# IMPACT OF MOBILE TECHNOLOGY ON LIBRARIES: A DESCRIPTIVE STUDY

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*Digital Technology has provided faster access to information and it is also challenging the libraries to rethink and remodel their services by adopting the technological changes. Today mobile phones are becoming an integral part of everyday life and are changing the way one connects and interacts with the world. In this changing scenario, Mobile Technology will be of great help to libraries towards strengthening their relationship and providing enhanced user oriented services to existing users. Libraries may well reach out to the remote users who were considered unlikely to connect because of absence of a medium. The paper discusses on the need, advantages, drawbacks, barriers and solutions for propitious implementation of the mobile technology in libraries. It also explores the type of infrastructure required by the libraries for providing these services in libraries.*

KEYWORDS - Mobile Technology, SMS notification services, Mobile document supply, e-resources

## 1 INTRODUCTION

Mobile technology has made communication and information access very convenient and timely to users from the comfort of their own homes and offices, and from wherever they are while on the move with their cellular phone units or PDAs (personal digital assistants). The worldwide

mobile telephone subscriptions are at 3.3 billion-equivalent to half the global population. These statistics are substantial evidence that people everywhere interact with information.

As today's cellular phones have more features and capabilities than ever before, including mp3 players, picture messaging, streaming video, and. become more data-capable, fewer people need a computer to collect information. People use a cell phone as their primary interface for surfing the Web, listening to music, watching television, reading books, and interacting with friends. So over the past ten years, the mobile phone has become one of the major interfaces people use to access and share information.

Libraries are social institutions, connecting people with people and people with information. They are increasingly no longer just physical places. As most library users owning a mobile phone, and increasing numbers of these being smart phones, it is time for libraries to take advantage of mobile technology. Mobile Technology will help both novice and experienced librarians to stay relevant in an increasingly mobile society. They need to be aware of technological changes, peer forward, and prepare for the future of library mobile interaction. Librarians must be commensurate with this trend and integrate themselves into the mobile realm if they wish to deliver enhanced user services.

Mobile devices and services offer tremendous flexibility for those who want to take advantage of library services. With a simple 3G connection, a user lying on a beach can access e-books and multimedia content from a local library. Smartphones can access networks and content can be continually streamed over a network, providing content on demand and making it unnecessary to maintain a paper copy of the material. Google is developing for mobile first and the desktop second. Apple is in the midst of making its desktop computers behave more like its mobile devices. Aside from offering convenience, mobile technologies present new opportunities for libraries to promote access and expand reach.

## 2. LIBRARY SERVICES THAT CAN BE PROVIDED TO PATRONS VIA MOBILE TECHNOLOGY ARE :

### 2.1 SMS notification services

Libraries may provide the alerts on latest news, events and notices via SMS and MMS to users wherever they might be go. The users can get notified instantly with notice alerts such as- alerts on bringing new books to the notice of users for suggestion, intimation of arrival of indented documents by users, informing availability of reserved documents for collection, appraising about overdue books, outstanding fines, reminders to return library items, renew books, library circulars, e-journals subscribed, change in timings, information about important events, loan request etc.

Such alert notifications can be generated automatically using integrated library management system/software. SMS messages can be sent to group of users simultaneously through many free applications, and intermediary websites/clients.

### 2.2 Formal Education, Distance Learning and E-learning

Students are very versatile in using their mobile phones and various mobile applications. Academic libraries can harness the advantage to lead implementation of library services through mobile devices to support distance learning, formal education, and research activities in e-learning environment by making the information resources ubiquitous. Library services should also blend with teaching and research practice of colleges/universities, scientific community or other patrons whom they serve.

### 2.3 Database Browsing

Libraries provide access to a variety of its resources and databases. The users can just enter search terms and see results that are designed specifically for mobile viewing. This service

includes OPAC (online public access catalogue), integrated search, and original document search. OCLC's WorldCat Mobile application pilot allows users to search for and find books and other materials available in their local libraries through a web application they can access from a PDA or a smart phone.

### 2.4 My library

My library is a personal library space where users can find information and resources of their choosing. Users can read alerts, check records, renew resources, request items, track interlibrary loans and document delivery requests, set up email notices of new books and journal articles, set up preferences for catalogue searching, etc.

### 2.5 E-resources with Mobile Interfaces

Some publishers are already delivering e-books (both text and audio) that are accessible via mobile phones. It offers access to a variety of databases and digital resources such as e-Books, e-Journals, Web databases, dissertations, audio books, streaming music, films, images and article databases which can be used on mobile. These collections can either be downloaded from the library websites on user's own mobile devices or libraries lend mobile devices with the collections already on them. A large collection of audio books both free-and subscription based services are available for download and also transferable to mobile devices.

Libraries can make use of multimedia messaging service (MMS) on mobile devices to share photos, videos, and audio. Most of the e-book publishers provide 24x7 access to the library subscriptions from any internet terminal within the campus, as well on mobile devices, such as iPads, Android devices, and Kindle.

### 2.6 Library guide

Libraries can give users the best of library guide information such as library use guide, question answering service, and library statistics delivering rich content in a way that works best for users.

If users have questions and want to contact the librarian for help, they can get a fast response from the library via the mobile device and find the appropriate information needed.

### 2.7 Mobile document supply

The mobile environment and technology present new opportunities for sending document requests and scanned images and monitoring the use of collections as well as the automation of administrative operations. It can support electronic funds transfer, supply chain management, e-marketing, online marketing, online transaction processing, electronic data interchange, and automated inventory management systems.

### 2.8 Text reference service

If the library receives a high volume of enquiries that require brief responses, such as dictionary definitions, facts or service information then Librarians can provide instant answers, and links to articles/references in real time.

### 2.9 Library Virtual/ Audio Tours

Library Virtual/ Audio tours, instruction/induction/orientation programs have been quite significant in bringing the nonusers to libraries and also help the remotely located or users located in different geographical locations. Library users, who don't have time or inclination to attend an on-site workshop, can get access to library tours on their mobile devices. Audio/ virtual library tours can be produced fairly quickly, inexpensively, and could reduce the amount of staff time spent helping new users to orient themselves in the library and explaining the facilities available. It can easily be provided both as downloads from the library website and on mobile devices.

### 2.10 QR Codes on Mobiles

QR code stands for 'quick response', and basically two-dimensional bar codes that can contain any alphanumeric text and often used to store urls, text, etc., known as 'mobile tagging'.

Data can be translated into a QR code by any QR generator, many of which are available as free download. Users simply enter the data to be translated, and the generator produces the code, which can then be displayed electronically or in printed format. Decoding the information can be done with any mobile camera phone that has a QR reader, which is freely available online for most devices.

## 3. MOBILE DEVICES USED IN LIBRARIES :

- PDAs (Personal Digital Assistant)
- Smart Phones
- Cell Phones
- iPods and MP3 players
- Tablets

The design of mobile devices and services is important to accessibility. As reading becomes more inclusive of diverse communities, libraries will need to address the ongoing accessibility challenges of the mobile world.

## 4 COMPONENTS

- the users,
- the devices,
- the operating systems,
- the services,
- the content,

- the research tracking (how users currently engage with information on the World Wide Web via their mobile devices.)

## 5 PREREQUISITES FOR IMPLEMENTING MOBILE-BASED LIBRARY SERVICES

Mobile technology is unlikely to be able to supply the necessary service on its own, but needs to be integrated with digital technology. The following prerequisites were identified:

- Digitized information base
- Information products designed for an e-platform
- Electronic information service delivery
- Design of electronic access systems.

## 6. MOBILE SITE DEVELOPMENT TOOLS

While libraries can make their own mobile sites, there are also different services that translate the website into a mobile friendly interface .via the use of CSS (Cascading Style Sheets) or ADR (Auto-Detect and Reformat Software) which allows a website to rearrange its control and navigation to suit the size of the screen it is being viewed on. That way websites will look good on all sizes of screens including the popular netbooks and libraries will be well positioned to meet future demand.

The Library websites (with or without OPACS) which are especially designed for viewing on mobile devices are as-

American University Library, Boston University Medical Center Mobile Library, Cambridge University Library, Cornell University Library, Duke University, Florida International University Libraries, London School of Economics (LSE) Library

## 7 ADVANTAGES OF IMPLEMENTATION OF MOBILE TECHNOLOGY IN LIBRARIES

### 7.1 User-friendly Aid

Familiarity with their own devices and technology helps the users in accessing information quickly and does not require orientation and training. Mobile users are using the facilities on mobile phones like SMS, instant messaging, web browsing, e-mail effortlessly to communicate. Most of these features are pre-installed on mobile devices or option for data plan packages.

### 7.2 Personalised Service

Personalised service helps users to interact with library staff to seek specific information or reference away from library.

### 7.3 Ability to Access Information

Information access from anywhere at anytime will be of great help for users who cannot visit library in person and provides a constant link to required information resources.

### 7.4 Time Saving

Users need not record information about resources while browsing and searching library resources or wait at library transaction counter to renew/reserve books and hence the time of the user is saved.

### 7.5 User Participation

Libraries can enrich OPAC by allowing users to incorporate user created content like notes or images uploaded by users.

### 7.6 Location Awareness

Mobile communication enables libraries to offer location-based services/content through global positioning system (GPS) capabilities. Libraries can guide the users to the location of specific document or service through maps and navigational tools.

### 7.7 Limitless Access

All online resources accessible on their desktop also become accessible through mobiles.

### 7.8 Access to Print-disabled Users

Mobiles communications help providing services orally to vision-disabled and physically-handicapped users.

