

WWJMRD 2017; 3(6): 103-107
www.wwjmr.com
Impact Factor MJIF: 4.25
e-ISSN: 2454-6615

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Implementation of Mobile Based Services and Technologies in Libraries

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Abstract

With the rapid advancement in technology in last two decades, mainly because of the advent of internet, the world no longer works the same. The advent of wireless networks and more recently mobile devices such as smart phones, tablets etc. following the internet, contributed a lot to make mobile technology come into existence. The technology has gone on miles since then and there has been no looking back. 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. M-learning is emerging technology in the whole world now-a-days. Librarians are aware the availability of mobile services and take a step to move forward. The paper discusses on the demand, advantages, barriers and solutions for good implementation of the mobile technology in libraries. It also determines the types of infrastructure required by the libraries for providing these services successfully in the libraries.

Keywords: Mobile technology, e-resources, Academic libraries, Mobile services, Smart phones

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. The worldwide mobile telephone subscriptions are at 7.6 billion more than half of 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. Mobile devices, which were initially devised with an intention to replace telephones using wireless technology, have now become a very important part of daily communication not only for telephone service users but also for the internet users. These mobile devices are now popularly used, especially for surfing the Web, listening to music, watching television, reading books, and interacting with friends. So from last decade, 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 /4G connection, a user lying on a beach can access e-books and multimedia content from a local library. Smart phones 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

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opportunities for libraries to promote access and expand reach.

2. Objectives of the Study

The main objectives of the study are:

- To encourage librarians and library users to use mobile phones for library operations.
- To find out the impact of mobile technology in the research work-flow.
- To examine the benefits derived from the use of Mobile technologies.
- To extrapolate ways that libraries could support those mobile information needs.
- To identify the services that could be delivered through mobile phones.
- To analyze the reading culture of students after the usage of mobile phones.
- To know the frequency of reading 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

3. Mobile Library Services

3.1 Library SMS Services: Text message alerts are entry-level mobile Web services for a library to offer her patrons speedy news announcement, event reminders, and other requested information.

The Library makes the following SMS services available to her patrons:

- **News and event reminder service:** This service sends reminders to patrons about important news, exhibitions, instructions, and so on.
- **Due-day reminder and renewal-request service:** This service sends reminders to patrons when their borrowed items are coming due. Furthermore, if a patron receives a due-day reminder and wants to renew the item, the patron can click a renewal-request hyperlink embedded in the text message to renew a borrowed item.
- **New title notification service:** This service lets patrons get informed of newly acquired titles. This service accompanies the preview and reservation of new titles.
- **Multimedia borrowing notification service:** The Library stores her multimedia collection (including CD, VCD, and DVD) in a CD/DVD management system. After entering his/her PIN ID and password, a patron can discover and check-out any discs they want from the CD/DVD management system. At the same time, an SMS alert will be sent to the patron so as to prevent from account compromise.
- **Request arrival notification service:** This service reminds patrons about the availability of reserved items.
- **Overdue notification service:** This service reminds patrons about overdue items. All the above SMS services are opt-in. Patrons only need to login to the library website and fill in their mobile phone numbers to avail of these services. Currently, patrons can use these services free of charge. This study aims at evaluating patrons' acceptance of the first five services.

3.2 Mobile Online Public Access Catalogue: Libraries are providing access to their OPACs via mobile optimized websites. The New York Public Library mobile beta site support a mobile OPAC and allows users to browse library locations and hours.(watch <http://m.nypl.org/>).

3.3 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 World Cat 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. (Watch <http://pubmedhn.nlm.nih.gov/>).

3.4 Mobile Applications: Some libraries have developed mobile applications for smart phones. The District Columbia public library 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.

3.5 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 users 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.

3.6 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 smart phones (watch://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 (watch://itunes.apple.com/app/dukemobile/id306796270?mt=8).

3.7 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.

3.8 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, emarketing, online marketing, online transaction processing, electronic data interchange, and automated inventory management systems.

3.9 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>).

3.10 Library Virtual: 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.

4. Mobile devices used in the library

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

We need some selected set of components to implement mobile technology in a library i.e Operating system, devices, users, services etc.

5. 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.

6. 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 mobile-optimized content including interactive library homepages, OPAC, virtual tours, and databases etc.
- Familiarity with internet/intranet services like using e-mail, SMS and spam preventing, etc.
- Develop expertise in protecting privacy and security levels.
- 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 web pages, and third party intermediary clients.
- Skills relating to training and user orientation to market these services to users.

7. Advantages

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

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

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

Access to Print-disabled Users Mobiles communications help providing services orally to vision-disabled and physically handicapped users

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

Personalized Service Personalized service helps users to interact with library staff to seek specific information or reference away from library

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.

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

8. Limitations

There are some limitation of implementation of mobile services and technologies in the libraries that are as follows:

- 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.

- 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.
- 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.
- 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.
- Problems in finding and accessing the content needed for mobile learners from the Library perspective.
- 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 learner's needs.
- Difficulty in supplying content to an increasingly mobile student body.
- The use of wireless devices is increasing rapidly, yet there is concern in the scientific community that this technology could have adverse side effects.
- The dearth of technological expertise among staff members and increasing staff reductions.

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 dependent 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.

8. Solutions

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

9. Future Potential

More and more changes are expected within some years in the field of mobile technology and its application to libraries. The technology is now available to use phones to read barcodes of RFIDs (radio frequency identifications) in the library, and OPACs are developing GIS (Geographical information systems) sensitive and the ability to communicate with users through their mobiles for reservations, fines, late notices, alerts, etc. Mobile web 2.00 and 3.0 applications for social networking for the library community are available, thus enabling discussions, blogs, wikis and other features beneficial for all library developments.

10. Conclusion

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.

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