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John Paul Anbu & Sanjay Kataria

To cite this article: John Paul Anbu & Sanjay Kataria (2016) Reference on the Go: A Model for Mobile Reference Services in Libraries, The Reference Librarian, 57:3, 235-241, DOI: 10.1080/02763877.2015.1132181

To link to this article: http://dx.doi.org/10.1080/02763877.2015.1132181

Published online: 23 Feb 2016.

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Reference on the Go: A Model for Mobile Reference Services in Libraries

John Paul Anbu\textsuperscript{a} and Sanjay Kataria\textsuperscript{b}

\textsuperscript{a}Library, University of Swaziland, Kwaluseni, Swaziland; \textsuperscript{b}JAYPEE Institute of Information Technology University, Noida, India

\textbf{ABSTRACT}

The following article is the first in an ongoing series entitled “Perspectives from the Developing World,” giving voice to authors beyond Europe and North America.

The concept of reference has greatly changed because of the increasing digital presence of reference material. The advent of mobile communication systems and the need for getting correct reference on the move has prompted many libraries to offer mobile related services. Most of the reference sources are now available as mobile-specific products, but there is no comprehensive single mobile interface that can be called as an alternative to the traditional reference desks. This article looks at the evolution of reference services over the years with special reference to creating a mobile reference application for an academic library taking the University of Swaziland Library as a case study.

\textbf{KEYWORDS}

mobile communication systems; mobile library applications; mobile reference; reference services

\section*{Introduction}

The EDUCAUSE Center for Analysis and Research’s study on undergraduate students and information technology (Smith, Salaway, & Caruso, 2009) documents that modern teenagers and adults use mobile technology not only for normal communication, entertainment, or for other commercial applications, but also most important to find information. The increasing amount of mobile use and the dependence on mobile gadgets clearly show that people are becoming more dependent on wireless communication systems (Olatokun & Bodunwa, 2006). Today, it is hard to imagine life without mobile phones, given that they have become part of daily life. Jacobs observed that “everywhere we go we cannot help but notice the number of mobile devices being used; cell phones, iPods, MP3 players, GPS systems, BlackBerrys and even mini-laptops. Mobile access is the remediation of wireless Internet” (Jacobs, 2009).
The modern mobile communication system was born out of necessity. This system experienced very rapid and unparalleled growth, mainly attributed to the expansion and development of mobile gadgets and the mobile user base, which prompted several new generations of mobile communication systems each surpassing the previous in speed and service. This growth has also influenced libraries into offering services for mobile users. While the networked digital environment in the libraries brought library resources closer to the users as it provided access to the resources from anywhere anytime, the mobile communication system has further enhanced such services by enabling people to access them on the move. Murray observed that by providing these specialized services to their users, the libraries not only “provide new services or enhance traditional services, but also make it more relevant to their users” (Murray, 2010, p. 233).

**Mobile reference services**

Among the many services that are capable of changing the library landscape, mobile reference is one of the foremost that has had an effect on library services. Given the advent of mobile phones for every aspect of library services there is no doubt that many libraries have started planning about mobile reference services. Jason Griffey (2010) predicted that the future of mobile technology involves three main areas: location-based services, personally networked devices, and ubiquitous connectivity. He predicted that the reference services will increasingly move to the mobile interface where most transactions will be completely virtual.

Two kinds of mobile reference services exist. One is on the service aspect of the library where the “primary focus is on the reference transaction and how best to answer users’ question by using mobile devices” (Lippincott, 2009, p. 2). This may include any kind of mobile devices starting with laptops or with mobile devices. The advent of Web 2.0 applications into library services, especially instant messaging services enhanced web-based reference service and helped integrate it into the library mainstream. Services such as “Reference Desk” and “Ask a Librarian,” where librarians are connected through an instant messaging or voice chat environment to respond to most reference queries, are increasingly being used. This healthy interactive trend along with the mobile telephone facilities has started adorning library services. With more and more users wanting reference information on the move, the provision of SMS (short message service or “texting”) reference service is growing in academic libraries (Pearce, Collard, & Whatley, 2010). In this service, the reference librarian receives a message or a short SMS asking for a specific reference query. Sometimes these queries are related to information literacy that focus on circulation issues or services rather than on the content, given that most of the content is now available on the mobile device itself. This type of reference service is almost similar to the traditional and
tiered reference models with the difference of achieving the goal through the mobile device.

The second type of mobile reference service focuses on the content available through the institution’s subscription or free and open access content, which are stitched together to provide a robust seamless reference connectivity to the users. This can possibly be content that is housed at the respective library archives or content that is widely popular and available as subscription services. An example is the encyclopedia, which is available as a reference source for the library or a database that is available for research. The user will often have a query on which specific database to use or a specific reference query within the encyclopedia to further his or her research. Answering these types of queries often tend to follow the teaching-library model, which emphasizes the research process whereby users are encouraged to find the information for themselves including the service queries. The benefit of the mobile reference service is that the services and the content can be blended to create a cohesive single interface to provide a robust reference service.