## 8 DRAWBACKS OF MOBILE TECHNOLOGY

- compared to wired Internet service, has relatively slow transmission speed
- limited computational power
- inconvenient input and output interface
- insufficient contents
- high price

## 9 LIMITATIONS / BARRIERS

Although mobile Technology holds great promise for library services, there are some limitations or barriers in providing library services such as-

- content ownership and licensing,
- usually expensive and resource intensive
- limited memory of mobile devices
- digital rights management,
- access to information in the digital age.
- reach of an external vendor into the digital collections and technologies – sustained access will be an extremely important issue for libraries if they adopt mobile Library technology and services that offer content from providers outside of the library.
- Another pressing concern about mobile technology in the library is privacy - because of the risk that patron usage information can be used and exploited by law enforcement official and those who commit identity theft. Mobile technology is changing the relationship between libraries and their users--by expanding services and posing new challenges to reader's privacy.

- issues related to trust and security - Libraries should be wary of entrusting user information to locations in the cloud that may offer a different level of protection from that provided by in-house library infrastructure
- some of digital content can only be accessed on certain devices, and this can have a "chilling effect" on learning and library service because it locks some people out.
- lack of appropriate mobile-friendly academic content to meet learners' needs.
- difficulty in supplying content to an increasingly mobile student body
- problems in finding and accessing the content needed for mobile learners from the Library perspective
- The use of wireless devices is increasing rapidly, yet there is concern in the scientific community that this technology could have adverse side effects.
- Lack of staff awareness and familiarity- Setting up text alerts, for instance, requires technical expertise from staff who understand how the library management system produces notifications, as well as staff or consultants who can help to set up an interface with a sim card modem or a suitable service in order to deliver those notifications as text alerts
- the dearth of technological expertise among staff members and
- increasing staff reductions and other cutbacks

Mobile phones are still viewed by the majority of people as devices for making phone calls and text messages, so they often don't associate them with other activities, such as information seeking. However, people are increasingly dependant on their mobile phones and there is a growing minority who do use them as diaries, for taking notes and for e-mail and internet access. As a result there may be an increase in expectation from Library users that libraries will provide some services in a mobile friendly way.

## 10 SOLUTIONS

Libraries should conduct analyses and make smart decisions, such as –

- support staff education,
- explore partnerships
- new funding models,

- ready to compromise when it comes to their traditional information delivery models.
- protect themselves from deceptive content agreements with third party providers.
- need the expert knowledge of mobile devices to flow through the profession and not just lie in the hands of recent library school graduates
- tell users about the thousands of free mobile-ready books available from such initiatives as Project Gutenberg
- create opportunities to educate staff, build local expertise, and promote discussion by offering training sessions and professional development options
- build a solid foundation of knowledge about mobile services within the organization.
- host lectures or discussion groups or include such information in their websites, blogs, or newsletters.

As the use of mobile technology grows, library staff will need to learn and use the technology to serve library users where they are, and libraries will face management, funding, and training challenges in meeting this need. Instead, expert technical knowledge must flow throughout the profession.

*"as technology advances emboldened librarians hold the key."*

**CONCLUSION**

There is a growing influence of mobile technology in Libraries, especially as network access becomes more affordable and reliable, and mobile applications have seen mainstream acceptance in teaching, learning, and research. This trend will likely continue, and one way libraries can respond to this emerging trend is to make the library's website easily accessible via web-enabled mobile devices. Libraries should make conscious choices about what they want to offer in this arena and act accordingly, and only time will tell if a completely mobile-accessible library, in terms of its services and collections, will become common place.

"By going mobile, a library takes a giant step toward becoming a round-the-clock service"

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# LIBRARY, LIBRARIAN AND LIBRARY SERVICES IN WEB 2.0 ENVIRONMENT

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## ABSTRACT

With the extensive use of Information and Communication Technology (ICT) in the Libraries and information centres, there is a drastic change in the way information is acquired, processed, stored, accessed, disseminated and used. The emergence of more and more new technologies and applications like Web 2.0, social media, cloud computing, mobile web and new formats like e-Books, are influencing managerial decisions about the most effective plan for staff skills, budgeting and marketing. New media tools such as *Twitter*, *Facebook*, *Blogs*, *Wikis*, *Linked In*, *Virtual Worlds* and *RSS feeds*, have now made it is necessary to offer a more customer-driven, socially rich, more interactive and collaborative model of service and content delivery in online mode. In order to provide better and relevant services according to the changing needs of users, the libraries and corporate information centres need to choose the right tools and look for the practical methods to implement these processes. This paper provides an interactive environment to explore some of the most popular and innovative tools and techniques associated with libraries, Web 2.0 and new ways of information storage and retrieval. The paper further discusses the implementation and utilization of these new technologies in the libraries and information centres and their impact on the role of librarians and the library services.

**KEYWORDS:** Web 2.0, Library 2.0, Librarian 2.0, Social Network, Wiki, Blog, RSS

## INTRODUCTION

The introduction of dot-com in 2001 brought about new ways for people to participate on the Web in the form of new social tools. The people began to use the Web not only to find information, but also started using other applications and services like chatting, sharing photos, participating in forums, contributing ideas and building communities. Social networking websites like *Flickr*, *YouTube*, *MySpace*, and *Facebook* have all redefined social interactions on the Web. The Web has now become an integral part of the average person's social life. It has changed the people's way of thinking and communicating with one another, deepening their dependence on the Web. All these new information technologies have totally changed the needs and expectations of the users creating a big challenge to the library and information science profession to serve their users up to their expectations. Once a supplementary tool or an assistive technology, online learning now is emerging as a fast, convenient and contemporary tool for the students and teachers. Tablet PCs and availability of books on the digital platform from across the world have fuelled the growth of e-learning all over the world. Many publishers have turned to manufacturing online educational contents. In the present hi-tech era of exponential growth of information, the library profession needs to think above the paradoxical situation of limited access to information. Libraries have to adapt and adopt changing paradigms to contribute significantly to strategic institutional goals.

Information professionals have developed many new and hi-tech skills which are being increasingly applied in a diverse array of information environments. To meet the

changing information landscape, new job roles have emerged in libraries. Librarians are now working as metadata librarians, e-learning librarians, e-librarians and digital librarians. Moreover, there are increasing opportunities to apply library and information science skills to work in other settings and roles such as social media liaisons, taxonomy analysts, and user experience researchers.

**PURPOSE**

The purpose of this paper is to introduce the term Web 2.0, describe its development and significance, give an outline of its underlying theoretical assumptions, explore the possibilities and trends in the application of its features in libraries and study its impact on library profession and library services.

**WEB 2.0**

The term Web 2.0 has been reportedly first conceptualized and made popular by Tim O'Reilly and Dale Dougherty of O'Reilly Media in 2004 to describe the trends and business models that survived the technology sector market crash of the 1990s. As defined by O'Reilly, Web 2.0 is the use of the Web as a platform to build software tools that support user interaction, participation and collaboration. It is based on a set of social tools including Blogs, RSS (Really Simple Syndication), Instant Messaging, Wiki, Podcasting, Social Networking, Photo Sharing, Social Bookmarking, Tagging and Mashups. The goal of Web 2.0 is to create a Read/Write Web; that is, a Web in which users can both read and freely contribute content. The central idea of Web 2.0 is to move away from the traditional unidirectional model, toward a new user-centric bidirectional model. By using social tools, for example, dot-com companies can reach

out to expand their customer base, build communities, receive feedback and, in turn use, feedback to improve and build products. Users can interconnect, participate and contribute by using the same tools. Though its original application was in the world of business, Web 2.0 has had a significant impact on every aspect of life, including library. Business 2.0, Chemistry 2.0, Psychology 2.0, Education 2.0 and Library 2.0 are just a few of its spinoffs. Web 2.0 is a term often applied to a perceived ongoing transition of the World Wide Web from a collection of websites to a full-fledged computing platform serving web applications to end users. Ultimately Web 2.0 services are expected to replace desktop computing applications for many purposes. The old World Wide Web was based on the Web 1.0 paradigm of websites, email, search engines, and surfing while Web 2.0 is about the more human aspects of interactivity such as conversations, interpersonal networking, personalization, and individualism. It's relevance in the library world is not just limited to the public Web portals but also to workplace intranets and more crucially for greater social cohesiveness in virtual teams and global content engagement. The technologies which serve as the emerging foundation for Web 2.0 are:

- RSS (Really Simple Syndication is a family of web feed formats used to publish frequently updated works—such as blog entries, news headlines, audio, and video—in a standardized format)
- Wikis
- New and revised programming methods like AJAX (Asynchronous JavaScript and XML is the art of exchanging data with a server, and

updating parts of a web page - without reloading the whole page) and APIs (Application Programming Interface is a specification intended to be used as an interface by software components to communicate with each other)

- Blogs and Blogging
- Commentary and comments functionality
- Personalization and 'My Profile' features
- Personal media such as Podcasting and MP3 files
- Streaming media audio and video formats
- Reviews and user driven ratings
- Personalized Alerts
- Web Services
- Instant messaging and virtual reference including co-browsing
- Folksonomies, Tagging, and tag clouds
- Photos (e.g. Flickr, Picasa)
- Social networking software
- Open Access, Open Source, Open Content
- Socially driven content
- Social bookmarking (such as Delicious.com)

The technology infrastructure of Web 2.0 includes server software, content syndication, messaging protocols, standards-based browsers, and various client applications. It could be seen as the Web becoming a computing platform for serving up Web

applications to end users. A Web 2.0 site allows its users to interact with other users and to change website contents, in contrast to non-interactive websites where users are limited to the passive viewing of information that is provided to them.

**LIBRARY 2.0**

Library 2.0 is the application of interactive, collaborative, and multimedia web-based technologies to web-based library services and collections. In the library and information professional world, a savvier audience of users relative to the general consumer is generally dealt with. The library professionals also tend to the digital divide issues of the more challenged user. This means that what most critical users of the library don't know about or use, the library professionals can often inform them about and train them in the newest technologies that can have an impact on their success. For those users who can quickly become comfortable using technologies such as Wikis, RSS, instant messaging, news aggregators and blogs, the library professionals can help them to leverage these in making a difference in reaching their goals. Its quite clear that each and every one of the technologies listed in Web 2.0 above, vis., RSS, Wikis, blogging, personalization, podcasting, streaming media, ratings, alerts, folksonomies, tagging, social networking software, etc., could be useful in an enterprise, institutional, or community environment and could be driven or introduced by the library. The beauty of Web 2.0 and Library 2.0 is the level of integration and interoperability that is designed into the interface through the portal or intranet.

