

## **Application of Mobile Technology in Library Services: An Overview**

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### **Abstract**

Libraries have always adopted new technologies to assist in their objective of providing clients with effective and efficient services, as well as timely access to needed information. Implementation of Information and Communication Technologies (ICTs) has changed the way people access and communicate information. Users want easy and instant access to relevant information, putting pressure on Library and Information Science (LIS) professionals to think out of the box for meeting their information needs. Application of mobile phones to provide library and information services are a significant step in this direction. The development of mobile technology has resulted in shifting the academic environment from traditional to mobile learning settings. This paper describes mobile technology applications in library & Information services. Finally it conceives the future of mobile library technology.

**Keywords:** Mobile technology, Mobile library services, Library Applications, Mobile library websites, Skills required

### **1. Introduction**

Information and communication technologies (ICT) have provided faster access to information and it is also challenging the libraries to rethink and remodel their services adopting the technological changes. Implementation and relevance of Information and

Communication Technologies (ICTs) have not only changed the way people access information, but has also given birth to the new channels of communication. Invention of mobile phones is a vital achievement of technological developments. (*Malathy S. and Kantha P, 2013*)

The traditional library services are now moving to mobile library information services. There are the challenges in providing the necessary information to users at the right time. Mobile technologies have made communication and information access very convenient and timely to users. The adoption of mobile technology alters the traditional relationships between libraries and their users and introduces novel challenges to reader privacy. There is the shift from 'd-learning' (distance learning) to 'e-learning' and now from 'e-learning' to 'm-learning' will be the next big wave, which will reform education in India. (*Mohan Lal Vishwakarma, Shyam Lal Maurya, Shivani Govil, 2013*)

Nowadays, libraries are functioning in a user centered, technology based atmosphere, providing individualized value added services. The Internet and networking of libraries and information centers have facilitated information access 24x7 at one's fingertips. Library and Information Science (LIS) professionals are no more merely caretakers of books. They do the challenging, non-commercial business of satisfying information needs of users. Therefore, today's LIS professionals look forward to assume new earnings of communication for outreaching the users to take information at their ease. (Dr. K. Kumar)

### **1.1. Objectives/Purpose of the Study:**

This study explores the prospect of providing library services with mobile phones.

- Encourage librarians and library users in the use of library operations.
- Examine the benefits derived from the use of Mobile technologies.
- To identify the services that could be delivered through mobile phones
- To disclose the obstacles that libraries may face in providing information and services
- Through mobile phones and make suggestions to ensure adequate provision of these services. (Dr. K. Kumar)

## **2. Literature Review**

This chapter focused on the review of literatures related to the study. As revealed by search of literature, much work has not been done in the area of library services through mobile technology. There were, however, some related studies to the present study. To review, therefore, we focus on the following areas;

- i. Mobile technology
- ii. Adoption of mobile services
- iii. Mobile library website features
- iv. Library & mobile based services
- v. Prerequisites for implementing library based services

### **3. Statement of the Problem**

With the growth in the use of mobile devices among library users and its unlimited advantages over traditional means of information search, academic libraries in this part of the world are still in the embryonic stage in terms of providing information services through mobile technology. Hence, the need for this study to ascertain the views of library users on information services.

### **4. Mobile Technology**

Mobile technology is exactly what the name indicates – technology that is portable; it refers to any device that you can carry with you to perform a wide variety of “tasks”. It is technology that allows those tasks to be performed via cellular phone, PDA, vehicles, laptops, etc. A standard mobile device has gone from being no more than a simple two-way pager to being a cellular phone, a GPS navigation system, a web browser, and instant messenger system, a video gaming system, and much more. It includes the use of a variety of transmission media such as: radio wave, microwave, infra-red, GPS and Bluetooth to allow for the transfer of data via voice, text, video, 2-dimensional barcodes and more. (C:\Users\LIBRARY\Desktop\Mobile Tech\M.T\What it is\1.htm) Examples of Mobile IT devices include:

- Laptop and netbook computers
- Paltop computers or personal digital assistants
- Mobile Phones and “Smart Phones”
- Global positioning system (GPS) devices
- Wireless debit/credit card payment terminals
- Mobile devices can be enabled to use a variety of communications technologies such as:
  - Wireless fidelity (Wi-Fi)- a type of wireless local area network technology
  - Bluetooth- Connects mobile devices wirelessly
  - ‘Third generation’ (3G), global system for mobile communications (GSM) and general packet radio service (GPRS) data services- data networking services for mobile phones
  - Dial-up services- data networking services using modems and telephone lines.
- Mobile technology extends computing and the Internet into the wireless medium, and provides greater flexibility in communication, collaboration, and information sharing Virtual private networks- secure access to a private network. Conversely, this technology provides unique learning opportunities and has advantage of portability and mobility. Academic, public and special libraries could use mobile technology in service innovations, m-learning, instruction in mobile device, web lectures, reference services and catalogue searching (Sudhir Ramdas Nagarkar)

## **5. Major Prons & Cons of Library Information through Mobile**

- User friendly-Aid
- Personalized Service
- Ability to Access Information
- Time Saving
- User Participation
- Location Awareness
- Limitless Access
- Access to Print-disabled Users

The Major drawbacks are there are costs involved in setting up the equipment and training required to make use of mobile devices. Mobile IT devices can expose valuable data to unauthorised people if the proper precautions are not taken to ensure that the devices, and the data they can access, are kept safe-(Malathy S. and Kantha P).

