

Use of Mobile Websites /Mobile Apps for enhancing Library Services: A Study

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ABSTRACT

The paper presents a brief note on mobile websites/ mobile apps in Libraries. It also reviews mobile websites, mobile website developers for libraries, types of mobile apps, mobile apps for library professionals, and library users' communities. The advantages of using mobile websites/ mobile apps were also discussed. It throws light on significant differentiations between mobile websites/mobile apps for adopting and implementing mobile technology in libraries. The application of mobile technology and providing mobile information services in libraries will enhance its services more and more to the users at the right time on their go.

KEYWORDS: Mobile technology, Library services, Mobile Information Services, Mobile Website, Mobile Apps, Indian Libraries.

1. INTRODUCTION

Today's world is heading toward a mobile revolution. In the current mobile revolution era, people use wireless handheld devices or mobile devices such as smartphones and tablets to meet their most basic needs. These devices have become an integral part of daily life. Mobile technologies have enabled users to communicate and share information faster and at the right time. Many libraries in Western countries have already implemented mobile technologies to carry out library operations through their mobile library apps and mobile websites. It is encouraging to see that the penetration of smartphones in India is increasing by leaps and bounds. "According to the India edition of Deloitte's 2022 Global TMT (Technology, Media, and Entertainment, Telecom), digital and mobile are the key enablers of the future of technology. India will have 1 billion smartphone users by 2026." It will be the second-largest smartphone manufacturer in the next five years implying that smartphones will reach every nook and corner of India and penetration will extend far beyond urban areas. As a developing country, India is also a forerunner of new technological advancements. With an increasing number of smartphones and smartphone web users, how libraries can exploit the applications of mobile technologies needs to be investigated, particularly in light of the millions of smartphone apps available in the market. This transformation will enable libraries to develop mobile technology plans, design mobile websites/apps, and market their traditional library services for best practices.

2. LITERATURE REVIEW

Kroski (2008), in a library technology report entitled "On the move with the mobile web: libraries and mobile technologies," briefed about the functionality of several university libraries' mobile websites and also suggests that different kinds of services can be made available through the library's mobile website. The services provided by the libraries must reach the needs of the library's users particularly. To serve a large number of undergraduate populations, the libraries may prefer reference assistance services, basic searching features, services related to the latest technologies, etc. Bridges, Rempel, and Griggs (2010) found practical statistics and resources for libraries that wish to mobilize their web site. It provides a valuable source of information for both libraries that want to create a proposal for a mobile library site and for libraries that want an overview of the current state of mobile use and technologies. Li (2013) also found that several academic libraries in China have m-tech based interfaces of their websites that aid remote users in searching through the library's scholarly databases for electronic information. In their study, Singh, D. K. & Singh, P. K. (2015) explained the importance and different aspects of mobile information services in academic libraries. The study found that Sayaji Rao Gaekwad Central Library of Banaras Hindu University has developed "BHU Library Mobile" site with so many efforts to provide value-added mobile information service to their user community at the maximum level. The investigators also discussed the problems faced by the Indian libraries for not implementing mobile information services: wifi unavailability, small screen, narrow bandwidth, limited storage capacity, etc. Ballard and Blaine (2012) described a full-service mobile phone application so that users could search the catalog, access the reserves module, renew books, and retrieve information such as library hours, library administration, library workshops, and programs. The study conducted by Nalluri and Gaddam (2016) explored the "Duke Mobile" app developed by Duke University library in North Carolina (USA). It is interesting to know that these "Duke Mobile" app aids off-campus and on-campus students in accessing the library resources like e-books, e- journals, and digitized videos/audio collections subscribed by the university library on their mobile devices. The application can easily be downloaded and installed on a user's mobile device, allowing them to access the library's collection and databases regardless of their physical location. Wani (2019) explored mobile applications (mobile Apps) and their uses in providing library and information services. The study focuses on the features of the mobile app and its benefits and limitations. It concludes that there is a need for a mobile library and a plan to provide accessible, fast, and suitable information for library users.

