Application and Use of Mobile Technology in Library Services

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Abstract

The study discusses the application and use of mobile technologies in library services, citing the changing paradigm in information centres; it describes the provision of expanded services to users by embracing the growing capabilities of mobile technology. It highlights the library mobile initiatives to includes: suggest a purchase, location of the library, mobile library websites and MOPACs etc. It also identified library SMS notifications, SMS references, mobile library consultation and others for effective library mobile services. It concludes that mobile phones are inevitable tools for information communication; human beings in a society use mobile phone to communicate thoughts, facts, conversations, in general information is a common factor in a civilizes society.

Keywords: Mobile technology, changing paradigm, library mobile initiatives, mobile database,

1.1 Introduction

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 may be. The adoption of mobile technology has changed the traditional relationships between libraries and their users. Mobile technology is altering and extending the ways we communicate, conduct business, teach, learn, entertain ourselves, and make consumer decisions effective. Mobile Technology is bringing the Internet into our daily lives, enabling the retrieval and broadcast of information from anywhere at any time. Through mobile connectivity, information is becoming intertwined with our lives more profoundly than is the case when we sit down at a desktop or even with a laptop computer with the shift to mobile connectivity, the following estimates have been made in line with the view of Podcasting (2015):

▸ It was estimated that the world had 6.5 billion mobile users by the end of 2012.
▸ It was estimated that the world had 1.75 billion smartphone mobile users as at 2014.
▸ Nigeria has 102.37 million mobile users as at 31st May, 2012 (mobiThinking, 2013).
▸ Mobile Internet users in Nigeria was expected to hit 165 million as at March 2015, up from the previous 87 million mobile surfers
▸ In this scenario the mobile phones are playing a vital role in information communication.
▸ Application of mobile technology in library services is the need of the hour. Interaction with the user community can be achieved due to the advancement in mobile technology.

2.1 Review of Related Literature

2.2 Changing Paradigm

Research suggests that in February, 2015 there were nearly 192 million wireless mobile data subscribers in use in Nigeria. Adoption rates for mobile technology dwarf those for non-mobile technologies; for example, there are eight times more iPhone/iPod Touch users 2 years after their launch than there were AOL users 2 years after its launch, (Mahmood, 2008, Hanson, 2011, Haq and Ahmed 2012). While Mobi-Think (2015) ascertained that at the mid-year of 2014, there were about 4.6 billion mobile cellular subscriptions worldwide, representing two-thirds of the world population. Mobile industry analysts suggested that worldwide mobile data traffic would have doubled every year through 2015, increasing 66 times between 2009 and 2015.Therefore, 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, smartphone software applications, mobile websites, global positioning systems (GPS), Wi-Fi, and media creation and capture tools, are all part of the mobile environment (Perton, 2005, Peacock, Walton and Booth, 2008).

Many of today's mobile devices are increasingly "always on," that is, by default meant to be connected to a wireless network. There are few places where users are truly disconnected from wireless networks. Even air travel, the last refuge for non-connectedness is beginning to see the use of Wi-Fi in flight. Thus, mobile devices can send and receive information nearly anywhere at any time. One result is a shift in traditional notions of anonymity and privacy. Whereas telephone conversations outside the home or office were once held in the relative privacy of a phone booth, the ubiquity of mobile technology has made us generally more comfortable with living at least this portion of our lives in public.

2.3 Application of Mobile Technology (Phone) in Daily Lives

Mobile technology is seeing an increasingly wide range of uses in our daily lives. It is increasing access to timely medical information during an emergency; providing immediate information on product reviews and pricing; facilitating the sharing of information in a crisis or natural disaster; and even enabling citizens to report traffic problems, potholes, or downed power lines to community officials in real time. No wonder Telecom Regulatory Authority of India (2012) said Mobile devices make our lives more convenient by providing access to useful information such as weather forecasts, flight schedules, bank accounts, and grocery lists. They make commutes or other downtime enjoyable by providing on-the-go access to entertainment, such as e-books, games, podcasts, and streaming video. They keep us connected with family, friends, and co-workers through e-mail, text messaging, and access to social networking applications. In addition, they expand capabilities for teaching and learning, providing access to rich multimedia resources and student-centered mobile applications

2.4 Implication for Libraries: Provision of Expanded Services to Users

Libraries can better serve their users by embracing the growing capabilities of mobile technology (Phones). They can promote and expand their existing services by offering mobile access to their websites and online public access catalogs; by supplying on-the-go mobile reference services; and by providing mobile access to e-books, journals, video, audio books, and multimedia content. In the study of Hakoyama and Hakoyama

(2011) revealed the study carried out by the American Library Association in 2010 which found out that 66 percent of public libraries offered e-books to their users (up from 55 percent the previous year). An estimated 88 percent of libraries offer online audio content and about 65 percent offer online video 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 the globe.