### **5.1. Mobile Library Services**

Libraries can provide a wide array of mobile services to interested users:

- Mobile online public access catalogs (OPACs)—Libraries are providing access to their OPACs via mobile-optimized websites. The New York Public Library Mobile Beta site supports a mobile OPAC and allows users to browse library locations and hours (see <http://m.nypl.org/>).
- Mobile applications—some libraries have developed mobile applications for Smartphone's. The District of Columbia Public Library, for example, has developed an iPhone application that includes a mobile OPAC and the ability to place items on hold, and also provides information on hours and locations of local libraries (see <http://dclibrarylabs.org/projects/iphone/>).
- Mobile collections—Third-party content providers are partnering with libraries to deliver audio books, e-books, audio language courses, streaming music, films, images, and other multimedia that can be used on mobile devices. The Overdrive service is supported on numerous mobile devices and has developed an application for BlackBerry Smartphone's (see <http://www.overdrive.com>).
- Duke University has created a free iPhone application called Duke Mobile, containing a wealth of information on digital library resources, including extensive access to the library's digital photo archive and other collections (see <http://itunes.apple.com/app/dukemobile/id306796270?mt=8>).
- Mobile library instruction—some libraries are offering library instructional materials and resources via mobile platforms. For example, East Carolina University's "Research First Aid" is a series of podcasts for library researchers on the go (see <http://www.ecu.edu/cs-dhs/laupuslibrary/researchfirstaid.cfm>).
- Mobile databases—PubMed for Handhelds is a mobile web portal for the National Library of Medicine (see <http://pubmedhh.nlm.nih.gov/>).
- Library Short Message Service (SMS) notifications—Many libraries use SMS for a variety of purposes, including notification for items available for pickup,

due date reminders, information on availability of library materials, provision of call numbers and locations, and others (see <http://cpl.org/?q=node/12258>).

- SMS Reference—some libraries are offering “text-a-librarian” services ideal for simple questions that can be answered with a brief response (see <http://www.library.yale.edu/science/textmsg.html>).
- For more information, visit M-Libraries, Library Success: A Best Practices Wiki (<http://www.libsuccess.org/index.php?title=M-Libraries>). (Sudesh Kumar Sood & Ipshita Mukherjee, 2013)

## 5.2. Creating Mobile Web Sites, OPACs and Applications

- **Android Developers.** Resources for creating Android applications. Includes developer’s guide, tutorials, and videos. *Access:* <http://developer.android.com>
- **AirPac (Innovative Interfaces).** Offers a mobile version of the Innovative Interfaces (III) library catalog. Includes features such as cover images, integrated library locations with Google Maps software, request and renew items, and more. Contact Innovative Interfaces for pricing. *Access:* <http://www.iii.com/products/airpac.shtml>.
- **Boopsie.** Specializing in public and academic libraries and universities, Boopsie can deliver mobile applications that are compatible with all Web-enabled phones. Contact the site for a price quote. *Access:* <http://www.boopsie2.com/>.
- **Create an iPhone Optimised Website using JQTouch.** Freelance Web Designer and Developer Matthew Leak outlines one way to create an iPhone-friendly version of a Web site. Coding examples are included in this tutorial. *Access:* <http://www.tuttoaster.com/create-an-iphone-optimised-website-using-jqtouch/>.
- **Library Anywhere.** Created and sold through LibraryThing, Library Anywhere is a mobile catalog for any library. Includes mobile Web and apps for iPhone, Blackberry, and Android. Prices range from \$150 annually for schools to \$1,000 annually for universities (additional fees may apply). *Access:* <http://www.librarything.com/forlibraries>.
- **MobileTuts+.** Tutorials for all mobile developers, regardless of platform. Topics include techniques for building mobile apps and mobile Web sites. *Access:* <http://mobile.tutsplus.com/>.
- **MobiSiteGalore.** Build a mobile Web site in less than 60 minutes. No technical or programming knowledge required. Packages range from basic (cost: free) to unlimited (cost: \$24.99 per month). *Access:* <http://www.mobisitegalore.com>.
- **MoFuse.** Build a mobile version of an existing Web site or blog with the MoFuse (short for Mobile Fusion) content management platform. Plans range from \$7.95 per month to \$199 per month. All accounts come with a 14-day risk-free trial. *Access:* <http://mofuse.com/>.