3. OBJECTIVES OF THE STUDY

- ✓ To find out the use of the mobile website/mobile app in Indian libraries
- ✓ To find out the differences between mobile website/mobile app
- ✓ To identify different types of mobile apps for libraries
- ✓ To examine the advantages derived from the use of mobile websites/mobile apps in libraries

4. MOBILE TECHNOLOGY IN LIBRARIES

Moreira, Fernando, Ferreira, Maria João et al. (2017), in their study entitled "Evolution and use of mobile devices in higher education: A case study in Portuguese Higher Education Institutions between 2009/2010 and 2014/2015," found out that the mobile devices are user-friendly, portable, adaptable and individuals can customize their usage to draw full benefits out of them. These are broad-spectrum computing devices with multi-core processors that come in handy to perform a variety of tasks. "According to Kim, Mims & Holmes (2006) is the technology that uses radio

frequency spectrum in any band to facilitate the transmission of text data, voice, video, or multimedia services to mobile devices with freedom of time and location limitation". Codina Vila, M., & Pérez Gálvez, A. et al. (2010) explored vital concerns relating to mobile services and the features offered by the Rector Gabriel Ferrate Library. Lee Ballard, T. and Blaine, A. (2013) state that the libraries are in our hands, and these mobile phones are influencing every sphere of human activity, crossing every limitation towards success.

Mobile Devices used in Libraries:

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

4.1 Mobile Websites /Mobile Apps for Library Services

By embracing the expanding capabilities of mobile technology, libraries may better serve their patrons. They can promote and expand their current offerings by providing mobile access to their websites, online public access catalogs, as well as on-the-go mobile reference services, e-books, journals, video, audiobooks, and multimedia content. Traditional Library services have moved to mobile information services with the adoption and implementation of mobile technology in libraries.

4.1.1 Differences between Mobile Website/Mobile App for Library Services

MOBILE WEBSITE / MOBILE APP

Responsive/Mobile Website	Mobile App
Mobile website appears the same on all types of devices.	It needs to be developed separately for each platform
It reaches every one covering all devices such as mobile phones, desktops, laptop	Accessed only on smartphones and tablet
The website has a limited offline functionality	The app works fine through offline mode
Regular maintenance and updating of the website are simple, flexible, and need less effort.	Regular updates will take longer, cost more, and require app market clearance.
The website has limited convenience due to screen size, and it cannot keep all the information on one page.	App gives better knowledge in regular use, loads content faster, and has push notifications.
For personalizing settings, it has an average opportunities	App has more comprehensive options for personalization
Maintained as per the host admin	Maintained in App stores or Play stores
Developed using any technology based on the customer's requirement	Developed using native apps or any cross platforms

4.2 Mobile Website

A Mobile website is an essential component of mobile-based library services. It is a shorter version of a big website designed and optimized for viewing on mobile devices. Even it can be hosted on its own sub-domain. In general, the primary purpose of a mobile website is to make the content, or at least a subset of the content, available to the users. Mobile websites complement the existing traditional library website, which helps extend the resources and information to users through their mobile devices.

Responsive website: A responsive website is the one that responds to and adjusts itself to a different size of a device screen on which the website is viewed. It has a single website that can be maintained easily.

Mobile website: The mobile site offers all library services, regardless of the platform a patron uses, in a manner that is easy to navigate and intuitive to use. Mobile websites will give limited convenience due to screen size, and they cannot keep all the information on one page. Similarly, it also loads fast and quickly on mobile platforms.

4.2.1 Mobile Website Developers for Libraries

Libraries can build their own dedicated, fully functioning websites with mobile interfaces using techniques such as CSS (Cascading Style Sheets) or ADR (Auto-Detect and Reformat Software). The software enables an internet site to set up its management and resolution to fit the screen size.

Several sole websites offer to form library websites with a mobile interface.

(1) JQ Touch: It helps create websites for iPhone users in the library context with an enclosed coding Tutorial. Several websites provide style and ways to develop apps compatible with various Operating Systems like iOS, Android, HTML, and OS X.

Access: <https://www.developer.com/mobile/jqtouch-mobile-web-development-with-a-shallow-learning-curve/>

(2) Mobisite Galore: It helps to create a mobile website within an hour. No technical or programming language is needed.

Access: <http://mobisitegalore.com/>

(3) Mobirise: "Mobirise is a free offline downloadable app for Windows, Mac, and Linux to easily create small/medium websites, landing pages, and simple web stores. Mobirise is perfect for non-techies who are not familiar with the intricacies of web design and prefer to be a part of the no-code revolution. Minimalistic, extremely easy-to-use interface; Mobile/Google-friendly; You own your website - host anywhere; Free for commercial use".

Access: <https://mobirise.com/>

(4) W3C Mobile OK Checker: It helps to check mobile optimized websites in compliance with current Web Standards. The report specifies a degree of danger, type, and explanation of the error, along with the best ways for fixing mistakes and issues.

