)	1 (0.1)	1 (0.1)
5	Total	34 (100)	1058 (100)	1092 (100)

Note: Figures in parenthesis denotes percentage to the total

Library is the place where the user has to spend time in accessing required information which might be related to his studies or research work. Like that, visit to library might be also to refer books and journals, read news papers, etc.

With regard to the time spent by the respondents in library, around three forth of the faculties and about 72 percent of the students work for less than an hour in the library. At the same time when overall respondents is taken into consideration, almost all the respondents that is about 99.7 percent of them work for less than 2 hours in library. This indicates that the use of library is made by the respondents to the full extent or to the maximum level by the respondents only by working for less than 2 hours in library. However, the respondents working in library for more than 2 hours is very negligible. It is less than in one percent. Only about 0.2 percent and 0.1 percent of the respondents work for 2 to 3 hours and more than 3 hours respectively. The following pie chart shows time spent by both the respondents in library.

Table 5.8: Respondent-wise purpose of visit to Library

Sl. No.	Purpose of Visit to the Library	Faculties		Students		Total	
		Yes	No	Yes	No	Yes	No
1	Borrow a book	30 (88.2)	4 (11.8)	924 (87.3)	134 (12.7)	954 (87.4)	138 (12.6)
2	Refer the books / journal	30 (88.2)	4 (11.8)	630 (59.5)	428 (40.5)	660 (60.4)	432 (39.6)
3	Read magazines	13 (38.2)	21 (61.8)	531 (50.2)	527 (49.8)	544 (49.8)	548 (50.2)
4	Prepare assignment and notes	10 (29.4)	24 (70.6)	363 (34.3)	695 (65.7)	373 (34.2)	719 (65.8)
5	Search the source book of general knowledge	14 (41.2)	20 (58.8)	101 (9.5)	957 (90.5)	115 (10.5)	977 (89.5)
6	Search database and CD's	2 (5.9)	32 (94.1)	73 (6.9)	985 (93.1)	75 (6.9)	1,017 (93.1)
7	Use Internet and search online source	4 (11.8)	30 (88.2)	109 (10.3)	949 (89.7)	113 (10.3)	979 (89.7)
8	Recreation and meeting friends	7 (20.6)	27 (79.4)	60 (5.7)	998 (94.3)	67(6.1)	1,025 (93.9)
Standard Deviation:		**10.833**		**321.09**		**330.565**	

Note: Figures in parenthesis denotes percentage to the total

Library will be visited for various purposes. Some of the important purposes for visiting library may be to borrow or refer books/ journal, to read magazines, search for sources to prepare assignments/notes, search database/CDs, to use internet and search online or to meet friends and so on.

The above table reveals that majority of the respondents visit library for the purpose of borrowing of books and reading books or journals in the library. As far as borrowing books are concerned, the percentage of faculties and students are almost same in visiting library for this purpose as the percentage of faculties is around 88 and that of students is on an average of 87 percent. The percentage of faculties visiting library to access books on general knowledge, to use internet and meet friends is more than students. Like that the percentage of students visiting library with the purpose of reading magazines, preparing for assignments, search database and CDs are more than the faculties visiting library for the same purpose. However, the percentage of respondents visiting library for searching database, online sources and for recreation through meeting friends is very less. It is less than 20 percent in both the types of respondents.

ANOVA Analysis:

H0: There is insignificant difference among the respondents regarding purpose of visit to the library. H1: There is significant difference among the respondents regarding purpose of visit to the library.

ANOVA Table:						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	449235.1	1	449235.1	8.704559	0.010539	4.60011
Within Groups	722528.4	14	51609.17			
Total	**1171763**	**15**				

At 0.05 level of significance and for degree of freedom of 1 and 14 th table value of F = 4.60011. Like that the Calculated value of F = 8.704559. As the calculated value of F is more than the table F value, it can be stated that there is significant difference among the respondents with regard to the purpose of visit to library with a standard deviation of 10.833, 321.09 and 330.565 among faculties, students and overall respondents respectively.