- **Mobile Web Best Practices 1.0: Basic Guidelines.** Created by the World Wide Web Consortium (W3C), this document specifies guidelines for developing Web-based content for mobile devices. *Access:* <http://www.w3.org/TR/mobile-bp/>.
- **W3C MobileOK Checker.** Validate mobile-optimized Web sites for compatibility with current Web standards. Results include severity, category, and description of the error along with best practices for fixing issues. *Access:* <http://validator.w3.org>. (Sudesh Kumar Sood & Ipshita Mukherjee, 2013)

### 5.3. Library-Based Services

- M-Libraries offer the opportunity for the expansion of existing library-based services into the mobile domain.
- Two m-Library services envisaged for implementation within this architecture being:
  - Library Catalogue, Loans & Reservations Service
  - The Interactive Library Map Service.
  - Recommendations Service
- These services enable users more efficient access to resources and information whilst moving throughout the library.
- This infrastructural system, and its inherent mobility, affords an ideal opportunity to enhance the user's library experience. (Mayank Trivedi & Vishnu Suthar, 2011)

## 6. Mobile Web Sites

In addition to or in place of mobile applications, some companies and organizations also develop mobile versions of their Web site that are better optimized for viewing on mobile devices.

- **Encyclopedia Britannica Mobile.** Offers a search box and a list of suggested searches. Results include full-text entries with enlargeable images. *Access:* <http://i.eb.com/>.
- **MedlinePlus Mobile.** Produced by the U.S. National Library of Medicine, MedlinePlus Mobile provides information about specific diseases, conditions, and wellness issues. The site also contains prescription drug information, medical dictionary, and current health news. *Access:* <http://m.medlineplus.gov>.
- **WorldCat Mobile.** Search the WorldCat catalog for books, movies, music, games, and more. Results include items available at local libraries. *Access:* <http://www.worldcat.org> (Sudesh Kumar Sood & Ipshita Mukherjee, 2013)

### 6.1. Prerequisites for Implementing Mobile-Based Library Services

- It is necessary to have a carefully planned requirement study to know the practical situation like, the kind of services to be provided on mobile devices and type of devices to be used.

- Library need to acquire the required hardware and software after market survey.
- Library must provide physical and virtual environment for using mobile devices and accessories.
- One needs to ensure that the customers having mobile phones of different network operators are in a position to avail the services.
- It is a prerequisite to optimise library OPAC, website, and databases for mobile devices and introduce new services wherever possible.
- Security and authentication is a matter of concern in mobile services particularly due to availability of web contents on a 24x7 basis to prevent damage or loss to the data. (Malathy S. and Kantha P, 2013)

## **6.2. Skills Required**

Librarians should acquire and apply the following skills if they wish to provide mobile-based services:

Knowledge of hardware and software of mobile devices

- Create/tailor mobile-optimized content including interactive and participative library homepages, OPAC, virtual tours, and databases
- Familiarity with internet/intranet services like using e-mail, SMS and spam preventing, etc.
- Develop expertise in protecting privacy and security levels as more personalised information is
- involved in using mobiles for library services
- Skills related to searching and navigating through mobile devices, mobile web applications like push e-mail, etc.
- Skills for interacting with users via smart phone applications, mobile-friendly webpages, and third party intermediary clients
- Skills relating to training and user orientation to market these services to users. (Malathy S. and Kantha P, 2013)

## **7. Suggestions**

A detailed survey of user needs and expectations should be conducted before introducing such services. Initially, free text messaging services like Way2sms.com, 160by2 and SpiceSMS.com, etc. can be used to experiment the application of mobile phones to provide library services.

The institutions should contact mobile phone service operators for improved transmission of information at nominal charges. Proper training of library staff should be ensured for setting up services and mobile interface. Users also need to be trained about how to utilize these services.

A common interface compatible to all mobiles/networks should be developed. (Dr.K.Kumar)

### 7.1. Conclusion and Future Work

Due to the advancement of ICT, new technologies and tools are emerging day by day to fulfill the demand of the users. Mobile phones are inevitable tools of ICT. Application of mobile phones to provide library and information services will open new pathway towards this trend. This can be an astonishing means to outreach the users, enabling them to access library resources and services from anywhere any time even when they are on move. For this purpose the use of technology is very essential. Mobile technology has become boon to the libraries. A library may reach the remote users effectively by adopting of mobile technology in its services.

Library policies and services should be flexible and open so that new information needs of users are met with new technologies. The task of libraries is to exploit new technology in a more effective way to promote and integrate them into the design of future library services in a cost efficient manner. It is hoped that from this study, librarians should implement mobile technology in their respective organization/institution in order to improve and enhance the library services so that it is available to users at any place and any time. More and more changes are expected within four to five years in the field of mobile technology and its application to libraries

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