Access: <https://dev.w3.org/2008/mobileok-webui/>

Examples: The Library system of the **Banaras Hindu University (BHU)** is the most extensive University Library System in the country, which provides the majority of the mobile information services through the "BHU Library Mobile" site, viz. "About us, General Information, History, Chronology, Contacts, OPAC, Member Account Status, E-resource availability, Portal for Hindi/ Sanskrit web resources, Mahamana Digital Library, Online Databases,

Full-text Journals, Online E-books, Useful Links, BHU Library 2.0 services e. g. Google Maps, Wiki And Library Blog, etc."

Access: https://www.bhu.ac.in/lib/bhulibweb/bhulibmobile/m.bhulibrary_listview.html

4.3 APPLICATION (APP)/MOBILE APP

The app is a shorter form of application or software used on mobile devices. Smartphones, tablets, etc., offer multiple applications to users with touch screens. Different app tools are required for different phones, like the Apple smartphone app developed using C programming language and the android phone app developed by Java programming language. Some of the apps are free, and some are chargeable.

Types of Mobile 'App'

There are three types of 'app' Native, Web, and Hybrid.

1. Native App

The native application is an app that is downloadable, installed, and can be run directly from the phone/device. These apps are explicitly written and developed for a specific mobile device's operating system, such as iOS, Android, Windows OS, etc. They are always in their specific coding language like Objective-C, Java, etc.

2. Mobile Web App

Mobile Web Applications are apps that cannot be downloadable from traditional app stores such as the Apple App Store or the Android Market. A mobile web application is also known as a Web app and is not a real application; they are websites that, in many ways, look and feel like native applications but are not implemented as such. Web app refers to mobile versions of websites.

3. Hybrid App

A Hybrid application is essentially developed using "open web" technologies and then packaged into a fully native application. A hybrid web app is an application that is neither a mobile web app nor a native app. Hybrid apps are a way to expose content from existing Web sites in app format. A hybrid application is a mix of native and Web technologies that are leveraged to deliver a combination of Web content and native capabilities.

Library mobile apps provide access to a Library e-resource list, OPAC, information about a library, news email, social networking sites, newspapers, etc.

4.3.1 Mobile Apps Developers for libraries

Some of the companies which create/develop Mobile Apps for the library are as follows :

a) **Android Developers.** Resources for creating Android applications. It includes a developer's guide, tutorials, and videos.

Access: <http://developer.android.com/>

b) **Appsbar:** is a free mobile app builder

Access: <http://www.appsbar.com/>

c) **Appy Pie:** Appy Pie's No-code App Builder lets you build your own Android, iPhone, or PWA App and put it on the app stores without coding or programming skills. You can build your App with App Builder Appy Pie with simple drag and drop steps.

Access: <https://www.appypie.com/>

f) **MobileTuts+.** Tutorials for all mobile developers, regardless of platform. Topics include techniques for building mobile apps and mobile Websites.

Access: <http://mobile.tutsplus.com/>

5. TYPES OF MOBILE APPS FOR LIBRARY SERVICES

5.1 Solus Library App

SOLUS is a software development company that provides highly functional and scalable mobile applications for libraries—specializing in public libraries. Access your local library from your Android phone or tablet. Manage your account, search the catalog, renew and reserve books.

Access: <https://wp.sol.us/>

5.2 Library Anywhere

Created and sold through LibraryThing, Library Anywhere is a mobile catalog for any library. This library application developed by library Thing permits users to view data through devices running on a different platform. It helps show catalogues, change hours, remind of approaching library events, place a hold, and reserve things. The app itself is on the market for download without charge. Library anywhere collaborates with collaborating libraries. It includes mobile Web and apps for iPhone, Blackberry, and Android.

Access: <https://www.libanywhere.com/>

5.3 Ex Libris Library Mobile App

The Library Mobile app, powered by Ex Libris campusM, enables university libraries to deploy a consolidated modern experience, integrated with crucial library systems and delivered through native apps. The platform provides Search, My Account, Favorites functionality, Automated and scheduled push notifications (replacing outdated SMS services), Information pages, guides, maps, and more for library patrons.

Access: <https://exlibrisgroup.com/products/library-mobile/#>

5.4 MyLibrary app (Catalog and Events etc.)

With the MyLibrary mobile App from your phone or tablet, patrons can search the library catalog, change their library account information, place holds, and more. It is also used as your library card.

Access: <https://apps.apple.com/us/app/mylibrary/id1029117600>

5.5 Overdrive app (e-books and audio books)

This free app offers access to over 18,000 libraries worldwide and allows a valid card to check out audiobooks, ebooks, and streaming videos. You ought to have a valid account with a collaborating library. Titles are mechanically returned, and thus no late fees. Every library builds its assortment of titles; therefore, you only have to inform them that you are simply using overdrive.