Table 5.9: Respondent-wise awareness about Reference Sources

Sl. No.	Reference Sources	Faculties		Students		Total	
		Yes	No	Yes	No	Yes	No
1	Dictionaries	26 (76.5)	8 (23.5)	655 (61.9)	403 (38.1)	681 (62.4)	411 (37.6)
2	Encyclopedias	26 (76.5)	8 (23.5)	764 (72.2)	294 (27.8)	790 (72.3)	302 (27.7)
3	Directories	8 (23.5)	26 (76.5)	328 (31.0)	730 (69.0)	336 (30.8)	756 (69.2)
4	Year Books	30 (88.2)	4 (11.8)	558 (52.7)	500 (47.3)	588 (53.8)	504 (46.2)
5	Hand Books	29 (85.3)	5 (14.7)	536 (50.7)	522 (49.3)	565 (51.7)	527(48.3)
6	Geographical Information Sources	6 (17.6)	28 (82.4)	504 (47.6)	554 (52.4)	510 (46.7)	582 (53.3)
7	Biographical Information Sources	19 (55.9)	15 (44.1)	426 (40.3)	632 (59.7)	45 (40.8)	647 (59.2)
8	Electronic Reference Sources	29 (85.3)	5 (14.7)	737 (69.7)	321 (30.3)	766 (70.1)	326 (29.9)
9	Books of Facts/Current Information Sources	14 (41.2)	20 (58.8)	539 (50.9)	19 (49.1)	553 (50.6)	539 (49.4)

Note: Figures in parenthesis denotes percentage to the total

Library is a place where we can refer different sources of information. Some of the important sources available at library are like dictionaries, encyclopedias, yearbooks, handbooks, geographical information sources, biographical information sources, electronic reference sources, so on. If one is aware about the reference sources available in the library, they can minimize the time to be spend in the library.

From the survey it is noticed that majority of the faculties those who are aware of dictionaries, encyclopedias, yearbooks, handbooks and electronic reference sources are in between 77 to 88 percent. Like that majority of the students those who are aware of encyclopedias and electronic reference sources are about 70 percent. Except awareness about geographical information sources, the awareness of faculties about all other reference sources available at library is more than 40 percent. The percentage of faculties regarding awareness about dictionaries, encyclopedias, yearbooks, handbooks, biographical information sources and electronic reference sources is more when compared with students. Like that the percentage of students is more than faculties with respect to the awareness about directories, geographical information sources and book of facts/ current information source. When over all respondents are taken into consideration, the awareness of respondents about dictionaries, encyclopedias, yearbooks, handbooks and electronic reference sources is above 50 percent and in the remaining sources it is below 50 percent. On the other hand highest percentage of awareness among faculties is with yearbooks which is 88.2 percent, students are more aware about encyclopedias with 72.2 percent and overall respondents are more aware about encyclopedias with 72.3 percent. This indicates that respondents are very familiar with the reference sources like encyclopedias and electronic reference sources available at library.

ANOVA Analysis:

H0: There is insignificant difference among the respondents awareness regarding reference sources.
H1: There is significant difference among the respondents awareness regarding reference sources.

ANOVA Table						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	296.0556	1	296.0556	0.629901	0.439004	4.493998
Within Groups	7520.049	16	470.0031			
Total	7816.104	17				

As the calculated F value is less than the table F value, null hypothesis can be accepted and concluded that there is insignificant difference regarding the perception of the respondents with respect to the reference sources available at their respective libraries.

Table 5.10 - Respondents usage regarding sources of information in the library

Sl. No.	Information Sources	Faculties	Students	Total
1	Books	34 (100)	1,004 (94.9)	1,038 (95.1)
2	Printed Journals	3 (8.8)	294 (27.8)	297 (27.2)
3	Electronic Journals	5 (14.7)	384 (36.3)	389 (35.6)
4	General Web Sources	22 (64.7)	279 (26.4)	301 (27.6)

Note: *Figures in parenthesis denotes percentage to the total*

Mere collection of resources will not serve the purpose of the library users. The users who visit library should make use of the collection that exits in the library. From that point of view, from the survey it is found that almost all respondents visited library to use books. But with regard to the usage of other sources in the library, very less percentage of respondents used it. The percentage of respondents using these sources is from 27 to 35 percent which is almost one third or quarter. All faculties used their source of information available in books at the library which is followed by usage of general web sources. Like that majority of the students used books which accounted for 95 percent followed by electronic journals which is around 36 percent. The percentage of faculties using books and general web sources is more when compared with students. The above observation indicates that still books are playing an important role in providing the required information by the respondents.