Library 2.0 is a concept of a very different library service, geared towards the needs and expectations of today's library users by making the information available wherever and

whenever the user requires it, and seeks to ensure that barriers to use and reuse the information are removed. Library 2.0 is mainly around the concept of how to use the Web 2.0 opportunities in a library environment. It is one of the major breakthroughs seen in recent times. It is a new way of providing library services through new internet technologies with emphasis on users. Library 2.0 is a loosely defined model for a modernized form of library service that reflects a transition within the library world in the way that services are delivered to users. The main principle of the Library 2.0 is in the fact that the information has to be extended from the library to the users and vice versa, to allow fast and permanent adaptation of the library services.

**BASIC CHARACTERISTICS OF LIBRARY 2.0**

Library 2.0 is a model for library service that encourages constant and purposeful change, inviting user participation in the creation of both the physical and the virtual services they want, supported by consistently evaluating services. It also attempts to reach new users and better serve current ones through improved customer-driven offerings. Library 2.0 can be characterized by the following:

***It is user-centric*:** Users participate in the creation of the contents and services they view within the library's web-presence, OPAC (Online Public Access Catalogue), etc. The consumption and creation of content is dynamic, and thus the roles of librarian and user are not always clear.

***It provides a multi-media experience*:** Both the collections and services of Library 2.0 contain video and audio components.

***It is socially rich*:** The library's web-presence includes users' presences. There are both synchronous (e.g. Instant Messaging) and asynchronous (e.g. wikis) ways for users to communicate with one another and with librarians.

***It is communally innovative*:** This aspect of Library 2.0 rests on the foundation of libraries as a community service, and understands that as communities change; libraries must not only change with them, but also allow users to change the library. It seeks to continually change its services, to find new ways to allow communities, not just individuals to seek, find and utilize information.

**LIBRARY 2.0 AND WEB 2.0**

The term Library 2.0 can be broken down into two parts, *Library* and *Web 2.0*. As 2.0 comes directly from the term Web 2.0, it is clear that the term roughly describes the relationship between Web 2.0 and libraries, i.e., Web 2.0 + Library = Library 2.0. Library 2.0 cannot be defined solely by the characteristics that are either the characteristics of Libraries or Web 2.0 if the combination of the characteristics does not create a unique concept. It must describe a unique service model that occurs when libraries take Web 2.0 services into account. Library 2.0 describes a subset of library services designed to meet user needs caused by the direct and peripheral effects of Web 2.0. It is completely user-centric, user-driven, and innovative of Web 2.0 services. It is a library of the 21st century, rich in contents, interactivity and social activity. As Library 2.0 services are designed to meet user needs, therefore the services at public, academic, school and special libraries will all have unique user needs because of the different populations they serve.

## TOOLS OF LIBRARY 2.0 AND THEIR WORKING EXAMPLES

The goal of Library 2.0 is to build a bidirectional user-centric library using Web 2.0 social tools as its foundation. When Web 2.0 first evolved, many enthusiastic librarians quickly started exploring the potential of Web 2.0 social tools. Blogs such as *The Shifted Librarian*, *Library Thing*, and *LibraryCrunch* lead the way in stimulating discussions on Web 2.0 in library perspective. When *YouTube*, *MySpace*, and *Facebook* debuted, many libraries and library organizations started using these sites to promote library services, connect with their users and offer help to them. The Library of Congress even worked with *Flickr* to make the precious national historic photographs collection accessible worldwide. Wiki is a tool designed to allow a team to work together on projects, writing documents and creating instructions without geographical and time constraints. Any member of the team can edit and contribute content from anywhere at any time. It is very easy to use and the knowledge of HTML (Hyper Text Markup Language), a web page construction language, is not required. One of the most successful examples in library land is The Biz Wiki, a Business & Economics research guide. It was created in 2005 and is maintained by Chad Boeninger, Reference & Instruction Librarian at Ohio University Libraries. This research guide is an important research tool not only for Ohio University users but also for users worldwide.

Instant Messaging (IM) is another tool that has changed the landscape of library services. A chat URL (Uniform Resource Locator) link is now an indispensible part of library homepages. Users do not need to walk up to the reference desk in person to get their questions answered; they can simply go to their library homepages and follow the

chat link. They can immediately ask questions and receive instant answers. In addition, many instant messaging tools can now be embedded in any webpage on a library website. Because users can receive instant feedback and there is no limitation on physical location, instant messaging adds significant value to the traditional walk-in reference service and has become a very popular and effective tool for library users. Social bookmarking along with tagging and tag clouds have also gained momentum and have stimulated advancements in the library profession. *PennTags* is one such innovation, created by Michael Winkler, then Library Web Manager, and Laurie Allen, then Research and Instruction Services Librarian at the University of Pennsylvania Libraries in 2006. It allows users to bookmark articles, books and other materials of interest with a single click while conducting searches in library databases and catalogues. Users can then further organize their bookmarks, generate citations and share them with classmates and friends. Teachers can share their bookmarks with students and create recommended reading lists for their courses. The best part of this tool is that users can assign their own terms, called folksonomies, rather than library-established terms to tag their bookmark entries. In addition, this tool can generate a list of most-searched terms from the entire system at any moment and display them on the main page, functioning as a dynamic index list. The list can be displayed in different font sizes, with the largest font representing the most-used terms. Because the different font sizes make the list look like a cloud, these dynamic lists have been named tag clouds.

Although Web 2.0 social tools provide many advantages, each has its own weaknesses when applied in the libraries. One major weakness is lack of compatibility stemming

from the fact that they have generally been developed independently. Libraries need a more integrated system equipped with Web 2.0 social tools so that their users can use them in an integrated manner. With this in mind, Libguides and Web 2.0 library online catalogues emerged around four years ago. Libguides is a subscription based hosted service that provides built-in Web 2.0 tools. Librarians can use this service to create subject specific research guides with interactive features, multimedia, communities and sharing capabilities. It gives librarians an edge in organizing library resources, reaching out to users and encouraging interactive learning. URL links and database search boxes can be presented on the same web page, providing convenient access to library resources. The Libguides service has been very popular in library profession, with a large number of libraries in various countries currently using it. Based on the idea of Web 2.0, Amazon.com and Google's Single Box Searches, the Web 2.0 online library catalogue or next generation publicly accessible catalogue is another noteworthy innovation. This new online catalogue is underpinned by a one-stop search engine with the capability to retrieve results from all library resources at once, including books, e-Books, journal articles, videos, databases and other media. With this new catalogue, users do not need to switch from one resource to another to find their required materials. Users can narrow their results to a small subset by using limiters such as subject, format and genre. When a record is selected, an additional link provides recommended resources based on other selections from users who selected the same record. Web 2.0 social tools are also built into this online catalogue so that users can chat with librarians, write comments, rate resources and write reviews. Librarians can

publish blog posts to promote library resources, provide instructions and invite users to participate in discussions directly from the online catalogue. Because of its high cost, however, few libraries have implemented it so far.

Examples:

Library of Congress on Flickr

http://www.flickr.com/photos/library_of_congress/

Ohio State University Biz Wiki

http://www.library.ohiou.edu/subjects/bizwiki/index.php/Main_Page

MaxChat (an Instant Messaging Service of Maxwell Library, Bridgewater State University)

http://www.bridgew.edu/Library/

PennTags for University of Pennsylvania Library Users

http://tags.library.upenn.edu/

LibGuides Community Site

http://libguides.com/community.php?m=i&ref=www.libguides.com

Cornell University Library Guides (Research Guides) hosted by SpringShare

http://guides.library.cornell.edu/

UW WorldCat of Washington University Libraries

http://guides.lib.washington.edu/content.php?pid=156369&sid=1352518

**BASIC COMPETENCIES AND SKILL REQUIREMENTS FOR A LIBRARIAN 2.0**

In the last few years, advancements in information services have far gone beyond those of earlier decades. These have a major impact in the way information specialists, and

their patrons, access data, redefining both of their roles in information gathering and research. As a general statement, the core role of the information specialist is changing from information gatekeeper to information guru. A librarian in Web 2.0 technology environment is required to act as information enabler and knowledge creator. As an information enabler, the Librarian 2.0 needs to have the ability of transferring ownership of searches to patrons. This involves deploying simpler tools to the end-user, and teaching how to best use them, creating patron ability. While these two are related, they have markedly different core competencies. In deploying simpler applications, Librarian 2.0 is required to have a working knowledge of not only the tools to be deployed, but also the technology infrastructure used behind it. Therefore, this requires a basic knowledge of IT and intranet fundamentals – ideas such as network security, routing and server-side applications. Along with this, another core competency is fluency in web development languages in order to better integrate these with the existing intranet and to develop custom tools. Librarian 2.0 also needs to possess the ability to publicize the availability of information resources and to ensure that they meet customer needs, reactively and proactively. Moreover, Librarian 2.0 is required to possess the ability to retrieve applicable data in a periodic and timely manner, and properly disseminate it to the patrons. He is also required to have awareness of current knowledge sharing technologies and ability to appropriately apply these technologies for the benefit of end-users.

