

Mobile Library Services and Technologies: A Study

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ABSTRACT

Mobile landscape had broadened significantly and now libraries are also exploring and experimenting with this technology. The present paper discusses leading strategies that innovative libraries are using to deliver services through mobile devices. It also presents an overview of trends in mobile tools and their applications for libraries, including the internet mobile, mobile multimedia, and SMS / text messaging etc. and describes the various activities these devices support for library use, focusing how the libraries and librarians are responding with services tailored for these devices and what can be done by libraries in future in this respect. The study further explores the utilization of mobile phone services in the academic environment.

Keywords: Mobile Technology, Mobile Service, Electronic Resources, Mobile Library, M. Learning, Smart phones

1. INTRODUCTION

Mobile technology is developed for communication purpose. Since the past 7 years mobile phones have changed the way that we live and work. Mobile phones have gained importance in both the developed and developing countries. Mobile phones are gaining more popularity among the youth. Engineering students are

very interested in learning and using these technologies. They are accessing whatever information they required through mobile phones. Most of them are using to internet to check their e mails and all are attracting towards social networking sites and e resources through mobile web. Mobile phones are easy to carry and flexible this makes the students can use for quick reference and conducting an extensive research.

Mobile devices include laptops, net books, note book computers, cell phones, audio players such as M3 Players, cameras and other items. Almost every student in colleges has a mobile connected to the internet. Owning smart phones and accessing the internet through mobile is increasing in numbers. Mobile phones come with a variety of applications, which can support storing, receiving and easy access to file and use full information which students require in advancing their studies.

2. What is Mobile Technology?

Mobile technology in general is any technology of mobility such technology as in cars industry, notebooks, personal digital assistant, and, cellular phones. Mobile technology devices are a combination of hardware, operating systems, networking and software. Mobile technology used in a specific as the communications technology using unguided media transmission such as radio wave, infra-red and Bluetooth

so you can transfer any type of data with mobile technology such as voice, video texts, images etc.

3. Mobile Technology V/s Libraries

Mobile technology has now come up with “Libraries in hand” trend. Our librarians are in move to determine these devices are affecting information access and ensure that they are communicating with patrons and providing web content in the most appropriate and effective ways. Our librarians must be prepared to take this challenge to increase the market and demand for mobile access to personalized facts and information anytime, anywhere on ones one’s own handheld device. Since mobile handled devices are truly personal devices, search histories and physical locations can be harnessed to produce more accurate, individualized information and services. Users are don’t want to wait for list of web results, libraries today are covering most of the technologies given by mobile industry like PDAs, Blackberry, iPod, cell phones, UM PCs(Ultra Mobile PC) and mobilizing library contents in a portable from suitable for small screen and delivering short services in the form of contents/information which devices multiple searching features. Librarians will need to become proficient in using these devices to enable users to access them anywhere from anyplace.

As the information revolution continues to unfold, Libraries will experiment with mobile devices and services to support the information needs of their users wherever they maybe. The adoption of mobile technology alerts the traditional the relationships between libraries and their users and devices and introduces novel challenges to reader privacy. At the same time the proliferation of mobile devices and services raises to issues of access to information to the digital age, including content ownership and licensing, digital rights management, and accessibility.

Mobile devices today can run increasingly complex software, interact with cloud services, play rich multimedia content, and allow for advanced user interactivity. New hardware and technologies such as Bluetooth, accelerometers, and multi touch screens, as well as text messaging, smart phone software applications, mobile websites, global positioning systems(GPS), wi-fi, and media creation and capture tools, are all part of the mobile environment. Many of today’s mobile devices are increasingly “always on”, that is, by default meant to be connected to a wireless network.

4. Libraries Provide Expanded Services

Libraries can better serve their users by embracing the growing capabilities of mobile technology. They can promote and expand their existing services by offering mobile access to their websites and online public

access catalogues: by supplying on the go mobile reference services: and by providing mobile access to e books, journals, video, audio books, and multimedia content. Thus audio/video collections no longer are composed only of physical units to borrow, but increasingly are streamed on demand or downloaded, Circulating content in urban, suburban, and rural libraries across America. An American library association study in 2010 found that 66 percent of public libraries offered e books to their users (up from 55 percent the previous year). An estimated 83 percent of libraries offer online audio content and about 63 percent offer online video content.