Therefore, Mobile devices and services provide tremendous flexibility for those who wish to take advantage of library services. With a simple 3G connection, a user lying on a beach can access e-books and multimedia content via his or her local library. If a Smartphone can always access a network, content can be continually streamed to the device over the network, providing content on demand and making it unnecessary to maintain a local copy of the material. By going mobile, then, a library takes a giant step toward becoming a round-the-clock service. The mobile environment can also offer new venues for teaching digital literacy skills to youth as well as adults, and aid libraries in their outreach as consumer educators and e-government access portals. Through the continued adoption of mobile technology, library services can potentially engage traditionally underserved groups as well.

According to *Lori Barile (2011),*the International Telecommunication Union (ITU) estimated that more than 5 billion mobile subscriptions would exist worldwide by the end of 2010, which more than tripled home Internet access, while it also predicts that Web access from mobile devices will exceed access from desktop computers within the next five years. These statistics are hardly surprising; with advancements in technology and the rise in Smartphone use, people are taking advantage of being connected to data

wherever they are. Mobile phones are not just phones anymore: they can access e-mail, search the Web, video chat, and play games. Even mobile devices like iPad and iPod touch can bring social media, productivity tools, and entertainment literally into the palm of your hand.

Therefore, libraries should be exploring mobile devices as a way to connect with patrons. Creating a library application ("app") or mobile Web site that allows patrons to access library's view their library account or even search databases is easier than most people think. The resources below should help libraries begin to plan and implement their own unique mobile presence. Resources were chosen based on relevancy, accuracy, and content. Due to current economic considerations, free mobile applications were chosen over similar a paid application which was in line with the view of Hindu, 2013.

3.1 Library Mobile Initiatives

Libraries are mastering the mobile Web to bring patrons a new set of services – services that their users are coming to expect from their communities and content providers. They are leveraging the technology that their patrons are currently using, such as cell phones and iPods, to deliver robust new services without making users leave their comfort zones. These portable offerings are serving to integrate library services with patrons' daily lives.

Suggest a purchase
Librarian can receive the suggestions from the users sent via mobile phones. In such cases users need not to visit the libraries and write the requirements in a register.

Location of the library
Users might be provided with virtual tours of the library sections and their services. For instance, Library of Congress provides an application prepared for the iPhone users

which gives a virtual tour of Library of Congress that mirrors the main reading room, the great hall, the bible collection etc.

Mobile Library Websites and Mobile OPACs.

In the discussion of Galvin and Sun (2011), it was discovered that a growing number of libraries are creating mobile versions of their websites for their patrons to access on the go. They are offering information about library services and collections, providing access to library catalog search, portable exhibit information, subject guides, e-journals, and library hours, all formatted for the small screen. It will also interest one from our personal findings that Babs Fafunwa Library at the Adeyemi College of Education, Ondo has established a mobile Web presence through Koha ILS, which offers library patrons a catalog search, journal search, information about library collections and quick links to mobile reference websites pertaining to news, search, sports, and finance.

Mobile Collections

Libraries are offering their patrons digital media collections to enable them benefit from library services remotely.

Mobile Library Instruction

Library users, who do not have the time or inclination to attend an on-site workshop, can still get the most out of the library resources by accessing classes and tutorials on their mobile devices. Libraries have begun distributing their knowledge and expertise with library systems and materials via MP3 and video files, which patrons can take with them.

Mobile Databases

It is not only libraries that have seen the writing on the wall with regard to the mobile Web, but academic software and database providers have started taking portability to heart, (Rebello, 2010).

Mobile Audio Tours

Libraries are making guided tours more convenient for patrons with busy schedules by offering self-service audio tours available for handheld devices. Rather than asking patrons to schedule an appointment in advance, or learn to utilize a new technology, these new audio tours make the most of patrons' MP3 players and cell phones to impart information. Another way libraries are offering mobile tours of their collections, services, and buildings is through the Guide by Cell service. This unique service enables library visitors to dial into a toll-free number on their cell phones to access a guided tour of the library. Patrons are able to specify particular items they are interested in learning about, approach the excursion at their own pace, and leave comments and feedback for the library. For example, University of Limerick library, Ireland provides audio guidelines to the library users (M-Libraries, 2012).