Based on the above, the Librarian 2.0 should attempt to:

- Understand the power of the Web 2.0 opportunities;

- Learn the major tools of Web 2.0 and Library 2.0;
- Combine e-resources and print formats and is container and format agnostic;
- Is device independent and uses and delivers to everything from laptops to PDAs (Personal Digital Assistant) to iPods;
- Develop targeted federated search and adopts the OpenURL standard;
- Connect people and technology and information in context;
- Doesn't shy away from non-traditional cataloguing and classification and chooses tagging, tag clouds, folksonomies, and user-driven content descriptions and classifications where appropriate;
- Embrace non-textual information and the power of pictures, moving images, sight, and sound;
- See the potential in using content sources like the Open Content Alliance, Google Print, and Open WorldCat;
- Connect users to expert discussions, conversations, and communities of practice and participates there as well;
- Use the latest tools of communication (such as Skype) to connect content, expertise, information coaching, and people;
- Use and develops advanced social networks to enterprise advantage;
- Connect with everyone using their communication mode of choice – telephone, Skype, IM, SMS, texting, email, virtual reference, etc.;
- Encourage user driven metadata and user developed content and commentary; and

- Understand the wisdom of crowds and the emerging roles and impacts of the blogosphere, Web syndicasphere and wikisphere.

Thus, in the highly technical environment of Web 2.0, today's librarian is facing added challenges due to recent technological growth, necessitating a professional that is better equipped and broadly educated than one just ten years ago. Librarian 2.0 needs to be a credible source for understanding and imparting knowledge of new technological developments. Willing to grow with job, librarian 2.0 is required to be interested in what is happening around them, and scan the horizon to be aware of the outside world. An essential element, research, is a way for librarian 2.0 for making best decisions, best practices, and establishing benchmarks. Good at negotiation and diplomacy, librarian 2.0 is required to be able to use whatever language is needed to persuade or influence the target audience to their point of view. They require being adaptable, flexible, persistent, and resilient.

**DISCUSSION AND CONCLUSION**

With the rapid growth in the Information Communication Technology (ICT), the information environment within which libraries find themselves is continuously changing. These changes offer great opportunities for progressive libraries to reach out far beyond the boundaries of their buildings and websites, and to engage with an increasingly literate body of information consumers. The new techniques and technologies, which are emerging, are suitable for deployment in the libraries, to enhance the ways of making their data work for themselves and their clients/users. Recently, librarians have struggled to understand their relationship to a new breed of Web services that, like

libraries, connect users with the information they require. These services, known as Web 2.0, do have effects on library services. Web 2.0 represents an emerging suite of applications that hold huge potential in enriching communication, enabling collaboration and nurturing innovation. They offer new service models, methods, and technologies that can be adapted to improve library services. Further, because of widespread use of these services, there are cultural changes affecting library users' information seeking behaviors, communication styles and expectations. The term Library 2.0 has been introduced into the professional language of librarianship as a way to discuss these changes. However, little work has been done up till now to research Web 2.0 applications in library websites. The concept of Library 2.0 is still under constant discussion in the library world.

Library 2.0 can be a scary term for the librarians who aren't really involved into technology. It is not primarily about machines and software but it is about using the best tools and ideas to provide the best possible services to the users. It is an exciting concept which can create a conversation that creates the next generation of library websites, databases, OPACs, intranets and portals in a way that allows the end user to survive. Library 2.0 is a conversation about some of the human aspects of this emerging environment. To take advantage of the concepts inherent in Library 2.0, it is necessary not to shy away from adding advanced functionality and features directly into the content. This will provide the context and workflow-oriented features that users will demand or are demanding already.

Library 2.0 is a powerful idea that finds itself in an awkward predicament. It is an idea that has emerged out of what amounts to a separate discourse within librarianship, that of younger, web-centric librarians who have often have a sense that they are remaking the profession from the ground up for the digital future. The mainstream of librarianship, the older side of the profession, has by now heard of Library 2.0, but either understands it poorly or not at all. They may be used to the modes of practice that in some cases need to be eliminated completely, but are also the bearers of much important knowledge – of principles and practices – on which the future of librarianship depends. The younger, web-centric generation of librarians is interested in this knowledge in theory, but to the extent that its discourse is separate and web-based, it is not communicating with the older generation to the extent that's necessary. It is strongly felt that the libraries and the culture of librarianship must be extended into networked communication, with the principles of librarianship to preserve the existence of a freely-accessible, non-commercial information and learning space as an alternative to the consumer capitalist information and entertainment space offered by media giants. The basic idea of Library 2.0, to transform library services by making them more personalized, more interactive, and more web-based along Web 2.0 lines, has a logic to it that is ineluctable and exciting.

The Web 2.0 movement is laying the groundwork for exponential growth in almost each and every aspect of life including information and knowledge. Almost all the businesses, universities, colleges, institutions, schools and even healthcare providers come to depend more heavily on the free and ready flow of information. This has necessitated

the strong need that the librarians should develop many new skills to handle and disseminate information and knowledge in Web 2.0 environment. Library profession faces a shortage of people willing and ready to take leading positions in the research libraries of tomorrow. A librarian today needs to be familiar with all the different ways to communicate with the users and keep up to date with information and emerging technologies. Because librarians deal with information, there is no getting away from the use of information technology. To connect with today's library users, librarians need to implement and stay abreast of the latest communications technologies and tools. They also need to look at things on a higher level, study user behaviour, and adapt new technologies on a library-wide level to keep pace with new user habits and behaviour. Some of the skills which are needed to be developed include usability testing, Web analytics, and Web 2.0 skills such as the use of RSS and social media. It is anticipated that knowledge of data curation, open access repositories and cited reference will become increasingly important. Librarian 2.0 needs a complex mix of transferable skills, including teamwork, communication, business skills, lifelong learning and personal traits such as creativity, flexibility, adaptability and persistence.

Altogether, the use of these Web 2.0 technologies and applications, along with others not here mentioned and others not yet invented, will constitute a meaningful and substantive change in the history of libraries. The library's collection will change, becoming more interactive and fully accessible. The library's services will change, focusing more on the facilitation of information transfer and information literacy rather than providing controlled access to it. On the basis of the above discussion and

findings, this paper promotes a focused definition for Library 2.0 as '*The application of interactive, collaborative, and multi-media web-based technologies to web-based library services and collections*'. The best conception of Library 2.0 at this point of time would be a social network interface that the user designs. It is a personalized OPAC that includes access to Instant Messaging, RSS feeds, blogs, wikis, tags, and public and private profiles within the library's network. It is a virtual reality of the library, a place where one can not only search for books and journals, but interact with a community, a librarian, and share knowledge and understanding with them. Library 2.0 will move the full suite of library services into the electronic medium. The library has had a web-presence for many years, and with Library 2.0, its patrons will be joining it.

Library 2.0 is a change of a nature close to the tradition and mission of libraries. It enables the access to information across society, the sharing of that information, and the utilization of it for the progress of the society. Despite this change fitting so well with the history of libraries and their mission, it is still a major paradigmatic shift for librarianship to open not just access to their catalogs and collections, but access to their control. Library 2.0 demands libraries to focus less on secured inventory systems and more on collaborative discovery systems. There is perhaps a great synchronicity between librarianship and Web 2.0, but viewed holistically, Library 2.0 will revolutionize the profession. Rather than creating systems and services for patrons, librarians will enable users to create them for themselves. A profession steeped in decades of a culture of control and predictability will need to continue moving towards embracing facilitation and ambiguity.

## SUGGESTIONS

The social network 2.0 is not about devoting many hours work to the Internet, but it is necessary to keep up with the tools and resources of social networks, to take part in them strategically, to know how to communicate the essential ideas, and to maintain a consistent and regular presence. With all these activities, academic librarians, especially those who work with bibliographic information, have a vast world of new applications at their disposal. The exciting results of implementing these applications can significantly benefit the libraries and educational institutions. In the light of the present study, an obvious first step would involve further research that explores the existing cultures and attitudes within the profession and what it means to become a Library and Information Science professional in the 21st century.

For the enhanced deployment of Web 2.0 in the libraries there will be a strong requirement of support from the library management because of the involvement of financial, infrastructural, and training implications. As such, educating and convincing the various parties on how Web 2.0 applications can enhance library services is crucial. Some librarians are still skeptical on the application of social networking and instant messaging tools. This could indicate their concerns on the possible impacts of allowing users to have collaborative network and instant communications with the librarians by using such tools. Thus, librarians need to be exposed and educated on how to reposition them in this age of Library 2.0 environment. The resistance could be due to their anxiety that these tools will empower users in ways that will change how libraries used to operate and what are to be expected from librarians. It is also suggested that

the Library and Information Science education must respond to the changing needs of technological advancement in libraries today. Thus, Web 2.0 technology tools and applications must be a major component in the Library and Information Science curriculum.

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# AN OVERVIEW OF MASSIVE OPEN ONLINE COURSES (MOOCs): SOME REFLECTIONS

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**Abstract**

*In this paper, the author has introduced the evolving concept of free online education, that is, MOOC; its history has also been outlined. The paper also discussed the know-how of the MOOC and its structure such as course syllabus, readings, assignments, discussion forums, and multiple choice quizzes. It has further traced down major players of MOOC, for example, coursera, edX, UDACITY, FutureLearn, and Khan Academy. In addition, it has also provided the list of MOOCs offered in Library and Information Science. The paper concluded by highlighting the future of MOOC, such as, offering Masters degree in computer science(Georgia Tech University) through series of massive open online courses and starting MOOC.org web site.*

***Key words:*** *MOOCs, online learning, free learning, online courses, Coursera, UDACITY, edX, Future learn, Khan Academy, Georgia Tech University, MOOC.org*

## INTRODUCTION

A massive open online course (MOOC) is a model for delivering and learning content online to any person who wants to take a course, with no limit on attendance. Traditional online courses charge tuition, carry credit and limit enrollment to a few dozen to ensure interaction with instructors. The MOOC, on the other hand, is usually free, credit-less and massive too. MOOCs have been around for a few years as collaborative techie learning events, but the year 2012 was the year when "everyone wants in" (Pappano, 2012).

