

The Present and Future of the Library Mobile Experience

Abstract

Chapter 3 of Library Technology Reports (vol. 49, no. 6) “The Library Mobile Experience: Practices and User Expectations” takes a look at how the first generation of mobile library websites have changed over the last few years and discusses what mobile experience library patrons want. Several studies and surveys indicate that in spite of the small size of the smartphone screen, library patrons are willing to use mobile library websites for research. More sophisticated features—such as menu customization and personalization, study room reservation, text-message alerts for borrowed library items that are close to the due date, and live chat on the mobile device—appear to be in demand also. In order to provide a satisfactory mobile experience, libraries need to pay more attention to how they can meet the needs of library patrons creatively and efficiently when the patrons are in the mobile mindset of micro-tasking, being bored, or being local.

Libraries have been an early adopter of the mobile Web. When the feature phone and the PDA were the most common handheld devices, libraries were already trying to expand services and collections to them. Some libraries introduced SMS reference services so that patrons could text a reference question and get a text answer back.¹ Some libraries acquired PDA devices, loaded resources on them, and circulated them to library patrons.² Other innovative libraries implemented mobile-optimized websites so that their patrons could access the libraries online using a feature

phone; Ball State University Libraries and North Carolina State University Libraries took this step early in 2004 (<http://web.archive.org/web/20041201152656/http://www.bsu.edu/libraries/mobile/about.html>) and 2007 (www.lib.ncsu.edu/dli/projects/mobilib) respectively (see figures 3.1 and 3.2).

Since then, the fast adoption of the smartphone prompted more and more libraries to “mobilize” library collections and services and to review how usable their library websites were on mobile devices. As a result, libraries started introducing mobile-friendly databases to patrons; acquired and circulated handheld devices like the iPod and the iPad; incorporated mobile devices into library orientation, instruction, and reference activities; and added mobile-optimized websites and, in some cases, even native library apps. As we have seen in the previous chapter (see “One Web or Walled Gardens: Web App versus Native App”), compared to library web apps, native library apps have more features, such as managing the library account or scanning the barcode of a book to check its availability. However, due to their high development costs, the multitude of mobile platforms, and the staff expertise required for development and maintenance, there are a relatively small number of native library apps. Many libraries chose to create a mobile-optimized website instead.

In this chapter, we will focus on mobile library websites and discuss what mobile experience library patrons want from them and how libraries are meeting such patron expectations. In the previous chapter, we

Here are several examples of native library apps:

- New York Public Library (iPhone, Android; www.nypl.org/mobile-help)
- District of Columbia Public Library (iPhone, BlackBerry, Android; <http://dclibrary.org/appsandsocialmedia>)
- Seattle Public Library (iPhone, Android; www.spl.org/using-the-library/get-started/spl-mobile-app)
- MIT Libraries (iPhone, Android; <http://libraries.mit.edu/mobile-site>)

North Carolina State University Libraries (<http://mobile.ncsu.edu/applications>) developed a Library Mobile Tour (iPhone, Android) and a historical campus guide, WolfWalk (iPhone).

saw the tremendous growth of the mobile Web, accelerated by faster cellular data network speeds and more capable mobile devices. We also observed that today's mobile users are no longer satisfied with simple mobile websites with only a small fraction of the information and features that are available on desktop websites. The small screen size of a mobile device may make performing certain tasks more tedious or cumbersome, but mobile users do expect to perform more and more tasks on their mobile devices. Does this expectation apply to library patrons? How do library patrons want to use their libraries on their mobile devices? What do they find useful, and what do they find lacking? The answers to these questions are of crucial importance in informing libraries so that they can create and develop a satisfactory mobile experience for library patrons.

2010 versus Now: Changes Seen through Examples: Mobile Library Websites

Ball State University (BSU) Libraries was a pioneer in its mobile-optimized website (www.bsu.edu/libraries/mobile/; see figure 3.2). The site was catering to the needs of mobile users as early as November 2004. According to its About page archived by the Internet Archive's Wayback Machine, the BSU Libraries mobile website was supported by the Institute of Museums and Library Services and "designed with cell phones and handheld computers in mind, with pages viewable from small screens and navigable with cell phone keypads."³ The mobile website didn't change much until 2010, when it was redesigned with a look and features that were more suited for smartphone users.