Library SMS Notifications

According to Stephen (2007), Text message alerts offer busy mobile owners quick news announcements, reminders about important events, or provide requested information. Libraries are beginning to offer these speedy advisories as an added service to patrons. The Babs Fafunwa Library at the Adeyemi College of Education, Ondo is offering students the opportunity to be notified by text messaging when reference librarian is available to provide in-depth reference assistance. The Library also offers SMS notifications to students, which inform them on when their items are due back, remind them about overdue items, and advise them of fines incurred. Library SMS notifications or starting of SMS from libraries can be achieved in the following possible ways as suggested by Kumar & Chitra, (2008):

- Few Library automation software provide option to send SMS alerts for reserved items, due items to users. For example, Koha

- Plug-ins integrated with library email system to enable Email to SMS messaging.

- Outsourcing the contract to a vendor to send alert services.

MS Reference

Reference services at libraries today are becoming increasingly virtual as more and more researchers are working remotely. Technologies such as instant-messaging, email, and now SMS text messaging are making it easy for libraries to maintain relevance as iformation hubs by offering convenient services to busy users. New ask-a-librarian services are offering mobile patrons the ability to text in their research questions from afar. Babs Fafunwa Library System has established an on-line reference service in hich library patrons can submit their reference questions by texting them in to librarians, or by utilizing one of their special keywords in order to receive instant results.(Megan, 2006Library Mobile Resources and Reports, 2008).

Mobile Library Circulation

Not all new mobile tools involve direct patron interaction, some can be used behind-the-scenes to offer improved library services. In Kumar and Reports (2008), they explained that for libraries that have embraced Koha ILS, there is a provision for wireless solution, which enables staff to assist patrons in the stacks, check out materials while off-site and update inventory items while walking around the library. This was supported by Geary (2008) that Libraries are already offering amazing services with the mobile Web. In this one can imagine where we will be in a year or two as mobile Internet adoption continues to increase and portable devices steadily improve, then the library system will be enabled to answer questions like

- What if library patrons could check out their own books and media items? This might become possible with mass adoption of 2D barcode readers similar to the ones available today in conjunction with virtual wallet capabilities.
- What if mobile phone owners could turn on their phones and click on a library icon which offered them shortcuts to desired library content such as e-books and audio-books without ever having to open a Web browser? This is already possible today with the proper programming.
- What if a student could click on a cell phone icon, which would initiate a video conference with a research librarian? With powerful services such as Skype Mobile, this may soon be a reality.

New Title Preview– Mobile gadgets can be used to disseminate the information about newly acquired documents which are of relevance irrespective of forms.

Image Services– The Image Services in a library might offer a number of high quality, fee based photographic and document imaging services including digitized photographs, diagrams, maps, photos of places of national importance

Research consultation and instruction– It is a kind of customer care service. Research scholars may have an interaction with the library staff to get the needed consultations on research and get suggestions via mobile phones.

Wi-fi - Internet Access– Mobile phones are

available with 3G facility and Libraries can offer Wi-Fi facility to access electronic information sources.

Catalogue search– Users can search for items using a mobile phone and mobile friendly version of the catalogue. Library catalogue has been designed to be responsive. This means that it should work well on a range of mobile devices including smart phones and tablets.

Library catalogue– Libraries can provide their catalogue on the mobile devices. University of Cambridge has made a provision to search the library catalogue from the mobile device. The service can be viewed by accessing the URL - http://www.lib.cam. ac.uk/mob/#menu.

Journal finder – Library Journal Finder provides access to full text journal, magazine, and newspaper content as well as links to titles held in print. For instance, American University library has provided options to search journals through mobile phones. The URL for this service is http://www.library. american.edu/mobile/get_article.html.

News and Events– Information on job openings, varieties of scholarly competitions, library events such as orientations program, stock verification, book recall, lectures on special topic, news in relation to scholarly work, awards and so on can be given using mobile devices in order to update the user's knowledge.

Short messages regarding the library events and news can be sent to the users personally.

3.2 Pre-requisites to application of mobile service in libraries
- *Mobile websites*
- *Bulk SMS software*–Bulk SMS have

revolutionized the mass communication through mobile phones. Masses can be reached within 10 seconds with the bulk SMS. SMSChilly, MySMSmantra, Solutionsinfini, boomadcom, mvaayoo and many are some of the bulk SMS service providers available.
- *Bulk MMS software*– Bulk MMS software allows you to send pictures, sounds clips, video clips and around 5,000 characters of text.
- *Wi-fi for mobile phones* – Secured wi-fi network should be established in the campus. The control of the same can be handed over to the skilled library staff. Library users can get MAC address (Media Access Control Address) to access the Wi-Fi of the campus, which acts as a unique identifier assigned to a network interface (Arriaga, 2008; Zulkefly and Baharudin, 2009).