Access: <https://www.overdrive.com/apps>

5.6 CapiraMobile app (Alert Service)

The app connects your library to the users you want to reach, providing a virtual extension of the tremendous on-site service you already offer. This customizable app lets users engage with your library and conveniently learn about events, services, and resources through their phones. You can send notifications about new programs and promotions, let them search your catalog, and support self-checkout and digital library cards.

Access: <https://www.oclc.org/en/capira/capiramobile.html>

5.7 Trello app (Alert service)

It allows users to create cards with different tasks and organize them into various lists on their boards. The cards can include due dates and notes, and users can attach documents, photos, and videos. Tasks can be assigned to different collaborators, and users can set up email notifications and reminders.

Access: <https://trello.com>

5.8 Catch App (Create Notes)

It offers free and paid apps for Apple iOS and Android mobile devices. The apps allow users to create notes (via text, voice, or video) and save them to 'spaces'.

Access: <https://catch.com>

5.9 AirPac (Innovative Interfaces) (catalog and location)

It offers a mobile version of the Innovative Interfaces (III) library catalogue. It includes cover images, integrated library locations with Google Maps software, request and renew items, and more.

Access: <https://www.iii.com/products/airpac.shtml>

5.10 Ever Note App (Reference)

Ever Note allows users to save more than just notes; they can also save complete web pages or portions of pages by clipping them. Users can take photos with their mobile device's built-in cameras or record with their mobiles' microphones and save those files in their EverNote app. EverNote allows users to collaborate with others by sharing their notes.

Access: <http://evernote.com>

5.11 Mendeley app (Reference)

Mendeley, a powerful reference manager and research collaboration platform is now available on Android. With Mendeley on your Android device, you can: Read and annotate PDFs. Sync annotations and documents across all your devices. Save PDFs to your Mendeley library from other apps or your web browser.

Access: <https://blog.mendeley.com/category/mobile-2/>

5.12 EasyBib App (Reference)

EasyBib is a free mobile app available for Apple iOS and Android mobile devices, and it allows users to create bibliographies using MLA, APA, and Chicago-style citation formats. Users can scan a book's barcode with their mobile device's built-in camera to add the book's citation information to their works-cited list.

Access: www.easybib.com

5.13 SciencDirect app (e-Journals)

The Science Direct mobile phone app for Apple and Android devices allows users to search across the complete content on the platform, retrieve and read full-text articles, and personalize their reading experience (bookmark articles of interest, forward for later use in research, share articles, etc.)

Access: <https://apps.apple.com/us/app/sciverse-sciencedirect/id383622545>

5.14 ArticleSearch app (e-Journals)

Article Search is a free mobile app designed for Apple iOS devices. It allows users to search for scholarly articles and other academic publications. Users can perform basic or advanced searches, read abstracts, and even get the full text of articles. It also allows the opportunities to save and share articles as desired.

Access: <https://itunes.apple.com/us/app/articlesearch/id401914624?mt=8>

5.15 ACS Journals app (e-Journals)

ACS Mobile provides readers with a searchable, multi-journal, up-to-the-minute live stream of new peer-reviewed research content (Articles ASAP) published across the Society's preeminent portfolio of scholarly research journals, including the flagship Journal of the American Chemical Society.

Access: <https://apps.apple.com/us/app/acs-mobile/id355382930>

5.16 NGL Library Mobile App (Library management software app)

NGL Library App supports only Android phones for those using NGL Library Software. Through this app library, users can search and retrieve the library holdings of a particular library, know the new arrivals added to their library, and check their account status.

Access: <https://m.apkpure.com/carbon/org.newgenlib.carbon>

6. INDIAN POPULAR MOBILE APPS

6.1 NPTEL Swayam (Learning)

The National Programme on Technology Enhanced Learning (NPTEL) is a project initiated and handled by seven Indian Institute of Technology Currently, more than 940 courses are available on the web portal <http://nptel.ac.in> for viewing and downloading.

Access: https://play.google.com/store/apps/details?id=in.gov.swayam.app&hl=en_IN&gl=US

6.2 National Digital Library of India app (Digital repository)

MHRD, below its National Mission on Education through ICT, has initiated this Trial project to establish a network of virtual repositories of e-resources for gaining knowledge accessible through one unique source. Refined and linked results obtained that enables quick searching with less difficulty. NDL India aims to support education for all levels, be it formal or non-formal or specially-able learners from all fields and in different languages. It ensures access to library resources from various devices. It facilitates researchers to perform mutually related study and survey from more than one source.