Figure 3.1
NCSU Libraries' mobile website MobiLIB in 2007 [Image credit: Markus Wust, "MobiLIB: A Library Service for Generation 'Mobile' at North Carolina State University" (presented at the RUSA MARS Hot Topics Discussion Group at American Library Association Annual Meeting, Washington, DC, June 23, 2007), www.lib.ncsu.edu/documents/dli/projects/mobilib/Presentation_ALA.ppt]

The first version of the BSU Libraries mobile website in 2004 was quite sophisticated for its time. It provided information about library collections

as well as library services and even offered a mobile catalog search. But many libraries' online catalogs were not mobilized even as late as 2010, and some libraries still struggle with mobilizing their library catalogs.

As a matter of fact, a mobile library website was still new in 2010. At that time, Aaron Tay, librarian from the National University of Singapore, noted that the M-Libraries page in the Library Success wiki, which provides the most complete listing of libraries with mobile sites, listed over forty such sites.⁴ At the time of this writing, the same list includes 130 mobile websites in the section "Mobile Interfaces (and/or OPACS)."⁵ More and more libraries are offering mobile websites for library patrons. In his blog post, Tay compared all the listed mobile websites as of April 2010 using the Mobile Safari web browser on his iPhone and observed that the mobile library websites showed three different types of layouts: (a) a bare-bones text layout designed primarily for feature phones (see figure 3.3), (b) a list-style layout in multiple rows (see figure 3.4), and (c) a layout with icons similar to the iPhone screen targeting primarily the smartphone (see figure 3.5).⁶ At that time, the icon-style layout was seen as the most sophisticated kind. But there were still some minimalist mobile websites with the bare-bones text layout designed for the feature phone rather than the smartphone. Most mobile library websites adopted the list-style layout.

Library Success: M-Libraries
www.libsuccess.org/index.php?title=M-Libraries

Let's take a look at how mobile library websites have changed over the last three years since 2010. The current BSU Libraries mobile website (see figure 3.2)



Figure 3.2
The BSU Libraries mobile website in 2004, 2005, 2009, 2010 (Search page)*, and 2012 [Note: The screenshot of the search page in 2010 is from Aaron Tay's post "What Are Mobile Friendly Library Sites Offering? A Survey," *Musings about Librarianship* (blog), April 24, 2010, <http://musingsaboutlibrarianship.blogspot.com/2010/04/comparison-of-40-mobile-library-sites.html>. Also please note that all screenshots of mobile library websites in 2010 marked with * in this chapter are from this blog post by Tay and were used with permission. All other screenshots were taken by the the author.]

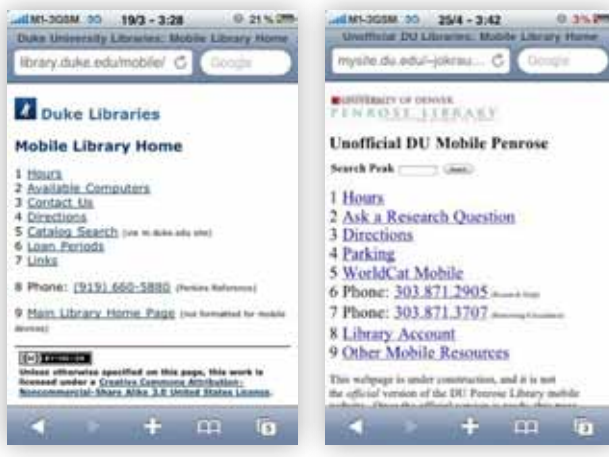


Figure 3.3
Mobile library websites with a bare-bones text layout in 2010—Duke University Libraries* and University of Denver Penrose Library*

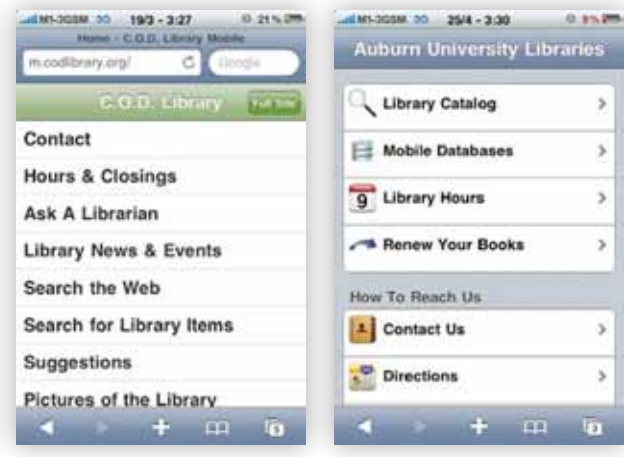


Figure 3.4
Mobile library websites with a list-style layout in 2010—College of DuPage Library* and Auburn University Libraries*

offers "Search Library Resources," which includes a discovery layer tool (Serials Solutions Summon) that allows a patron to search across library books, journals, and articles. The website also provides information about how many computers are available at different locations. Mobile users can also reserve study rooms on their devices. The "Hours & Locations" page provides information about library hours, maps, location information by call numbers, and floor plans.