X^2 Analyses:

H_0: There is no significant difference regarding sources of information in the library among the respondents.
H_1: There is significant difference regarding sources of information in the library among the respondents.

Level of significance = 0.01

Degree of freedom = 1

Table X2 value = 6.635

Calculated X2 value = 14.32602

The calculated X^2 value = 14.32602 and the table X^2 value = 6.635. As the calculated X^2 value is more than the table X^2 value, null hypothesis is rejected and alternative hypothesis is accepted. Thus, it can be concluded that there is significant difference among the respondents regarding the perception with respect to the sources of information in their respective library.

Table 5.10 – A: Respondents satisfaction regarding access of electronic information sources in the library

Sl. No.	Collections	Faculties		Students		Total	
		Yes	No	Yes	No	Yes	No
1	Audio/Video Cassettes	10 (29.4)	24 (70.6)	313 (29.6)	745 (70.4)	323 (29.6)	769 (70.4)
2	CD/DVDs	12 (35.3)	22 (64.7)	393 (37.1)	665 (62.9)	405 (37.1)	687 (62.9)
3	Internet & Online Resources	20 (58.8)	14 (41.2)	515 (48.7)	543 (51.3)	535 (49.0)	557 (51.0)

Note: Figures in parenthesis denotes percentage to the total

Audio and video are the two strongest electronic Medias which we normally come across. Some of the audio media sources are like cassettes, Compact Discs (CDs), digital versatile disks (DVDs), internet and so on. Among these sources internet & online resources is an online source which requires internet connection and the rest are storage devices which can be used whenever required. From the study it is noticed that the satisfaction derived by using the above electronic information sources by the respondents in the library is below 50 percent. That too around 49 percent of the respondents is satisfied with internet and online resources while the satisfaction of the respondents in using audio/ video cassettes and CDs/DVDs is only 29 and 37 percent respectively. Both faculties and students are equally satisfied with the access of electronic information sources in library. However in accessing internet and online resources faculties are more satisfied than students as the percentage of faculties is 59 as against to the 49 percent of students.

ANOVA Analyses:

H_0: There is no significant difference regarding access of electronic information sources at their library.

H_1: There is significant difference regarding access of electronic information sources at their library.

ANOVA Table						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.98	1	0.98	0.000666	0.980244	5.987378
Within Groups	8825.02	6	1470.837			
Total	**8826**	**7**				

As the calculated F value is less than the table F value, null hypothesis is accepted and concluded that there exist insignificant difference with regard to the satisfaction of the respondents with respect to the access of information sources at their library.\

Table 10 – B: Respondents dependency on library sources (in percentage)

Sl. No.	Respondents	Dependency				Total
		Below 25	25 – 50	50 – 75	Above 75	
1	Faculties	4 (11.8)	24 (70.6)	2 (5.9)	4 (11.8)	34 (100)
2	Students	146 (13.8)	403 (38.1)	311 (29.4)	198 (18.7)	1,058 (100)
3	Total	150 (13.7)	427 (39.1)	313 (28.7)	202 (18.5)	1,092 (100)

Note: Figures in parenthesis denotes percentage to the total

In the previous table it is studied that greater percentage of dependence on books as the sources of information in the library. When it is studied that dependence on books is there as source of information, then it will be necessary what percentage of dependency is there among both the respondents. Faculties who depend on the source of library in between 25 to 50 percent are around 71percent. Like that the percentage of students who depend more is in between 25 to 50 percent. It is around 38 percent. Like that the overall respondent's who depend below 25 is around 14 percent, 25 to 50 is around 39, 50 to 75 is 29 and those depending more than 76 percent is around 19 percent. The following graph shows the percentage of dependence of the respondents on library sources.