The history of the MOOC can be traced back to a Proto-MOOC which was created at Utah State University in 2007 by David Wiley, but it was not until 2008 that Dave Cormier of the

University of Prince Edward Island coined the term MOOC. Cormier used the term to describe an open course created by George Siemens and Steven Downes offered to 25 students at the University of Manitoba that was also open for public enrollment. The first MOOC offered by edX (established by MIT and Harvard) attracted an amazing 155,000 students. MOOCs began to gain popularity with the creation of the PLENK2010 and DS 106 courses that were taught by Jim Groom and Michael Branson, and reached the pinnacle of its popularity when, in 2011, two courses taught by Stanford University professors, Sebastian Thrun and Peter Norvig, the founders of Udacity, enrolled 90,000 and 160,000 students, respectively (Creed-Dikeogu & Clark, 2013, p. 10).

## KNOW HOW OF MOOC

A MOOC is a lot like a college class and there are umpteen MOOCs in every subject. Millions of people who have a desire to learn and grow would just dive into MOOC. MOOCs are taught by top professors at some of the world's best-known universities and supported by teaching assistants. These courses do not have any entry requirements - all courses can be taken by anyone from anywhere online and run two three times each year. A student would typically require 1-2 hours of study each week for around 5 weeks. Further, these courses are self-directed, meaning you follow the course materials, complete the readings and assessments, and get help from a large community of fellow learners through online forums. Moreover, these courses meet high academic standards and are subject to internal quality assurance processes.

MOOC is defined as an online phenomenon gathering momentum over the past two years or so, a MOOC integrates the connectivity of social networking, the facilitation of an acknowledged expert in a field of study, and a collection of freely accessible online resources. Perhaps most importantly, however, a MOOC builds on the active engagement of several hundred to several thousand "students" who self-organize their participation according to learning goals, prior knowledge and skills, and common interests. Although it may share in some of the conventions of an ordinary course, such as a predefined timeline and weekly topics for consideration, a MOOC generally carries no fees, no prerequisites other than Internet access and interest, no

predefined expectations for participation, and no formal accreditation (McAuley, Stewart, Siemens, & Cormier, 2010, p. 4).

## STRUCTURE OF MOOC

MOOCs are classes that are taught online to large numbers of students, with minimal involvement by professors. Typically, students watch short video lectures and complete assignments that are graded either by machines or by other students. That way a lone professor can support a class with hundreds of thousands of participants (Chronicle of Higher Education, 2013). Precisely, anyone with internet connection can enroll in a MOOC; it is exclusive to those who earn college admission and pay tuition. The course is structured around a set of learning goals in a defined area of study and structured similar to traditional online higher education courses. It has a syllabus and the course content typically consists of readings, assignments, and video lectures, which are often short (6-12 minutes); these short videos would be interspersed or associated with multiple–choice quizzes. The short videos enable the students to control the pace, pause, rewind, explore and return to the video content. Students would watch the video lectures (including some talking heads, some "worked examples" and some experiments), read assigned material (online reading lists), and participate in online discussions and forums; they would also complete online quizzes, assignments and tests on the course material (ELI Publication, 2013). The online discussion forums create a space for exploring the subject matter, forming relationships and collaborating for project work and other assignments. These also play a vital role in online courses as they help establish a learning community through which learners generate knowledge (David, Forsey & Riley, 2013). The online activities can be augmented by face-to-face meet-ups of MOOC participants who live close to one another (ELI Publication, 2013). Moreover, it is widely noted that students who spend more time contributing to course discussion forums end up performing better.

Further, MOOC student should be a self-motivated and proactive learner; student should be non-procrastinator and loves to work ahead of time. MOOCs usually run between four and 12 weeks. Some start and stop on a fixed schedule, while others are self-paced. Students who pass a MOOC

might get a certificate that says they completed the course. Students don't need to apply to take a MOOC; they just have to register in the MOOC of their interest.

## MAJOR PLAYERS OF MOOC

Several start-up companies are working with universities and professors to offer MOOCs. Meanwhile, some colleges are starting their own efforts, and some individual professors are offering their courses to the world. MOOCs are typically provided by higher education institutions, often in partnership with "organizers" such as Coursera, edX, Udacity, Khan Academy, futurelearn and Udemy.

**Coursera** – It is for-profit company founded by two computer-science professors from Stanford. The company's model is to sign contracts with colleges that agree to use the platform to offer free courses and to get a percentage of any revenue. More than a dozen high-profile institutions, including Princeton and the U. of Virginia, have joined. Coursera offers courses in a wide range of topics spanning Humanities, Medicine, Biology, Social Sciences, Mathematics, Business, Computer Science and many others. Additionally, it also offers courses in several languages including English, Chinese, French etc. The total number of MOOCs (including forthcoming and current) offered by Coursera equals to 538 (figure as on Nov 10, 2013). These courses are designed to help you master the material. When you take courses, you will watch lectures taught by world-class professors, learn at your own pace, test your knowledge, and reinforce concepts through interactive exercises. Most courses have start and end dates, though it is possible to join a course after it has begun, as long as it is before the registration cutoff date. The assessment methods of the course are: graded quizzes, homework, and problem sets. Many instructors allow quizzes to be taken multiple times, with highest grade counting (a different quiz each time) (Newyork Times, 2012). See a few images of the coursera's MOOC on "Metadata" by Dr. Jeffrey Pomerantz (University of North Carolina, USA). [Fig 1, 2, 3]