In 2010, the Cal Poly Pomona University Library mobile website featured hours, phone numbers, loan periods, overdue fees, photocopies and printing, and directions in a bare-bones text layout typical of mobile websites designed to support the feature phone. In 2012, the layout was changed to the list style more suitable for the smartphone. Although the names of the menu items changed, the content is not much different (see figure 3.6).

The redesigned mobile website still provides information about library hours, frequently asked

questions, and directions, which appeared in the previous version. But one notable addition is "Research". Once a user clicks "Research", three submenu items appear: "Books," "Mobile Databases," and "Library Research Guides." The menu item "Books" takes a user to the search page of the mobile-optimized library catalog, which can be used to search for both books and articles. The menu item "Mobile Databases" leads to a section that includes several mobile-optimized databases: EBSCOhost, JSTOR, Google Books, WorldCat, IEEE Xplore, MedlinePlus, and PubMed. Among these options, EBSCOhost and IEEE Xplore require login; the others are accessible by anyone online. The "Library Research Guides" section is displayed in the mobile-optimized manner by LibGuides, a commercial cloud content management system from Springshare.

The addition of the Research section is the greatest change in the Cal Poly Pomona University Library mobile site in the last three years. In 2013, the library hours information was moved to the header area, and the "Floor Maps" page was added, but the "Research"



Figure 3.5 Mobile library websites with an icon-style layout in 2010—North Carolina State University Libraries* and University of Pennsylvania Libraries*

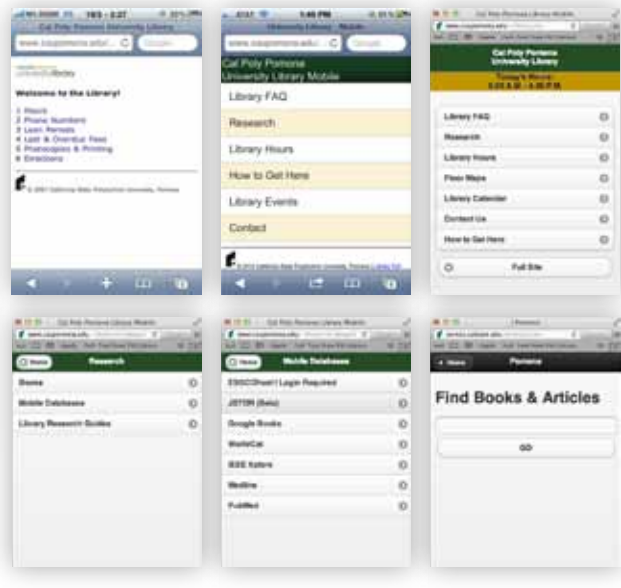


Figure 3.6 Cal Poly Pomona University Library mobile website in 2010*, 2012, and 2013 and the current Research, Mobile Databases, and Find Books & Articles pages [www.csupomona.edu/~library/m/]

section stayed.

Florida International University Medical Library’s mobile website (see figure 3.7) did not change much between 2010 and 2013. The library’s first mobile website already supported the library catalog search on the mobile device, which was implemented by Florida Center for Library Automation (FCLA), now reorganized as Florida Virtual Campus. It also listed mobile-friendly databases under “Mobile Resources.” But the second iteration of the mobile website added “Renew Your Books” as a menu item when the library account management function was mobilized by FCLA. This means that now mobile device users can not only search for library items but also access and manage their library accounts.



Figure 3.7 Florida International University Medical Library mobile website in 2010, 2012/2013 [http://medlib.fiu.edu/m], and the new “Renew Your Books” feature that allows the library account management on mobile

Similarly, the Harvard Libraries mobile website (see figure 3.8) in 2010 already included the “Mobile Research” menu item along with HOLLIS Catalog Search. But the site in 2012 shows the library catalog search box at the top of the mobile website home page. This allows mobile device users to search for an item right away without having to go to the HOLLIS Catalog Search page as they did in the previous version. The current site in 2013 was further expanded with more features that support research activities.