Conclusion

Mobile phones are inevitable tools for information communication. Human beings in a society use mobile phone to communicate thoughts, facts, conversations, in general, information. The dissemination of processed information is a common factor in a civilized society. Several organizations such as libraries and other documentations centers are involved in this process.

Libraries especially use several tools and techniques to circulate the information to the user community. At the same time, libraries should be advertised. For this purpose the use of technology is very essential. Mobile technology has become a boon to the libraries. A library may reach the remote users effectively by adopting mobile technology in its services.

References

Arriaga, A. (2008) "Denton public libraries offer text message notifications", North Texas Daily.Available at http://media.www. ntdaily.com. Retrieved on 2/10/14.

Galvin, D. and Sun, M. (2011). Using Web Services for a Mobile OPAC. *Code{4}lib Journal*, 13,Available at http://journal. code4lib.org. Retrieved on 3/11/2015

Geary, M. (2008). Supporting Cell phone use in the Classroom. *Florida Educational Leadership, Fall,* Available at http://www. homepages. edu. Retrieved 16/6/2015.

Hakoama, M. & Hakoyama, S. (2011). The Impact of Cell Phone use on Social Networking and Development among college students. *AABSS Journal, 15*, Available at http://aabess.org/journal. Retrieved on 15/01/2016.

Hanson, W. C. (2011). Libraries and Mobile Services. *American Libraries Magazine,* Available at http://american librariesmagazine.org/columns. Retrieved on 10/03/2016.

Haq I, Ahmed P (2012). Knowledge Economy from the Pakistani Perspective. Library Philosophy and Practice. [On Line] Available at http://unllib.unl.edu/LPP /haq-ahmad.htm. Retrieved on 2/11/15.

Hindu, T. (2013). *Internet mobile users set to double to 165 m by 2015*. Available at http://www.thehindu.com. Retrieved on 2/1/ 2016.

ITU. (2004). *Mobile Phones and Youth: A look at the US Student Market.* Available at http://www.itu.int/osg/spu/ni/futuremo bile. Retrieved on 10/6/2015.

Mahmood, K. (1998). Information Technology and Library Education in Pakistan: Recent Developments in the Curriculum. *Educ. Inform*.15:197-205.

Kumar, V. & Chithra, S. (2008). Innovative use of SMS Technology for the excellence in library services of Kerala. In *IASLIC 23rd National Seminar on Library Profession in Search of a New Paradigm*, Bose Institute, Kolakata, 10-13, Available at http://eprints.rclis.org. Retrieved on 5/2/2016.

Library Mobile Resources & Reports (2008). "100 Ways to Use Your iPod to Learn and Study Better", Available at http://oedb.org/library/beginning-online-learning. Retrieved on 2/10/14.

Megan. G. (2006)."Mobile Phone Audio Tours" The Handheld Librarian, http://handheldlib.blogspot.com. Retrieved on 2/10/14.

MobiThink. (2013). *Mobile subscribers Worldwide.* Available at http://mobith inking.com.Retrieved on2/1/16.

M-Libraries (2012). Library Success: A Best Practices Available at http://lib success.org. Retrieved on2/10/14.

Peacock, D., Walton, G. & Booth, A. (2008). *The Role of LIS in Supporting Learning*. Available at www.facetpu blishing.co.uk.Retrieved on 15/1/2016.

Perton, M. (2005). "Public Library Lends out Book-Filled iPod Shuffles", Available at http://www.engadget.com. Retrieved on 2/10/14.

Podcasting (2012). Library Success, Available at http://www.libsuccess.org. Retrieved on 2/10/14.

Rebello, J. (2010). *Global wireless subscriptions reach 5 billion*. Available at http://www.isuppli.com. Retrieved on 2/1/16.

Stephen, M. (2007). Can you text the library. Available at http://www.tech source.ala.org. Retrieved on 2/10/14.

Telecom Regulatory Authority of India. (2012). *Highlights on Telecom Subscription Data*. Available at http://www.trai.gov.in. Retrieved on 3/1/16.

Zulkefly, N.S.& Baharudin, R. (2009). Mobile Phone use Amongst Students in a University in Malaysia: Its Correlates and Relationship to Psychological Health. *European Journal of Scientific Research*, 37(2), Available at http://www.eurojournals.com. Retrieved on1/1/16.