Table 5.11: Respondents preference regarding media of information sources in library

Sl. No.	Respondents	Media of Information Sources			Total
		Print Media	Electronic Media	Both	
1	Faculties	21 (61.8)	4 (11.8)	9 (26.5)	34 (100.0)
2	Students	385 (36.4)	389 (36.8)	284 (26.8)	1,058 (100.0)
3	Total	406 (37.2)	393 (36.0)	293 (26.8)	1,092 (100.0)

Note: Figures in parenthesis denotes percentage to the total

It is left to the discretion of the user whether to use print media or electronic media. Print Media is hard copies of the resources whereas electronic media is a soft copy which is easy and portable. From the survey the percentage of respondents using various sources of media information is evenly distributed on all sources. However, the percentage of faculties who used print media is around 61 and in electronic media it is around 12 and 27 respectively. The percentage of students using electronic media is seen more when compared with other two sources like print media and both. Their percentages are 36.8, 36.4 and 26.8 respectively. This indicates that all varieties of sources of media are used on an average of 35 percent by the respondents except electronic media used by faculties which is only 11.8 percent.

X^2 Analyses:

H_0 : There is insignificant difference among the respondents regarding preference of media information resources. H1: There is significant difference among the respondents regarding preference of media information resources.

Level of significance = 0.01

Degree of freedom = 2

Table X^2 value = 5.991

Calculated X2 = 11.42

As the calculated X^2 value is less than the table X2 value, null hypothesis is accepted and concluded that there is insignificant difference among the respondents regarding the preference with respect to media information resources.

Key Findings

- It is clear from the study that, local languages such as Konkani and Marathi languages played an important role as a communication language among the users, compared to national language Hindi and universal language English.
- Majority 96 percent of the respondents visit the library every day.
- 91 percent of the respondents are satisfied with the working hours and location of the library is convenient to them.
- 72 percent respondents spent less than an hour in the library for satisfying their information needs.
- 87 percent of the respondents visit the library to borrow books from the library and 60 percent visit to the library to refer books/journals.
- 72 percent of the respondents are aware of encyclopedias, 70 percent respondents are aware of electronic resources in their college libraries.
- Still 95 percent of the respondents refer / depend up on printed books as a sources of information in their libraries.
- 49 percent of the respondents are happy with the internet and online resources available in their respective libraries.
- Once again it is proved that, majority 37 percent respondents prefer print media for their information requirement.
- 39 percent respondents are depended on 25 to 50% on their respective libraries for their information requirements.

Suggestions

- Libraries should get latest edition of books and other resources for the benefit of the library users.
- To make users to use the library for more than hour, library staff should be very proactively work towards the benefit of the students and staff members. Faculties should give more assignments and project work to the students then, students will use and spend maximum time in the library.
- To make maximum utilization of e-resources, librarian has to undertake information literacy programme or conduct rigorously orientation programme to all the students and staff in updating the existing library facilities and their uses.
- Internet speed should increase.

Conclusion

Information is very important in this internet era. This information is available in different formats. And libraries main aim is to disseminate the required information to its users at right time in a meaningful way. Engineering college libraries should procure latest resources in both print as well as electronic format, so users can maximize their usefulness of the library resources. The library services supplemented by Internet services can prove a great boon to the users in getting the right information at the right time. Concludes that it is essential for libraries and their staff to adapt to the changing circumstances and points out the necessity of effective communication between users and the libraries.

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Building Digital Collection of Master Degree Thesis Using Greenstone Digital Library Software

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Abstract

This paper deals with the basic steps of building digital collections of master degree thesis. Due to preservation point of view scholar has planned to reformate the information from one medium to another for durability as well as future reference purpose. As a LIS professional one must understand the value and importance of information. In this study scholar has used Greenstone Digital Library software for building digital collection.

Key Words : Digital Library, Digital Collection, Metadata, Library Software, Open Source .

Introduction

Information and communication technologies (ICT) facilitate the process of identification, collection, storing, processing and disseminating of information. The Library and Information science professionals are utilizing ICT to keep pace with the problem of information explosion. The benefit of instant access to digital information is the most distinguishing attribute of the information age (Rahman, Uddin & Akhter, 2004).

The ICT is made of computer and communication technology. The computer technology is the tool for storing and processing information in digital form while communication technology helps us to transfer and disseminate digital information. Additionally ICT means a variety of technological applications in the process and communication of information. The word ICT is a combination of two words information, communication & technology. Information means knowledge and technology means use of computer & communication. The term ICT can be defined as "the integration of computing, networking and information processing technologies and their applications" (Riyasat & Fatima, 2008).