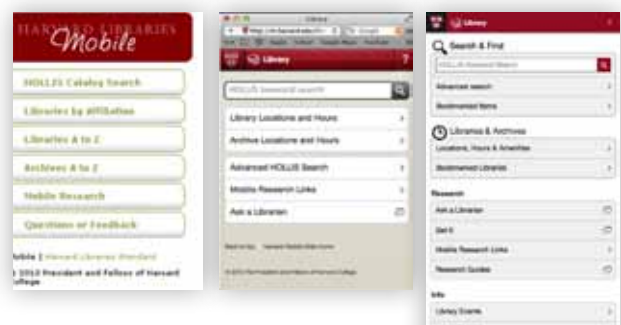


Figure 3.8 Harvard Libraries mobile website in 2010, 2012, and 2013 [http://m.harvard.edu/libraries]

The library catalog search box is now seen in other mobile library website home pages, too. Virginia Commonwealth University (VCU) Libraries, Wayne State University (WSU) Libraries, and Boise Public Library all display a catalog search box right in their mobile website home pages (see figure 3.9). The Boise Public Library mobile website features the catalog search box in the center of its home page. Its minimalistic mobile home page also includes three more items, which can be hidden by tapping: “My Account,” “Location & Hours”, and “Upcoming Events.”



Figure 3.9

VCU Libraries mobile website in 2010 (retrieved from the Internet Archive Wayback machine; <http://web.archive.org/web/20100417035844/http://m.library.vcu.edu>), 2012, and 2013 [<http://m.library.vcu.edu>]; WSL Libraries mobile website in 2013 [<http://m.lib.wayne.edu/home>]; and Boise Public Library mobile website in 2013 [<http://m.boisepubliclibrary.org>] with the “Featured Links” section open and closed

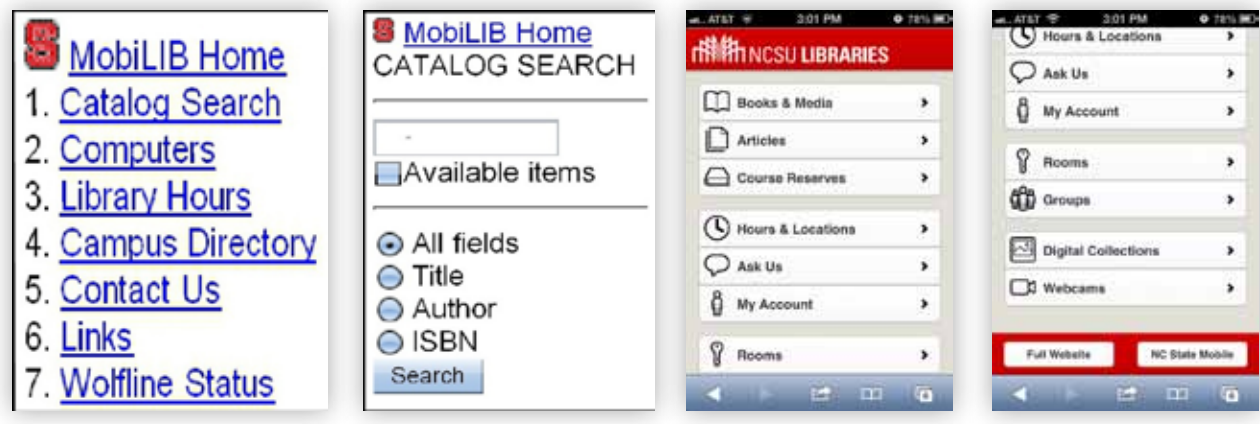


Figure 3.10

NCSU Libraries mobile website in 2007 (Home page and the Catalog Search page), 2010*, and 2013 [The screenshots of the 2007 MobiLIB site were taken from the video “MobiLIB: Put the Library in Your Pocket,” available at North Carolina State University Libraries, www.lib.ncsu.edu/documents/dli/projects/mobilib/test_3.swf. The 2013 screenshot is from <http://m.lib.ncsu.edu>]

The appearance of the library catalog search box in the mobile library website home page is interesting because it signals more similarity than difference between the library’s desktop website home page and mobile website home page. Also note that the VCU Libraries mobile website changed the order of the rows of icons between 2012 and 2013. In 2012, James Branch Cabell Library with “Hours,” “Map,” “Computers,” and “Study Rooms” information was the first row under the search box. But the “Toolbox” row, which includes “Research Tools,” moved to the top under the search box in 2013.