Mobile reference—products and services

A number of mobile reference sources and services are available in today’s library environment. While a specific library service is being developed, the developers are conscious of the mobile users, and invariably that service has been developed as a mobile product as well. Even the service aspects of mobile referencing is seen as a potential product with some commercial vendors, which adds more value to the reference section in a library. Traditional reference sources such as encyclopedias, almanacs, yearbooks, directories, dictionaries are now provided as mobile ready reference sources, which are very convenient to be hyperlinked with the library resources under the reference section of the library. The important key element in tagging these traditional reference sources with the mobile website is to provide proper information literacy instructions to the users. That way, users do not have to ask for help in these areas; instead, they themselves can try to search for information from these sources. A number of reference sources such as encyclopedias, dictionaries, subject-specific news feeds, and news items are available for users to have ready reference.

Another stream of reference source that is predominantly available is reference sources as mobile applications. Most of these products need yearly subscription, which the library supplies. Some of the most important mobile reference applications are mobile encyclopedias, almanacs, weather services, yearbooks, atlas, maps, and dictionaries. Although these products look similar to the one previously discussed, these are standalone products that cannot be hyperlinked to the library website because they run as independent mobile applications. These applications are available for different platforms and need to be downloaded and installed directly to mobile phones. An increasing number of mobile
Mobile reference solution—case study

To create a mobile reference service at the University of Swaziland, a systematic approach was followed. A flowchart (Figure 1) was first derived to understand the workflow before the mobile reference solution was formulated. This
can be taken as a predesign prototype for creating a reference application for libraries.

**Mobile user study**

This is the essential part of any mobile interface to library services where the different devices owned by the users, their mobile usage pattern, their frequency of using mobile apps and websites, and their access mode can be determined. A questionnaire in Google Drive was created and circulated through the library Facebook page and by e-mail. A total of 221 respondents replied to the questions among which 195 were students, 22 were teaching faculty, and 4 were nonteaching faculty. Questions related to the type of mobile phones owned, frequency of accessing the Internet through mobile phone, the place from where they access mobile data, and the different links they expect from a mobile website were asked. This study is important to determine which platforms to choose if the library decides to create an application for reference sources along with the design considerations keeping the data usage of the users.

**Subscribed reference services**

It is essential to make use of the subscribed references as that forms the core backbone of the mobile reference service for the library. If there are some reference services subscribed, it is better to test them in mobile phones. The criterion used here is to simulate the display of all different types of mobile phones that are listed in the mobile device ownership study. To see whether the resources are displayed satisfactorily the mobile good practice guidelines were used. The mobile good practice guidelines are a set of rules provided by the W3 consortium for optimum mobile display (W3 Mobile Accessibility, 2015).

**Categorize the sources as broad reference items**

If the sources are displayed satisfactorily, they can be assembled as HTML links to be sorted into different categories for a mobile website. The traditional broad categories such as encyclopedias, yearbooks, dictionaries, weather almanacs, atlases, and maps can be the broad categories. It is also advisable to look at the open and free source of references available on the Internet that can also be hyperlinked as HTML links according to different categories. Along with this, the e-mail/SMS “Ask the Librarian” link can also be incorporated to make a complete reference suite.
Create a mobile reference website

With the available categorized HTML links, a mobile reference website can be created, which can be hyperlinked to the mobile library website for users. Alternatively, a mobile reference application can be developed. If the library has a mobile library app, this reference site or the reference app can be hyperlinked for users to have a complete mobile library service.

Result—University of Swaziland reference app

A case study a separate reference app was developed for the University of Swaziland. Figure 2 depicts the mobile library app developed for the University of Swaziland library, which is under beta testing.

Various digital referencing sources such as encyclopedia, dictionaries, and other ready reference tools subscribed to the library were first analyzed and then sorted according to subjects. A specific mobile test of those products was done to determine whether they are displayed correctly and whether there are any mobile-specific URLs that need to be specifically followed in order to hyperlink them. Different web pages were developed to test them separately in mobile phones for its output.

An important question was whether to build a native app that can be readily downloaded and installed on devices or to create a web app that can be accessed through the mobile browsers. Looking at the statistics of mobile ownership, we decided to create a native app for Android and iOS. Figure 2 shows a screenshot of a mobile native app that has both

Figure 2. Mobile native app for reference services at University of Swaziland.
library-specific links to reference sources and a link for “Ask a Librarian,” which will prompt the library to provide reference related answers.

**Conclusion**

The availability of a number of mobile options for libraries and the ease with which they can be assembled to create vibrant applications for libraries add more value to service delivery. As the technology continues to evolve rapidly, there is a need to provide users with relevant and affordable services in line with their everyday practices. Mobile reference applications similar to what has been demonstrated in this article are easy to create and easy to be tagged by any library that wants to provide its service for users on the go. Because of these new developments, mobile applications surely will bring major changes in library services. Such services provide relevant and contextual library services that allow users to access information through the technology with which they are comfortable; to connect using their choice in the mode of communication—mobile, telephone, SMS, instant messaging, texting, or e-mail.

**References**