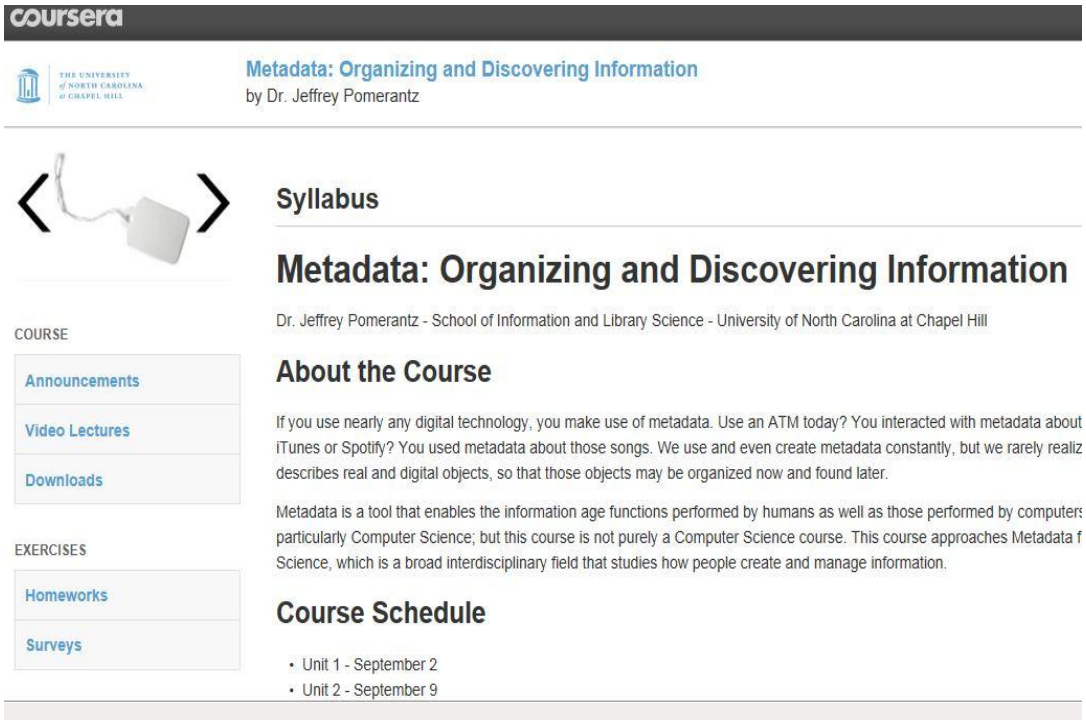


**Fig 1: Syllabus of the "Metadata" [The MOOC recently conducted by coursera]**

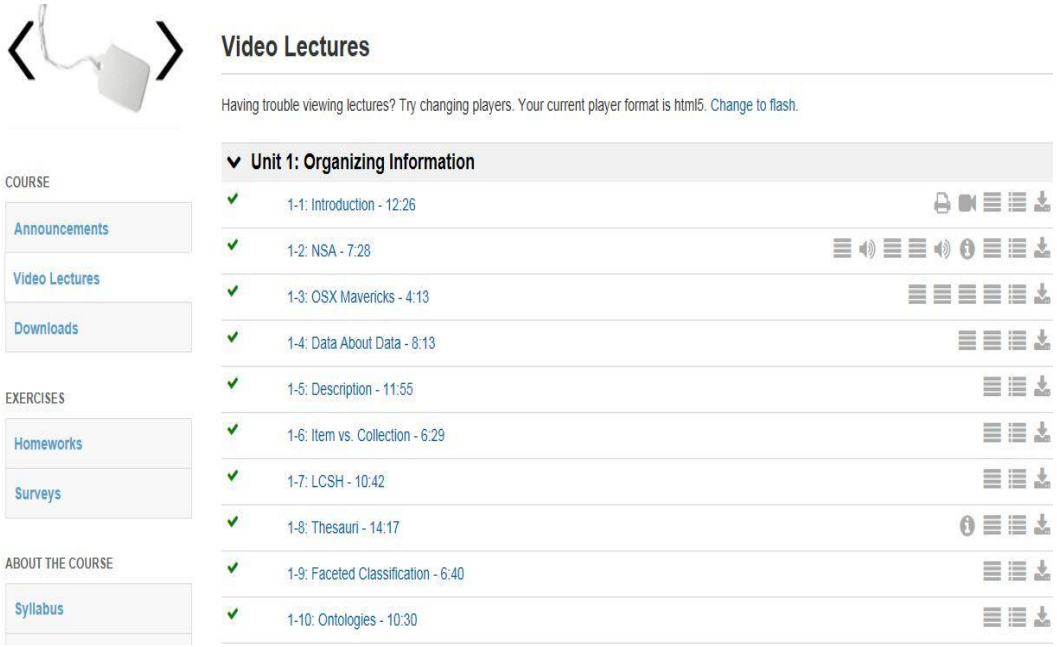

**Figure 2: Video Lectures of "Metadata" [The MOOC recently conducted by coursera]**

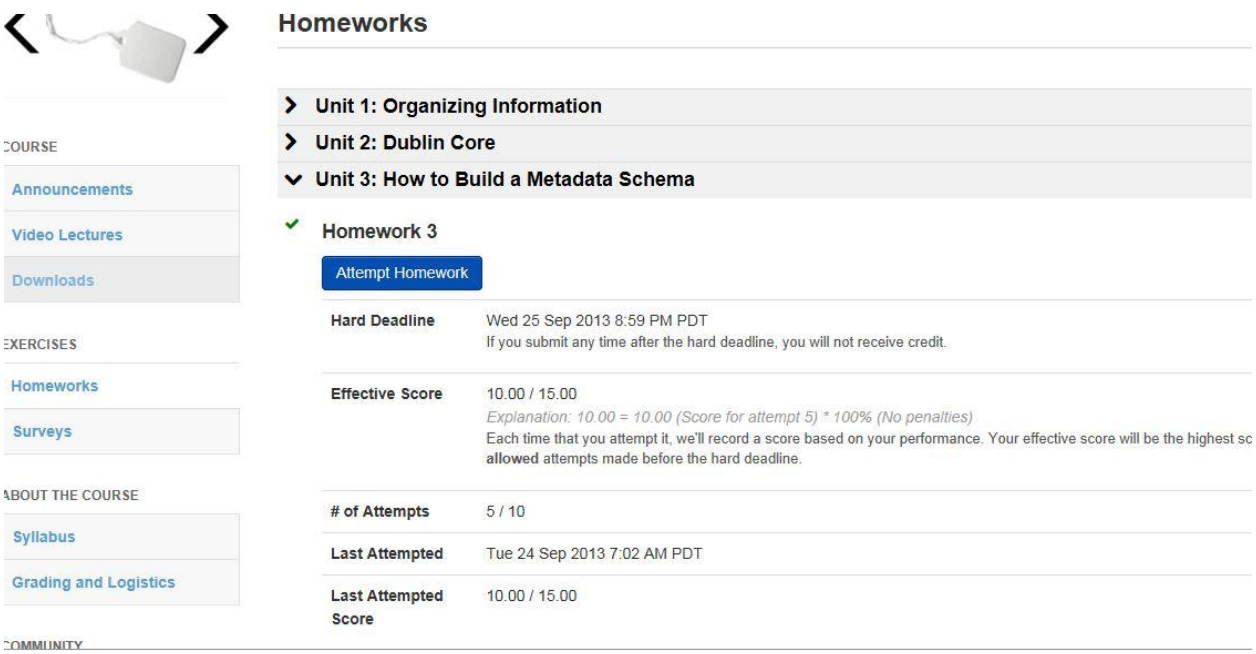


**Fig 3: Homework of the "Metadata" [The MOOC recently conducted by coursera]**

edX - It is a nonprofit effort run jointly by Massachusetts Institute of Technology, Harvard University, University of California at Berkeley, and University of Texas. It offers the best MOOC courses, from the best professors and the best schools, spanning dozens of subjects. Some edX courses now offer ID verified certificates of achievement. It is a new way to demonstrate your achievement and showcase your knowledge. The total number of MOOCs (including new, current and past) offered by edX equals to 91 (figure as on Nov 10, 2013). The courses have start and end dates. Registration closes two weeks after start date. Students may miss a week but lose points if they don't make a deadline for turning in an assignment. The assessment methods of the course are: graded tests and homework (Newyork Times, 2012).

UDACITY – It is another for-profit company founded by a Stanford computer-science professor. The company, which works with individual professors rather than institutions, has attracted a range of well-known scholars. Unlike other providers of MOOCs, it has focused all of its courses on computer science, business design, Mathematics and Science; it provides courses at Beginner,

intermediate and advanced level. The courses can be taken at own speed, these have no start and end dates. The assessment methods of the course are: graded tests, problem sets and programming assignments (Newyork Times, 2012).

FutureLearn – It is a private company which offers a diverse selection of free, high quality online courses from some of the world's leading universities and other outstanding cultural institutions. Its partners include over 20 of the best UK and international universities, as well as institutions with a huge archive of cultural and educational material, including the British Council, the British Library, and the British Museum. It has courses in a diverse range of subjects and will be adding many more over the coming months. Courses vary in length. Most are six to ten weeks long but some short- two and three week courses are also available. The courses have start and end dates. The assessment methods of the course are: quizzes and tests.

Khan Academy – It is a nonprofit organization founded by the MIT and Harvard graduate Salman Khan. All of the site's resources are available to anyone. It doesn't matter if you are a student, teacher, home-schooler, principal, adult returning to the classroom after 20 years, or a friendly alien just trying to get a leg up in earthly biology. Khan Academy's materials and resources are available to you completely free of charge. Khan Academy began in 2006 as an online library of short instructional videos that Mr. Khan made for his cousins. The library—which has received financial backing from the Bill & Melinda Gates Foundation and Google, as well as from individuals—now hosts more than 3,000 videos on YouTube. Khan Academy does not provide content from universities, but it does offer automated practice exercises, and it recently offered a curriculum of computer-science courses. Much of the content is geared toward secondary-education students (Chronicle of Higher Education, 2013). Primarily, Khan Academy deals with several subjects, such as, Math ($3^{rd}$, $4^{th}$, $5^{th}$, $6^{th}$, $7^{th}$, $8^{th}$ grade, arithmetic, algebra, geometry, calculus, probability, and recreational math), Science (Biology, chemistry, Healthcare etc), Economics (Microeconomics, macroeconomics, finance etc), Humanities (World history, Art history etc).

## MOOCs IN LIBRARY AND INFORMATION SCIENCE

Here is an indicative list, though not exhaustive, of MOOCs in library and Information Science:

1. **MOOC on New Librarianship - Master class (http://ischool.syr.edu/future/grad/newlibopencourse.aspx)** has been offered by School of Information Studies – Syracuse University (USA), during July 8-August 4, 2013
2. **Hyperlinked library MOOC (http://slisweb.sjsu.edu/programs/moocs/hyperlinked-library-mooc)** has been offered by school of library and information science, San Jose State University during September 3- November 23, 2013.
3. **MOOC on Information theory (https://www.coursera.org/course/informationtheory)** is being offered by Chinese University of Hong Kong, during Jan 6- April 27, 2013.
4. **MOOC on Social Network Analysis (https://www.coursera.org/course/sna)** has been offered by University of Michigan, during Oct 7-Dec 14, 2013.

## FUTURE OF MOOC

Despite many exciting developments and applications, free online courses do still have many limitations – meaning MOOCs are a long way from being able to replace traditional university degrees. The true value of MOOCs lies in their capacity to open up access to knowledge that was previously the preserve of small elite. MOOCs are not for all – they serve a particular segment of students who are seeking learning opportunities from premier brands at no cost and convenience of time. It is not for students seeking full-time educational credential. However, MOOCs would democratize education, transform lives worldwide and reinvent education. For example, Georgia Institute of Technology is about to take a step that could set off a broad disruption in higher education; it's offering a new master's degree in computer science. It would be delivered through a series of massive open online courses, or MOOCs for $6,600 from January 2014. The school's traditional on-campus computer science master's degree costs about $45,000 in tuition alone for out-of-state students (the majority) and $21,000 for Georgia residents (Basulto, 2013).

Further, Google is also aiming to create an open-source education; it has partnered with Harward and MIT to expand the edX educational initiative to create a broad educational platform for free online courses. In addition, Google and edX have planned to team on another Web site called MOOC.org to host free courses from universities, businesses, governments and not-for-profit

providers. That means, instead of signing up for four years of courses at a single university, you could conceivably mix-and-match your course offerings from any of the world's best universities. Or, if you don't think a university's math, science and engineering classes are preparing you for the workplace after graduation, you could add in courses from local businesses or nonprofits (Basulto, 2013). MOOC.org would go live in the first half of 2014.

## CONCLUSION

After reviewing massive literature on MOOC, it has been observed that there is an urgent need for targeting degree-seeking students in a more aggressive manner than the current "MOOC's open for all" approach. There is also dire need to find more immediate methods for allowing MOOC students to earn academic credit. Further, the academic credit for MOOCs should be allowed only if the actual course designs and assessment would be able to satisfy accrediting bodies and the credits should be accepted by degree-granting institutions. It has also been noticed that until top institutions begin putting a diploma behind their MOOCs, the students would believe that this is a second class form of education suitable only for the unwashed masses. In order to succeed, the students have to prepare themselves better for MOOC learning. Finally, online learning does not work for all students; blended classes may well be the future of MOOCs.

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# Use and User Perception of E-Resources in SRC Ayurvedic Mahavidyalaya, Chikhli: A Study

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**Abstract**

Electronic publishing and electronic resources are attracting users. Many studies shows that libraries were started managing their collection with electronic. The present paper is based on analytical study of use and user perception of electronic resources among faculty members.

**Keywords:** *Electronic Resources, User Perception, technologies, Databases, Consortia*

## 1. INTRODUCTION:

The technology advancement is increasing day by day. These advancement and changing trends have put forward new challenges before Library and information science professionals. Tremendous growth & diversification of knowledge have emerged with multidisciplinary subjects. Information has been identified as one of the vital resources needed for the success in almost every major human endeavour. Collection, organization and dissemination of information with economy and efficiency dampened on the skills and expertise of the librarians. Information is needed in all aspects of society and in all disciplines. Innovative introduction of information and communication technology boosted research activities in every subject areas all over the world. Old technologies of information exchange are being replaced by new technologies and methods. Over the last several years a significant transformation has been noticed in the collection development policies and practices of academic and research libraries. Most of printed resources are giving up before electronic resources and so that today electronic resources are taking place of traditional resources. In fact new generation is demanding for these electronic resources.

The electronic resources have brought up lot of popularity among the researchers. It is only because most of the relevant electronic resources are now available throw the web. Anyone can have access anywhere and from any corner of the world by round the clock i.e.