North Carolina State University (NCSU) Libraries (see figure 3.10) initially created MobiLIB, a mobile website optimized for the feature phone, in 2007.⁷ In November 2009, the libraries redesigned the mobile website for smartphone users. This mobile website was seen as one of the most sophisticated mobile library websites at the time.⁸ It offered information about library hours, catalog search, news, and computer availability and even showed real-time video feeds from a few webcams installed at the library building. In 2010, more features, including the group finder, room

reservation, and a historical guide to the NCSU campus landmarks named WolfWalk, were added. In 2012, the mobile site was redesigned again. The number of menu items increased, and perhaps for that reason, the layout changed from the icon style to the list style.

The mostly recently redesigned NCSU Libraries mobile website appears to place great emphasis on study and research. “Books & Media,” “Articles,” and “Course Reserves” are the top menu items. The “Books & Media” page allows users to search the mobile-optimized library catalog. The “Articles” page enables users to search for articles as well as books and journals. This search feature of the NCSU Libraries mobile website uses Summon, a commercial discovery layer product from Serials Solutions, just as the BSU Libraries mobile website does. The “Course Reserves” page allows users to read course readings on their mobile devices.

It is interesting to see that the menu item “Hours & Locations”, which used to appear on top in the previous version, has been moved down in the new mobile website. The new NCSU Libraries mobile website also shows two new items—“My Account” and “Digital Collections”—on the mobile home page menu. The “Digital

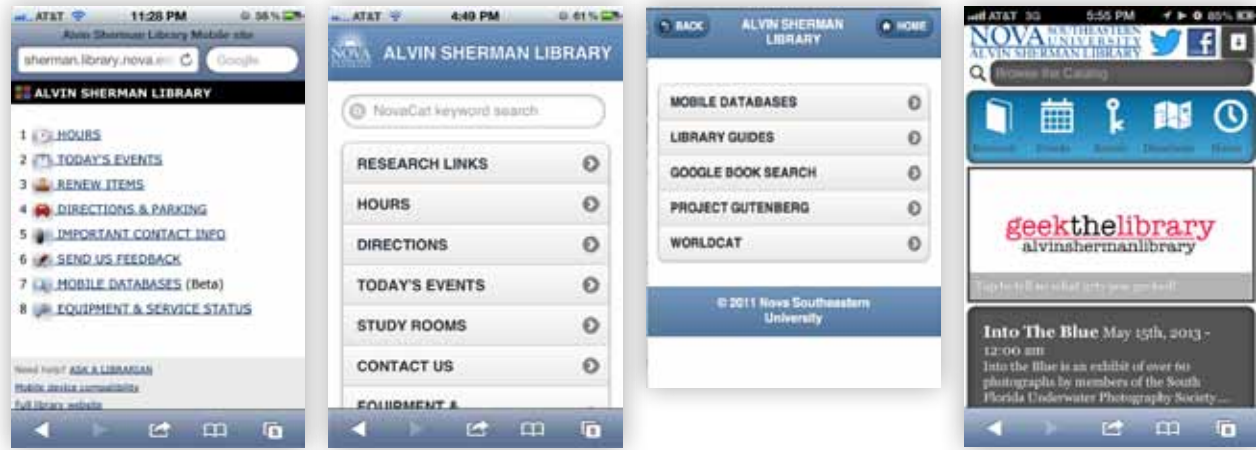


Figure 3.11 Nova Southeastern University Alvin Sherman Library mobile website in 2010, 2012 (home page and Research Links), and 2013 [<http://sherman.library.nova.edu/m>]

Collections” page includes the library’s six web apps: Student Leadership Initiative, a video collection; Rare & Unique Collections; My #HuntLibrary, a photo contest in the popular mobile app Instagram; WolfWalk, a location-based historical campus tour; Red, White & Black, an audio tour of African American history; and 4H & NC State, a photographic history of 4H.

NCSU mobile website: Digital Collections page
<http://m.lib.ncsu.edu/collections/>

The mobile website of Nova Southeastern University’s Alvin Sherman Library (see figure 3.11) was designed to accommodate feature phone users in 2009.⁹ Around 2012, it was redesigned to be more smartphone-friendly. As in some of the other mobile library sites that we have seen, this version of mobile website included a library catalog search box at the top of the home page. In addition, the mobile site also placed “Research Links” as the first menu item on the home page. Having the catalog search box and “Research Links” as the first two items on the home page menu screen signifies that the library now expects patrons to use these features more than any other information, such as hours or directions.