The availability of several free digital library software packages (Greenstone Digital Library Software) at recent time, the formation of digital library and sharing of information has become an attractive and feasible proposition for libraries and other institutions around the world. Although Library automation has helped to provide easy access to bibliographic data through the use of computerized library catalogue such as On-line Public Access Catalog (OPAC). Digital libraries differ significantly from the traditional libraries operation because they allow users to gain an on-line access to and work with the electronic versions of full text documents and their associated images. Many digital libraries also provide an access to other multi-media content like audio and video (Alhaji, 2009).

2. What is a Digital Library?

A digital library is a collection of digital documents or objects. This definition is the dominant perception of many people today. Nevertheless, Smith (2001) defined a digital library as an organized and focused collection of digital objects, including text, images, video and audio, with the methods of access and retrieval and for the selection, creation, organization, maintenance and sharing of collection.

The digital libraries are sometimes perceived as institutions, though this is not as dominant as the previous definition. The following definition given by the Digital Library Federation (DLF) brings out the essence of this perception.

"Digital Libraries are organization that provide the resources, including the specialized staff to select, structure, offer intellectual access to interpret, distribute, preserve the integrity of and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities" (DLF, 2001).

On the other hand digitization as defined by Witten and David, (2003) is the process of taking traditional library materials that are in form of books and papers and converting them to the electronic form where they can be stored and manipulated by a computer.

Objectives

a) To establish a digital library in the department;

b) To create, acquire and make available the print resources into machine readable format for long term preservation.

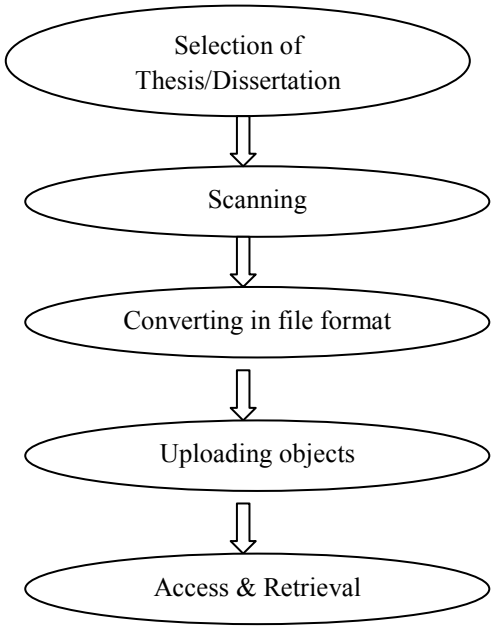
c) To setup digital library for easy retrieval and cost-effective way of providing resources and services locally.

d) To preserve the old dissertations of master of library & Information Science;

e) To avoid space problem

Method for Creating Digital Collection

By following below given flow chart one can build their own digital library. These steps are very much important for making digital collection for easy access and effective retrieval.



(Sonkar & et.al, 2005, p.10.)

Greenstone Digital Library Software

Greenstone began in 1995 with a small group of people who wanted to make on-line technical reports more accessible to the research community by presenting them over the Web in a uniform, and fully-searchable, way. Combining skills from several areas, and using existing public-domain compression and indexing software (Witten et al., 1999), a tool was devised that compiled an index from a the full text of large set of computer science technical reports gathered from many international FTP sites. Users could search for documents using any combination of words, and receive an ordered list of documents whose full text included those words, along with hyperlinks back to the original documents (Written, Bainbridge & Boddie, 2001).

Greenstone is a freely available suite of software for building and distributing digital library collections. It provides a new way of organizing information and publishing it on the Internet or on the CD-ROM. The Greenstone is open source software, issued under the terms of the GNU General Public License. The aim of the software is to empower the users, particularly in the Universities, Libraries and other public service institutions, to build digital libraries. The software has the following features such as multi-platform availability for windows, linux, access and distributed through the Internet, Intranet and CD-ROM, powerful indexing from full-text and creation of indexes for various metadata, powerful search and browse, support different file formats (html, pdf, doc rtf, ppt etc), extensibility by allowing customization and configuration. Greenstone also allows the building of non-textual multimedia such as audio, video and pictures accompanied by textual description to allow for searching and browsing. Suite of software for building and distributing digital library collections Developed by University of Waikato New Zealand Developed in cooperation with UNESCO and the Human Info NGO Licensed under GNU General Public License www.greenstone.org