24x7. May be that is the reason, various government and non government consortiums come in the market in the last decade. Today research libraries and academic libraries are spending lot of money on these electronic resources. Various consortiums are in the market having thousands of online journals and databases, providing services round the clock only for users.

**E-Resources:**

Electronic resources are those resources which need computer access or any sort of electronic product that deliver a collection of data. It may be text referring to full text databases, electronic journals, image collections and other multimedia products and numerical, graphical or time bound. These may be delivered on CD-ROM on tape via internet and so on. A number of techniques and related standard have been deployed, which allow document to be created and distributed in electronic form by over past some years in order to fulfil the users demand and provide better facilities. The electronic resources have a vast input on the collection of the libraries and these are more useful due to their inherit capabilities for manipulation and searching; provide information access in cheaper to acquiring information resources, saving in storage and maintenance. E- Resources refer to any work encoded and made available for access through the use of computer. It includes both online and electronic data in physical format. The data may be stored at a remote server in electronic form and could be accessed electronically using internet. This policy covers both free internet resources and electronic resources purchased or licensed by the libraries from a commercial source, professional organization, non profit organization or any external institution.

Electronic resources represent an increasingly important component of the collection building activities of libraries. Electronic resources refer to those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device. They may either be accessed remotely via the Internet or locally.

**2. SRC Ayurved College at a glance:**

Sunil Ramsingh Chunawale Ayurved Mahavidyalaya is affiliated with Maharashtra Health Science University, Nashik (M.S.). It is situated in one of the district of Maharashtra

at Chikhli, which is established in the year of 2000, providing Ayurved education and Ayurved medicine facilities in the area.

## 3. Previous Studies

There are a number of studies related to the use and user perception of e-resources by the users of various institutions and universities. There are many factors which affect the use of e-resources. The related studies discuss some of these issues. Ibrahim A. M. (2004)[1] reported findings from a survey conducted to measure the use and perception of the United Arab Emirates University (UAEU) faculty members of electronic resources. Questionnaires were sent to a sample of 140 faculty members. Responses were received from 125 (89%) faculty members Analysis confirmed frequency of use of electronic resources was low. Reasons cited were lack of time because of the time needed to focus on teaching; lack of awareness to electronic resources provided by the library; ineffective communication channels, and language barrier. Haridasan and Khan (2009)[2] in their study, 'impact and use of e-resources by social scientists in NASSDOC, India', have identified the acceptance of e-resources in the National Social Science Documentation Centre (NASSDOC) library in New Delhi, and determined their usage, performance, degree of user satisfaction, and barriers faced in the access of e-resources.

## 5. OBJECTIVES OF THE STUDY

The allied objectives of the study were:

- To examine the attitude of the faculty members towards use of e-resources.
- To assess the contemporary use of electronic information resources by the faculty members.
- To find out the main reason(s) behind the usage of electronic resources by them.
- To identify and analyze the specific factors that promotes or hinders the use of electronic resources.

## 6. SCOPE OF THE STUDY

The scope of the present study was restricted to the faculty members of Sunil Ramsingh Chunawale Ayurved College, Chikhli Dist. Buldana (M.S.). There are 34 faculties working in the college of grade Lecturer, Reader and Professor.

## 7. METHODOLOGY

The study was based on survey method. A structured questionnaire was designed to collect data from the faculty members of SRC Ayurved Mahavidyalaya, Chikhli keeping in mind the basic objectives of the study. The data was personally collected from the faculty members. Besides, personal interviews were also conducted to assess the problems relating to use of e-resources by the faculty members.

## 8. ANALYSIS OF DATA

Out of 34 questionnaire only 30 (88.24 %) responded with the filled in questionnaire. The questionnaires were edited where necessary. The data collected through the questionnaires was scrutinised, classified, and tabulated for better understanding and clarity. Five point Lickert scale was used i.e poor to excellent, never to Always and not at all to very much options.

### 8.1 Sex Ratio

Sex ratio is the ratio of males and females in a population.

***Table No. 1- Classification of Faculty Member as per Gender***

| *Sr. No.* | *Gender* | *No.* | *%* |
|---|---|---|---|
| 1 | Male | 21 | 70.00 |
| 2 | Female | 9 | 30.00 |

It is confirmed that the present study have out of 30 respondents 21 (70%) were Male and 9 (30%) were female.

### 8.2 Academic Title and Experience

Academic title shows the designation and experience of the faculty staff.

***Table No. 2- Classification of Faculty Member as their Academic Title***

| *Sr. No.* | *Academic Title* | *No.* | *%* |
|---|---|---|---|
| 1 | Lecturer | 14 | 46.67 |
| 2 | Reader | 9 | 30.00 |
| 3 | Professor | 7 | 23.33 |

***Table No. 3- Classification of Faculty Member as their Professional Experiences***

| *Sr. No.* | *Professional Experiences* | *No.* | *%* |
|---|---|---|---|
| 1 | Less than 5 | 12 | 40.00 |
| 2 | 5 – 10 | 9 | 30.00 |
| 3 | 11 – 15 | 7 | 23.33 |
| 4 | 16 – 20 | 1 | 3.33 |
| 5 | 20+ | 1 | 3.33 |

Table no. 2 confirmed that among all responded faculty members i.e 14 (46.67%) were lecturers and Table no. 3 depicts that maximum faculty members 12 (40%) have less than 5 years experience, and 9(30%) have 5 to 10 years experience. It shows that maximum faculty found having teaching experience of less than 5 years i.e young generation doctors working in the institute.

**8.3 Purpose to visit library:**

Library users have different types of demands and expectation. Every user comes to the library having different purpose. Specially academic and special library users have much more expectations from the library services.

***Table No. 4- Classification of Faculty Member as for what purpose visits the library?***

| *Sr. No.* | *For what purpose you visit the library?* | *1-5%* | | *6-25%* | | *26-50%* | | *51-75%* | | *76<* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| 1 | Reading Newspaper | 5 | 16.67 | 10 | 33.33 | 8 | 26.67 | 3 | 10.00 | 4 | 13.33 |
| 2 | Borrowing / returning | 5 | 16.67 | 4 | 13.33 | 9 | 30.00 | 9 | 30.00 | 3 | 10.00 |
| 3 | Study | 0 | 0.00 | 1 | 3.33 | 11 | 36.67 | 12 | 40.00 | 6 | 20.00 |
| 4 | Preparation for lecture | 0 | 0.00 | 2 | 6.67 | 10 | 33.33 | 7 | 23.33 | 11 | 36.67 |
| 5 | Browsing through internet | 23 | 76.67 | 2 | 6.67 | 1 | 3.33 | 2 | 6.67 | 2 | 6.67 |
| 6 | Searching database | 25 | 83.33 | 2 | 6.67 | 2 | 6.67 | 1 | 3.33 | 0 | 0.00 |
| 7 | To browse through new arrivals | 14 | 46.67 | 6 | 20.00 | 4 | 13.33 | 5 | 16.67 | 1 | 3.33 |
| 8 | To search particular reference | 8 | 26.67 | 6 | 20.00 | 5 | 16.67 | 4 | 13.33 | 7 | 23.33 |

Here in the study it find in table no. 4 the main reason of the users to visit the library is to study i.e 12 (40%). The dramatic result found that 23 (76.67%), 25 (83.33%), 14 (46.67) of the faculty members haven't any purpose to visit library for browsing internet, searching database and browsing new arrivals. But in the personal interview with these faculty

members, the main reason behind this was that the college library didn't have any facility for using internet and any type of database subscribed.

### 8.4 Awareness about Computer Technology

Literacy of computer has become bare necessity for all profession. Knowing this, the present study attempted to ascertain the knowledge of computers of faculty members. This study shows that all the respondents were computer literate, which is a healthy sign for any organization. Also, the study attempted to know about the extent of computer knowledge of faculty members in Table 5.

***Table No. 5- Classification of Faculty Member as their awareness of Computer***

| *Sr. No.* | *Do you have knowledge of?* | *Poor* | | *Fair* | | *Average* | | *Good* | | *Excellent* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| 1 | Computers | 0 | 0.00 | 1 | 3.33 | 11 | 36.67 | 14 | 46.67 | 4 | 13.33 |
| 2 | Types of computers | 4 | 13.33 | 1 | 3.33 | 10 | 33.33 | 12 | 40.00 | 3 | 10.00 |
| 3 | Operating System | 0 | 0.00 | 4 | 13.33 | 14 | 46.67 | 10 | 33.33 | 2 | 6.67 |
| 4 | Writing Programs | 2 | 6.67 | 2 | 6.67 | 6 | 20.00 | 14 | 46.67 | 6 | 20.00 |
| 5 | Library Software | 6 | 20.00 | 18 | 60.00 | 5 | 16.67 | 1 | 3.33 | 0 | 0.00 |
| 6 | OPACs | 8 | 26.67 | 12 | 40.00 | 9 | 30.00 | 1 | 3.33 | 0 | 0.00 |
| 7 | MARC | 20 | 66.67 | 5 | 16.67 | 2 | 6.67 | 3 | 10.00 | 0 | 0.00 |
| 8 | Database Management | 13 | 43.33 | 6 | 20.00 | 6 | 20.00 | 4 | 13.33 | 1 | 3.33 |
| 9 | Online databases | 8 | 26.67 | 4 | 13.33 | 13 | 43.33 | 5 | 16.67 | 0 | 0.00 |
| 10 | CD-ROMs & DVDs | 7 | 23.33 | 9 | 30.00 | 6 | 20.00 | 8 | 26.67 | 0 | 0.00 |
| 11 | CD-ROM databases | 9 | 30.00 | 6 | 20.00 | 11 | 36.67 | 4 | 13.33 | 0 | 0.00 |
| 12 | Image databases | 9 | 30.00 | 13 | 43.33 | 5 | 16.67 | 3 | 10.00 | 0 | 0.00 |
| 13 | Reference databases | 8 | 26.67 | 0 | 0.00 | 16 | 53.33 | 6 | 20.00 | 0 | 0.00 |

The analysis of Table 5 shows that as high as 14 respondents representing (46.67 %) of total respondents had 'good' computer knowledge. Further the computer knowledge of 11 respondents (36.67%) was average, 14 responded (46.67%) have 'good' knowledge of operating system, 13 (43.33%) having average knowledge about online databases followed 16 (53.33%) found more aware with reference databases.