In 2013, Alvin Sherman Library redesigned its mobile website again. It is to be noted that in addition to the new mobile website, the library’s full desktop site has been made adaptive to different screen sizes with responsive web design (see figure 3.12), which will be discussed in the next chapter.

The Oregon State University (OSU) Libraries mobile website also shows a similar trend of placing the library collection and research as primary items on the library mobile website home page. The redesigned mobile website presents “Ask Us” and “Research” on

the top row of icons on the mobile home page (see figure 3.13). In the previous version, the “Search” feature was placed below “Hours”. The “Research” link in the new version provides a mobile device user with a mobile-friendly search feature for databases, articles, and books. The “Databases” page provides a list of mobile-friendly research databases; “Articles & More” enables a patron to search across books, journals, and articles through the commercial discovery layer tool Summon; “Books & More” offers the OSU Libraries online catalog search feature for mobile device users.

The “Mobile Services” page includes the Beaver-Track History Tour and Book Genie, both of which are web apps developed by OSU Libraries. As a side note, it is interesting to see that the OSU Libraries’ mobile website redesign went in exactly the opposite direction from NCSU’s in terms of the layout. While the NCSU Libraries mobile website moved from the icon-style layout to the list-style layout, the OSU Libraries mobile website changed from the list-style layout to the icon-style layout.

OSU Libraries Mobile Services page
<http://m.library.oregonstate.edu/mobile>

The University of Minnesota (UMN) Libraries mobile website (see figure 3.14) had a strong focus on library collections and research in its early version back in 2010. That version displayed “Catalog Search”, “Database Search”, and “Mobile Databases” as the top menu items. This was unusual at that time when most mobile library websites listed hours and location as the primary items on their home pages. The redesigned UMN Libraries mobile site in 2012 includes the “My Account & Courses” page, which allows library patrons to manage their library accounts and to access



Figure 3.12
Nova Southeastern University Alvin Sherman Library website [www.nova.edu/library/main] on the screens of three different sizes

course reserves with their mobile devices. This same change was seen in the redesigned NCSU mobile website. The menu items “Mobile Databases” and “Full-Text Finder” were changed to “Search Articles” and “Databases A to Z.” In 2013, the “Public Computers” page, which shows how many computers in different UMN Libraries are available, was added. Similar to the NCSU Libraries mobile website, the UMN Libraries mobile website started with the icon-style layout and changed to the list-style layout.

Trends and Observations

So far, we have seen several mobile library websites and how they changed over the last few years. In 2010, many libraries were launching their first mobile websites. Some libraries started with a very basic mobile website



Figure 3.13
OSU Libraries mobile website home page in 2010* and 2012/2013 [http://m.library.oregonstate.edu], and the Research page



Figure 3.14
UMN Libraries mobile website in 2010*, 2012, and 2013 [https://www.lib.umn.edu/mobile]

in the bare-bones text layout, while other libraries gave their sites a more polished look and sophisticated features. But almost all mobile library websites considered library hours, location, and contact information to be the most pertinent information to mobile device users. Features such as library catalog search, computer availability, and mobile databases were not widely offered. Some of those features were tied to a third-party system over which libraries had little control. Also, there were not many mobile-friendly research databases back in 2010. But most importantly, it was not clear what features the library patron would be willing to use on the mobile device when the smartphone was just beginning to become popular. Many assumed that mobile users would be satisfied with basic information that could be looked up quickly on the go and that they would not want to bother with more complicated processes on a small-screen device.

But this assumption turned out to be inaccurate as mobile devices became more and more capable and the mobile data network became faster. As we have seen in the previous chapter, the boundary between the mobile device and the desktop computer has begun to blur. Mobile device users do not necessarily limit their tasks by the type of the device they are using. Rather, they expect to be able to perform the same type of tasks on all types of devices. They also want to be able to initiate a task on one device and then resume it later on another

device. For example, many mobile users now look for products on their smartphones but make a purchase either on a tablet or desktop computer. It is also common for tablet owners to read e-books on their smartphones when they are out and then to pick up the tablet when they are home to continue reading the same book.