Features of GSDL

Supports creation and management of collections by administrator(s) Web interface for search and retrieval Customizable metadata Supports full text search of content Extensive document filters Word, Excel, PowerPoint, PDF, Can extract metadata from documents, many ways to build a collection, including:

- Local files
- Retrieve web sites
- Retrieve objects via OAI-PMH
- Ease of installation
- Ease of use
- Internationalization
- Full support for English, French, Spanish, Russian, and Kazakh
- Support for many other languages Low barriers to use
- Minimal system requirements Creation of CD-ROMs

Software Requirements

- Operating System Windows/ Linux
- Apache web server / IIS
- PERL
- Java 2 Runtime Environment ‘version 1.4.2_03)
- Web browsers – Netscape Navigator or Internet Explorer
- SDL 2.41 or latest

Installation of GSDL Software (Step By Step Procedure)

Figure 1: First step of the installation

Figure2: Second step Click on Next

- Insert the Greenstone software CD
- After inserting CD into CD drive or through USB
- one can click on .exe file, a window will appear
- Select the language English then click on Next

Figure 3: Third step Click on Accept

Figure 4: Forth step Click on Next

Figure 5: Fifth step click on Next

Figure 6: Sixth Step Enable Admin page (it is for online use) Click on Next

Figure 7

Figure 8: Eighth step Click on install, the Installation process will start

Figure 9

8. Greenstone Librarian Interface

Building up digital library of library and information science thesis/dissertation with Greenstone

librarian interface (GLI)

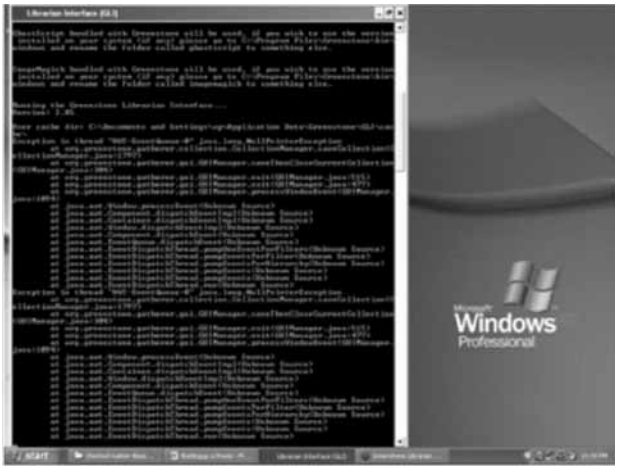


Figure 1: Start- All Programs- Greenstone2.85

Figure 2 : Click on Librarian Interface (GLI) after clicking on (GLI) Library interface will open a small window in this window click on Ok.

Figure 3: Go to File menu-click on New

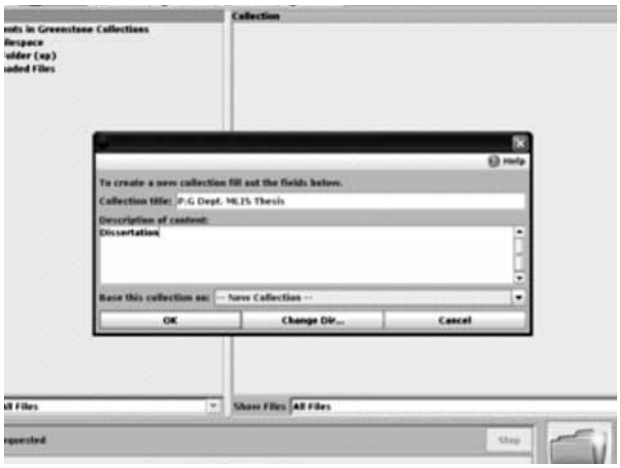


Figure 4: In this Window one can type One window will come up.

- Collection title
- Description of content
- Base this collection on New collection -then click Ok.