5. The M-Learning Development in India

‘Libraries in hand’ is the latest slogan of the Indian libraries and mobile services in India are quite affordable. M Learning in India is at present still in it. The proliferation of mobile phones, PDAs and other mobile devices means that the platform has lot of potential in India, with over two million users being added every week and as per the Telecom Regulatory Authority of India, there were 910.16 million mobile phones and 938.34 telecom service (including landlines) Users in India at the end of May 2014, and excellent connectivity across regions. Major mobile manufactures such as Nokia, Sony Ericsson and Motorola in India have linked up with service providers like Airtel, Vodafone and others to provide mobile content, which also includes learning content. Companies that specialize in content aggregation provide the actual content, while mobile value added services providers develop the mobile technology and delivery.

The ISRO satellite centre have introduced mobile library services in the first phase to only senior scientists/engineers are allowed to use mobiles in the campus and the faculty and the students of Indian Institute of Space Technology (IIST). All information services hosted on ISAC library homepage accessible through intranet and space net can be straight away optimized to mobile based services,. Initially library’s alert services like information on new books for suggestion, books on display, arrival on indented document, reserved documents ready for collection, books overdue, library circulars, information about important events, etc, by allowing users to comment on the items in catalog and letting users to comment directly from their PDAs and mobile phones to library databases. QR codes can be introduced in ISAC library web OPAC, web pages and virtual materials to help users to capture, store, and retrieve the information about library services and resources.

Smt. Hansa Mehta Library (HML) the university library of MS University of Baroda, Gujarat been designed to

build M Library platform to develop an effective learning and teaching. As a result the library website has been recreated to ensure that it displays well on a variety of mobile devices. Students can access a wide range of digital resources and library services and truly engage in learning activities using any mobile devices wherever and whenever they choose, not just as their desktop PCs. Developments in MP3 format, pod costing and support for a third generation of smart phones puts Smt. HM Library at the leading edge of new and emerging trends in mobile learning and education.

6. Objectives of the Study

The main objectives of the study are

- * To study the use of internet through mobile phones among students
- * To find out the impact of mobile technology in the research workflow.
- * To know the various operating systems and network service providers used in mobile phones.
- * To identify the problems and difficulties faced by students while browsing the internet through mobile phones.
- * To extrapolate ways that libraries could support those mobile information needs.
- * To determine the type of mobile phones used and the purpose of using them.
- * To analyse the reading culture of students after the usage of mobile phones.
- * To know the frequency of reading through mobile phones.

7. Mobile Technology and Library Services: A Practical Approach

Libraries can provide a wide array of mobile services to interested users. While this range of communication capabilities has significance for libraries, especially in the provision of reference service, it is possible that it will actually be the use of smart phones For reading, watching, listening to and producing digital content that will have the most impact on libraries.

7.1. 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 PAC and allows users to browse library locations and hours (watch <http://m.nypl.org/>).

7.2. Mobile Databases

Pub Med for Handhelds is a mobile web portal for the national library of medicine (watch <http://pubmedhn.nlm.nih.gov/>).

7.3. 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).

7.4. 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.

7.5. 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 (watch <http://www.ecu.edu/csdhs/laupuslibrary/researchfirstaid.cfm>).

7.6. 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. (watch http://cpl.bibliocommons.com/search/t=smart&search_category=keyword@q=library+short+message+service)

7.7. SMS Reference

Some libraries are offering "text a librarian" services ideal for simple questions that can be answered with a brief response (watch <http://www.library.yale.edu/science/textmsg.html>) for more information visit M-Libraries, Library Success: A Best Practice Wiki (<http://libsucces.org/index.php/title=M-libraries>).

8. Mobile Devices Used In Libraries:

- * PDAs (Personal Digital Assistant)
- * Tablets
- * I Pods and MP3 players
- * Smart Phones
- * The design of mobile
- * Cell Phones

9. Components

- * The research tracking (how users currently engage with information on the World Wide Web via their mobile devices.)
- * The operating systems,
- * The content,
- * The devices
- * The users,
- * The services,

10. 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 net books 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-

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

11. Prerequisites for Implementing Mobile Based Library Services

The 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:

- * Electronic information service delivery
- * Information products designed for an e-platform

- * Digitized information base
- * Design of electronic access systems.
- * Library need to acquire the required hardware and software after market survey.
- * 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.
- * 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 must provide physical and virtual environment for using mobile devices and accessories.
- * It is prerequisite to optimize library OPAC, website, and databases for mobile devices and introduce new services wherever possible.
- * One needs to ensure that the customers having mobile phones of different network operators are in a position to avail the services.