This does not mean that mobile device users no longer look for concrete bits of task-specific information or that simplicity is no longer necessary in the mobile user interface. Rather, it means that the range of tasks that users expect to be able to perform on a mobile device has become much broader than before. With the expansion of the mobile Web and the increasing number of cell-primary Internet users, many mobile websites that started with minimal information and basic features are adding more content and features to meet the growing expectations of mobile device users. And from what we have seen in the previous section, mobile library websites appear to be moving in the same direction.

The general trends observed in mobile library websites between 2010 and the present are as follows:

- Mobile library websites are now presenting information and resources that are much more than library hours, location, and contact information.
- While the basic information such as hours and directions appeared as the primary content of a mobile library website in the past, searching the library catalog and accessing online library resources is beginning to be seen as a more important task for mobile library patrons. This is further evidenced by the addition and expansion of the “research” section in mobile website home pages of academic libraries. In mobile websites of public libraries, this trend is shown by a stronger emphasis on the library’s online and downloadable resources. The Richland Library website (see figure 3.16), which is responsive and adapts to a smaller screen, for example, highlights three uses of the library: “Check It Out,” “Research It,” and “Download It.”
- A search box is starting to appear on more mobile library website home pages.
- Additional features such as performing library account transactions (e.g., renewing a checked-out item, placing a hold), accessing electronic course reserves, finding computer availability information, and reserving study rooms are being added to more mobile library websites.

Richland Library website
www.richlandlibrary.com

A similar trend was seen in Han and Jeong’s 2012 study, which looked for the most frequently appearing items in seventy-six academic libraries’ mobile

websites.¹⁰ According to their study, the most frequent menu items on an academic library’s mobile website were as follows:

- Search link (86 percent)
- Hours (80 percent)
- Locations/Maps (59 percent)
- Contact Us/Contact information (53 percent)
- “Ask a Librarian” (47 percent)
- News/Events (32 percent)
- Personal Account/Renew (28 percent)
- Search Box (25 percent)
- Research Guide (by subject) (24 percent)
- Laptop/Computer Availability (18 percent)
- Study room reservation (11 percent)
- Feedback (11 percent)
- Social network (7 percent)
- FAQ/Help (7 percent)
- Staff Directory (7 percent)
- About Us (5 percent)
- Course Reserves (4 percent)¹¹

Among the items on the list, search box, research guide, and course reserves were not present in similar lists in previous studies by Aldrich in 2010¹² and by Canuel and Crichton in 2011.¹³ It is a positive sign that mobile library websites are moving in the same direction as the mobile Web, where people expect to accomplish more complex tasks than simply grabbing the basic information such as hours and directions. As shown in the survey results and studies mentioned above, accessing library resources is now a primary task on a mobile library website. It is to be noted that searching for library resources and accessing electronic resources used to be the major function of desktop library websites. By offering these features for mobile device users, libraries are acknowledging that people expect to do just about everything on mobile and that more and more people are now using a mobile device as their primary access point for the Web. Granted, some of the tasks are only part of a bigger project that users will pick up later on a non-mobile device with a bigger screen. But library patrons still want to be able to initiate a project on a mobile device and get as much done as possible. Libraries need to think about what other tasks users would expect to accomplish with a mobile library website and how to support those mobile tasks.

The Mobile Experience That Library Patrons Want

In 2008, Massachusetts Institute of Technology (MIT) Libraries surveyed their 15,140 library patrons, which included undergraduate and graduate students, faculty, postdocs, and other research and academic staff. One of