### 8.5 Frequency of Internet Use

Internet is known as largest open repository of information for teaching and research. Literature on all the fields of knowledge is available on Internet, which is very useful for

faculty members to enrich their knowledge. The present study attempted to find information on the use of Internet, frequency, purpose and place of Internet use. Regarding frequency of Internet use by the respondents, Table 8

***Table No. 6- Classification of Faculty Member as frequency of Internet use***

| *Sr. No.* | *Frequency of Internet Use* | *No.* | *%* |
|---|---|---|---|
| 1 | Daily | 14 | 46.67 |
| 2 | Weekly | 0 | 0.00 |
| 3 | Monthly | 0 | 0.00 |
| 4 | Quarterly | 0 | 0.00 |
| 5 | As per Requirement | 16 | 53.33 |
| 6 | Never | 0 | 0.00 |

It is clear from the Table 6 that, all the respondents of the faculty members having the habit of using the internet. Among them about 16 (53.33%) of respondents use the internet as per requirement, followed by 14 users (46.67%) were using the internet for daily.

**8.6 Awareness on e-resource**

With emergence of Information technology, it becomes very easy to store and reuse information in various forms. That's why today electronic resources along with print resources have become an integral part of a library collection. Also, remarkable shifts of choice from print resources to e-resources have taken place by users for information. Accordingly, a large number of e-resources are being acquired by libraries.

***Table No. 7- Classification of Faculty Member as knowledge of following***

| *Sr. No.* | *Do you have knowledge of?* | *Poor* | | *Fair* | | *Average* | | *Good* | | *Excellent* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| 1 | E-Books | 0 | 0.00 | 3 | 10.00 | 13 | 43.33 | 10 | 33.33 | 4 | 13.33 |
| 2 | E-Journals | 0 | 0.00 | 5 | 16.67 | 9 | 30.00 | 9 | 30.00 | 7 | 23.33 |
| 3 | E-Magazines | 2 | 6.67 | 5 | 16.67 | 16 | 53.33 | 5 | 16.67 | 2 | 6.67 |
| 4 | E-Audio/Video Lectures | 2 | 6.67 | 4 | 13.33 | 13 | 43.33 | 10 | 33.33 | 1 | 3.33 |
| 5 | E-Databases | 4 | 13.33 | 3 | 10.00 | 15 | 50.00 | 8 | 26.67 | 0 | 0.00 |
| 6 | Institutional Repositories | 9 | 30.00 | 9 | 30.00 | 8 | 26.67 | 2 | 6.67 | 2 | 6.67 |
| 7 | Open Sources | 4 | 13.33 | 5 | 16.67 | 10 | 33.33 | 9 | 30.00 | 2 | 6.67 |

In the present study all responded 30 (100%) faculty members found aware of electronic resources. It is cleared in table no. 7, maximum faculty members having average knowledge

of e-books, electronic journals, e-magazines, E-audio and Video lectures, Databases and Open sources. But 9(30%) faculty members are fairly aware with institutional repository.

### 8.7 Availability of E-Resources

Though the library didn't have subscribed any of the electronic resources and do not have any infrastructure for using internet, the respondents have mentioned that they access Internet and other electronic resources, which are related to the Ayurved medicine at home.

### 8.8 Use of E-resource

***Table No. 8- Classification of Faculty Member as frequency of using E-resources***

| *Sr No* | *How frequently do you connect E-resources?* | *No.* | *%* |
|---|---|---|---|
| 1 | Daily | 12 | 40.00 |
| 2 | Once in a week | 1 | 3.33 |
| 3 | Twice a week | 0 | 0.00 |
| 4 | Occasionally | 17 | 56.67 |

***Table No. 9- Classification of Faculty Member as their use of following***

| *Sr. No.* | *Have you ever used the following?* | *Never* | | *Rarely* | | *Sometimes* | | *Frequently* | | *Always* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| 1 | E-Books | 0 | 0.00 | 9 | 30.00 | 6 | 20.00 | 12 | 40.00 | 3 | 10.00 |
| 2 | E-Journals | 0 | 0.00 | 6 | 20.00 | 4 | 13.33 | 11 | 36.67 | 9 | 30.00 |
| 3 | E-Magazines | 4 | 13.33 | 8 | 26.67 | 13 | 43.33 | 3 | 10.00 | 2 | 6.67 |
| 4 | E-Audio/Video | 3 | 10.00 | 6 | 20.00 | 7 | 23.33 | 11 | 36.67 | 3 | 10.00 |
| 5 | E-Databases | 2 | 6.67 | 8 | 26.67 | 10 | 33.33 | 8 | 26.67 | 2 | 6.67 |
| 6 | Institutional Repositories | 9 | 30.00 | 11 | 36.67 | 6 | 20.00 | 2 | 6.67 | 2 | 6.67 |
| 7 | Open Sources | 5 | 16.67 | 2 | 6.67 | 7 | 23.33 | 14 | 46.67 | 2 | 6.67 |

Faculty members in table no 10 clears that frequency use of e-books found 12(40%) e-journals 11(36.67%), E-Audio-video lectures 11(36.67%) and open sources 14 (46.67%). 13 (43.33%) faculty members were some times using e-magazines and 10(33.33%) respondents found using e-databases.

### 8.9 Purpose of using e-resources

The main purpose of using e-resources by the faculty members of studied college is teaching (Table 10). It shows that as high as 18 responses, out of 30 representing (60%) indicates the 51 to 75% purpose of using e-resources for teaching.

***Table No. 10- Classification of Faculty Member as purpose to use E-Resources***

| Sr No | Please state the purpose for using E-resources? | *1-5%* | | *6-25%* | | *26-50%* | | *51-75%* | | *76<* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| 1 | Teaching | 0 | 0.00 | 2 | 6.67 | 6 | 20.00 | 18 | 60.00 | 4 | 13.33 |
| 2 | Research | 0 | 0.00 | 6 | 20.00 | 14 | 46.67 | 7 | 23.33 | 3 | 10.00 |
| 3 | Publication | 2 | 6.67 | 15 | 50.00 | 5 | 16.67 | 5 | 16.67 | 3 | 10.00 |
| 4 | Self improvement | 0 | 0.00 | 1 | 3.33 | 11 | 36.67 | 8 | 26.67 | 10 | 33.33 |
| 5 | Seminar | 7 | 23.33 | 12 | 40.00 | 7 | 23.33 | 4 | 13.33 | 0 | 0.00 |

### 8.10 Problems accessing E-resources

There are number of problems which become hurdles for the users to use e-resources. This study makes to understand the problem, which faculty members were facing to use e-resources.

***Table No. 10- Classification of Faculty Members facing problems accessing E-Resources***

| *Sr no* | *What difficulties do you face in accessing the information in the E-resources?* | *Not at All* | | *Not Really* | | *Undecided* | | *Somewhat* | | *Very Much* | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* | *No.* | *%* |
| 1 | Language barriers | 20 | 66.67 | 7 | 23.33 | 2 | 6.67 | 0 | 0.00 | 1 | 3.33 |
| 2 | Broken links | 2 | 6.67 | 8 | 26.67 | 15 | 50.00 | 4 | 13.33 | 1 | 3.33 |
| 3 | Instability of networks | 5 | 16.67 | 2 | 6.67 | 15 | 50.00 | 7 | 23.33 | 1 | 3.33 |
| 4 | Information overload | 2 | 6.67 | 7 | 23.33 | 11 | 36.67 | 9 | 30.00 | 1 | 3.33 |
| 5 | Password | 1 | 3.33 | 1 | 3.33 | 15 | 50.00 | 8 | 26.67 | 5 | 16.67 |

In table no 10, efforts were made to know the problem of which faculty members are facing while using electronic resources but not a clear opinions or result were identified. Maximum of faculty members mentioned undecided responses to all option and didn't give any other clarification.

## 9. MAJOR FINDINGS:

- Most of the faculty members have average knowledge of computer technology.
- Average 56 % of faculty members are using internet as per their requirement where 44% found using regularly.
- Central library didn't have any subscription for electronic resources and infrastructure for using internet.
- Faculty members are very much interested in using electronic resources.
- All of the faculty members were using electronic resource at their residence.
- E-books, E-journals, E-reference sources, E-Audio-Video Lectures and open source information are frequently used tools by faculty members.
- 30% of the respondents have poor knowledge of institutional repository.
- Most of the faculty member i.e 60% respondents use electronic resources for teaching, research purpose and self improvement is also a reason to use electronic resources.
- Password is the main problem to use unsubscribed electronic resources.

## SUGGESSION:

- Infrastructure facilities such as extension of LAN connection with all departments, procurement of CD mirror server, etc. should be developed.
- Besides e-journals and e-database, e-books and other e-resources (both online and offline) should be acquired by the Central Library.
- Library should have to increase their infrastructure regarding internet uses in the library.
- Study on the use and usability of e-resources by the faculty members needs to be made on regular basis.
- The speed of Internet needs to be increased for quick access to the available e-resources.
- Central Library has to create more awareness on e-resources.
- Library needs to arrange various orientation and training programs for faculty members for the optimum use of available e-resources.

## 7. CONCLUSION

The study reveals that the faculty members of Sunil Ramsingh Chunawale Ayurved Mahavidyalay, chikhli are using the available e-resources satisfactorily at their own residence. To update the knowledge of the faculty members i.e doctors in their field, there is enough scope for Central Library to develop its infrastructural facilities for accessing e-resources, procurement of more e-resources as per requirement, motivating users for assessing open source e-resources, etc.

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