12. Quick Response (QR) Codes on mobiles

QR Codes are two dimensional barcode which can be scanned by a cell phone camera prompting the cell phone to load a webpage or display text contained in the code. In order to make use of QR codes it requires

- * A cell phone with a camera, QR code reading software
- * Search for QR code readers by cell phone manufacture and model
- * Search QR code reader in the i Tunes store
- * Get the free QR App
- * Search QR code reader in the android market
- * Get the free barcode scanner

13. Future Potential of Mobile Applications in Libraries

More and more changes are expected within four to five 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. Some issues that

the library may wish to examine in hours are the libraries role in

- * Preserving new content types and formats.
- * Providing space for new equipment and works styles.
- * Licensing information products for mobile devices.
- * Providing instruction on the device themselves, not just access to content.
- * Hosting or pointing to institutional content intended for mobile devices, e.g. podcasts.

14. Mobile Web Sites

In addition to or in place of mobile applications, some companies and organizations also develop mobile versions of their website 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>
- * Medline plus mobile. Produced by the U.S. National Library of Medicine, Medline plus 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>.
- * World cat mobile. Search the world cat catalog for books, movies, music games and more. Results include items available at local libraries.

15. Advantages of Mobile Access for Academics

There are several benefits of providing access of libraries on mobile phones. Some important advantages are:

- * Time saving
- * It is a personalized service
- * It is user friendly
- * Limitless access
- * User Participation
- * Location Awareness
- * Ability to access information
- * Providing students with freedom of location and time
- * Students have access to campus information
- * Increasing space in teaching and learning
- * Enabling one to one learning based on individual educational histories or test results

- * Students develop their skills in managing time, keeping records, emailing, and group work.
- * PDAs provide easier and faster access to syllabi, assignment, reference works and other course related materials for students.
- * Students have direct communication with an instructor in class when scheduling appointments, turning in electronic assignments, and sharing information such as URLs, lecture outlines and academic requirements.
- * Allowing teachers to keep up the new educational subjects for future education.
- * Mobile makes your content ubiquitous.
- * Mobile is the way of the future.
- * Mobile diversities your audience.
- * Mobile enables you to connect to patrons via a new medium.
- * Its easier to access.
- * There are three times as many mobile phones in the world as personal computers.
- * Mobile enables you to offer new service types, i.e. location types.

16. Disadvantages of Mobile Technology

- * Insufficient contents
- * High price
- * Inconvenient input and output interface
- * Limited computational power
- * Compared to wired Internet service, has relatively slow transmission speed

17. Limitations

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

- * Digital rights management
- * Access to information in the digital age
- * Limited memory of mobile devices
- * Usually expensive and resource intensive
- * Content ownership and licensing
- * 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.

* Lack of appropriate mobile-friendly academic content to meet learners' needs.

* Problems in finding and accessing the content needed for mobile learners from the Library perspective.

* Difficulty in supplying content to an increasingly mobile student body

* 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.

* The use of wireless devices is increasing rapidly, yet there is concern in the scientific community that this technology could have adverse side effects.

* Increasing staff reductions and other cutbacks

* The dearth of technological expertise among staff members

* 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

* 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

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.

18. Solutions

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

* Support staff education,

* Explore partnerships

* New funding models,

* Build a solid foundation of knowledge about mobile services within the organization.

* Protect themselves from deceptive content agreements with third party providers.

* Ready to compromise when it comes to their traditional information delivery models.

* Host lectures or discussion groups or include such information in their websites, blogs, or newsletters.

* 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

* 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.

* Need the expert knowledge of mobile devices to flow through the profession and not just lie in the hands of recent library school graduates

“As technology advances emboldened librarians hold the key.”

19. Skills required to the library staff

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

* Skills relating to training and user orientation to market these services to users

* Skills for interacting with users via smart phone applications, mobile friendly web pages and third party intermediary clients

* Knowledge of hardware and software of mobile devices

* Develop expertise in protecting privacy and security levels as more personalized information is involved in using for library services.

* Familiarity with internet/intranet services like using e mail, SMS and spam preventing etc.

* Create/tailor mobile optimized content including interactive and participative library homepage, OPAC, virtual tours, and databases.

* Skills related to searching and navigating through mobile devices, mobile web applications like push e mail, etc.

20. Our Central Library (QIS College of Engineering & Technology, Autonomous)

From 5th August 2008, Our Central 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.

21. Conclusion

Mobile Technology has become a very important part of our lives nowadays. Mobile phones were developed primarily for communication purpose. Mobile phones have gained importance in both the developed and developing countries. The mobile phone is a device that enables users to communicate, connect, transact and innovate. Mobile devices and mobile technologies have potential to facilitate the teaching and learning process in a great way. Mobile applications can support learning by making library resources more omnipresent, by bringing new users to the library through increased accessibility to the library resources, and by creating a new way to enhance connections between patrons and libraries. This increased use of mobile phones provides an untapped resource for delivering library resources to patrons. The mobile web is the next step for libraries in providing universal access to resource and information.

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