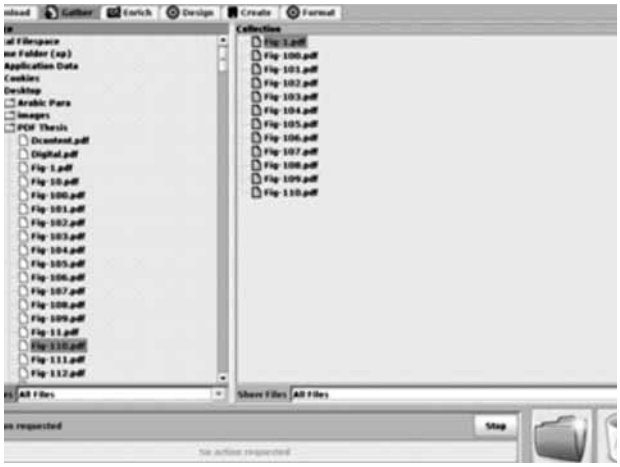


Figure 5: In Gather On Work space there are four options :

- Documents in Greenstone collections
- Local File Space
- Home Folder (x p)
- Downloaded Files

Click on Home Folder (xp)- in this you will find Desktop's all files and folders.

Then choose your files and drag the document from workspace and drop into the collection.

Now you have Gathered all the documents.

Figure 6: After Gather, one can come to Enrich option and fill the elements of Duplin Core metadata.

Figure 7: Then come to Create and click on build collection

Figure 8: After building of collection, the collection is ready for Preview Collection.

Figure 9: Then go to Greenstone library The server-click on Enter Library.The Greenstone Library home page will open and you can view the file.

Figure 10:Then the Greenstone Library Home page will open –one can view the file By some title,text File name wise and one can get the file one want to search.

Figure 11: Searching the file by some title, text, file name, one can get the file one wants to search.

Figure 12 : For viewing the file, click on the PDF file – it will be displayed

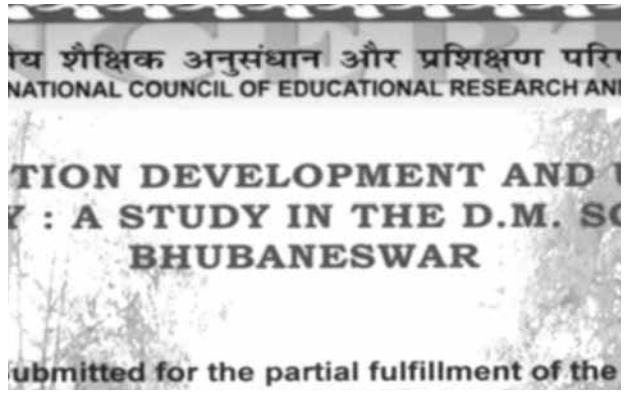


Figure 13: Here is the file search result.

9. Developing Digital Dissertation

Step-1

It is easy to build a digital dissertation through GSDL than other available software. it works on drag and Drop method. At first all the documents for the dissertations collected in a folder.

Step-2

Open GLI and click on New to create a new collection. A wizard comes having two option collection title and description of the content. The collection title is entered Department Dissertation and its content is Department Thesis and then click ok.

Step-3

Then Gather panel is activated. Now your folder is drag and drop from the collection area which is present in right of the workspaces.

Step-4

The panel enrich contains 15 fields. The different fields are according to each document. The detail is given below:

1. dc. Title- Evaluation of Reference Source in HKM State Library of Orissa: An analysis (A Sample Study)

dc.Creator- Nibedita Swain

dc.Subject and keyword-Evaluation of Reference Source

dc.Description-

dc.Publisher-

dc.Contributor-

dc.Date- 11/07/2012

dc.Resource Type-Dissertation

dc.Format- PDF

dc.Resource Identification-

dc.Source-

dc.Language- English

dc.Relation-

dc.Coverage-

dc.Rights Managements-PG Dept. of Lib. & Info. Sc., Utkal University.

Conclusion

Digital libraries are multifarious and employee sophisticated forms of information systems. However, they demand great mental skills, so the role of information professionals is very significant. They have to be dynamic and look after information collection, organization, storage and transformation of information. It has to disseminate desired information for user satisfaction by providing user orientation. Digital library is a boon to mankind and the information professional is the facilitator of digital library services. Digital Libraries can never totally replace the information professional; rather they will both have to maintain a symbiotic relationship-each partner being incomplete without the other.

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