Access: <https://m.apkpure.com/national-digital-library-of-india/com.mhrd.ndl>

6.3 NITI Aayog e-Library mobile app

NITI Aayog eLibrary mobile app brings the entire NITI Aayog Library collection and a massive collection of open access knowledge to your fingertips.

Access: <https://apkcombo.com/niti-aayog-elibrary/com.elib.nitiaayog/>

6.4 ePathshala

The digital India campaign has promoted the extensive use of ICTs in teaching-learning. The ePathshala, a joint initiative of Ministry of Education(MoE), Govt. of India, and National Council of Educational Research and Training (NCERT), has been developed for showcasing and disseminating all educational e-resources, including textbooks, audio, video, periodicals, and a variety of other digital resources. The ePathshala Mobile app is designed to achieve SDG Goal no. 4, i.e. equitable, quality, inclusive education and lifelong learning for all and bridging the digital divide.

Access: https://play.google.com/store/apps/details?id=in.gov.epathshala&hl=en_IN&gl=US

Examples of Indian Libraries that are providing mobile-based library service through mobile apps

1. Indian Institute of Science Education and Research (IISER) Bhopal Central Library is a unique place inside the IISER Campus with its rich collection of Books and journals in the field of basic Sciences and related areas. IISER Bhopal Library Mobile App exclusively provides mobile-based library services like searching for books online, Library catalogue, Issued books, access to subscribed e-book/ e-journals/ major Full-text e-databases, bibliographic e-databases, DOAJ e-journals contents, various LIS services, List of Ph.D. Thesis, Inter-Library Loan, Document Delivery Service, etc.

Access: https://play.google.com/store/apps/details?id=android1.example1.com.libraryapp&hl=en_IN&gl=US

2. IIT Delhi Library system is the first mover of the latest and emerging technologies. Through the library, mobile app users can search e-Books, e-Journals, subscribed e-Resources, Databases, Library catalogs, in-house repositories, etc.

Access: <https://play.google.com/store/apps/details?id=com.iitd.cl>

3. The library at IIT Gandhinagar allows you to access the wide range of services and books offered by IIT Gandhinagar's Library. With an interactive interface, the library app will enable you to 1) Browse all available books in the library 2) Check book availability 3) Read reviews and ratings for the book 4) Share books with friends 5) Save books in lists 6) Access recommended course readings directly from within the App 7) Get weekly articles delivered directly to your phone

Access: https://play.google.com/store/apps/details?id=com.iitgn.libraryapp&hl=en_IN&gl=US

4. Vikram Sarabhai Library App provides links to various library resources and services. A new feature, "Knowledge@IIMA," provides links to faculty directory, research papers of IIMA (sourced from Scopus), doctoral thesis, access to subscribed e-book/ e-journals/ major Full-text e-databases, bibliographic e-databases Quick links @VSL, Mobile reference service, Article/Book request service, new book arrivals, library guides, etc.

Access: https://play.google.com/store/apps/details?id=library.iima.vslapp&hl=en_IN&gl=US

5. **LSearch** is an App providing access to Visva-Bharati library OPAC on the fly. The app directly connects the device to the library server for real-time information retrieval. The smartly designed interface gives a joyful library experience. LSearch App on the mobile device provides a quick, efficient, portable, and friendly way of remaining connected with the Visva-Bharati library. L-search mobile app is to be downloaded from Google Play Store and is available for searching VisvaBharati library OPAC.

7. ADVANTAGES OF USING MOBILE WEBSITE/MOBILE APPS FOR LIBRARY SERVICES

- *Access to library catalog (M-OPAC)*
- Access to patron accounts
- Library Timings
- Librarian Contact
- Library maps
- Ask a Librarian
- Links to mobile-friendly websites and resources
- Apps are becoming a primary reference tool for library users looking for research-related information as well as for coursework information
- Information on how to contact the library via multiple channels (chat/SMS/phone/e-mail)
- Links to mobile-enabled databases
- Links to mobile-enabled Web 2.0 accounts, such as Twitter, Flickr, YouTube, and Facebook
- Information on the availability of computers and group discussion rooms
- News about library events

CONCLUSION

As it is known that mobile technology is creating a boom in the current society with anytime, anywhere access to the required information by the user. Libraries in other countries already provide these mobile information services to their users. India, being a developing country and libraries are the forerunners of the technology, must keep pace with the other developed countries in providing mobile-based library services to their users. However, it is still in the early stages of development. It is emphasized that the library professionals should take it as a challenge to acquire skills related to mobile technology and use these mobile websites/mobile apps, which are available for library professionals and library users to extend the library services effectively and efficiently. The management of institutions/organizations must financially and technically encourage and support library professionals in these new advancements.

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