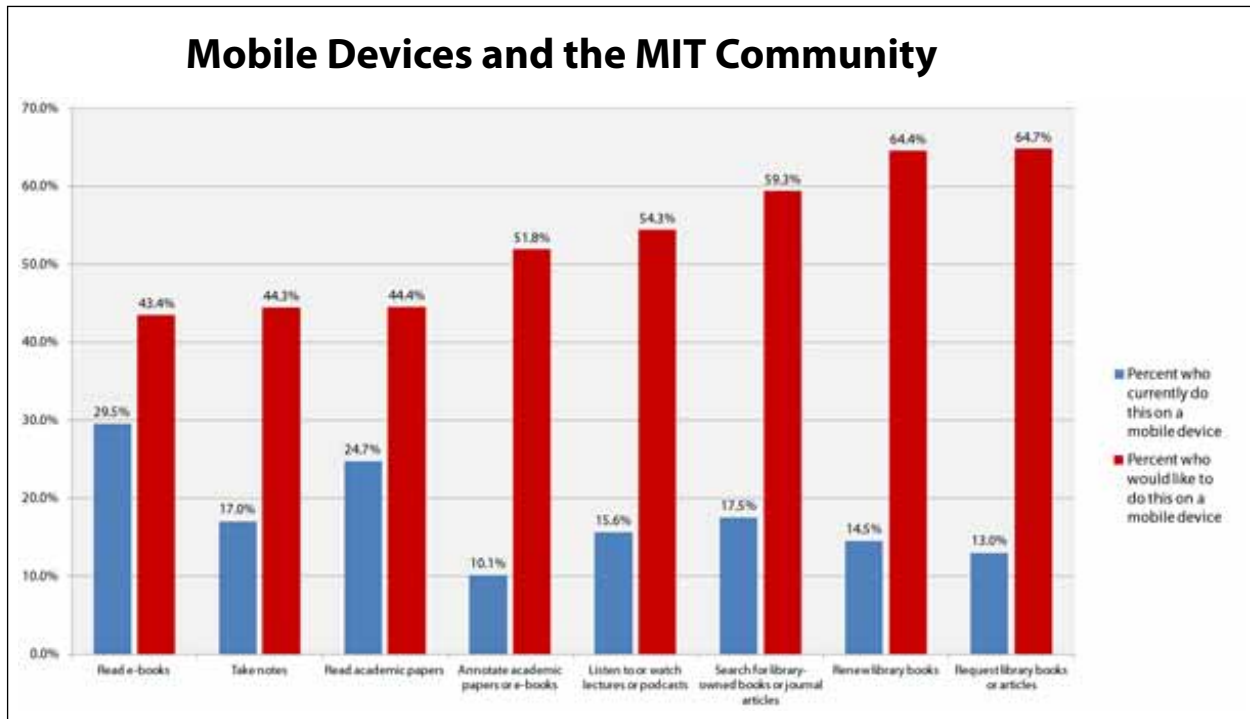


Figure 3.15 The activities that library patrons would like to do on a mobile device [Source: Heather Denny, “Survey Snapshot: Library Research Using Mobile Devices,” MIT Libraries News, December 3, 2012, <http://libraries.mit.edu/sites/news/survey-snapshot-library/9911>]

the questions in the survey asked how important it was for the MIT Libraries to focus on creating a mobile version of MIT Libraries website and catalog. The response rate to this survey was 49.5 percent with 7,497 completed surveys. At that time, 50.5 percent of respondents replied that this was not important.¹⁴

Just three years later, in 2011, MIT Libraries conducted another library survey. This time, the survey was given to 16,070 library patrons. One of the survey questions asked which of the following activities patrons would like to be able to do with a mobile device: read academic papers, read e-books, take notes, annotate academic papers or e-books, search for a library-owned book or journal article, renew library books, request library books or articles, listen to or watch lectures or podcasts. This question was answered by 7,020 patrons, a response rate of 43.7 percent.¹⁵ The results shown in figure 3.15 exemplify the dramatic change that took place in library patrons’ expectations about library collections and services. From 10 to 29.5 percent of respondents indicated that they currently perform the tasks listed on a mobile device, and almost half or more responded that they would like to perform all those tasks on a mobile device.¹⁶

While MIT and MIT Libraries provide both mobile websites and native apps that allow students, faculty, and staff to perform most of the tasks listed in the

survey, not many other libraries successfully support those tasks in their mobile websites. Also, MIT library users don’t appear to be fully utilizing the mobile features provided by their library. The reason could be either a problem with mobile usability or the lack of awareness.

But one thing is clear. Library patrons are willing to use a mobile device to perform activities such as reading academic papers, reading e-books, watching lectures, and annotating academic papers or e-books and expect their libraries to support those tasks. As shown in figure 3.15, for example, 24.7 percent of the MIT Libraries survey respondents stated that they already read academic papers on a mobile device, and an additional 44.4 percent of them indicated they would like to do so. Of the respondents, 10.1 percent already annotate academic papers or e-books on a mobile device, and 51.8 percent wanted to use their mobile devices for that purpose.

In March and April of 2009, Kent State University Libraries in Ohio formed a focus group of twenty students and held three sessions to investigate which features students envision themselves using on a mobile device. The findings surprised the librarians.

Overall, students ranked the Research section as their most important part of the current Web site. The Services section came in second and

surprisingly, About Us was ranked last. This ranking stands in contrast to what has been considered the norm of the library mobile Web sites: keeping the content simple and basic.¹⁷

Participants' interest in conducting research using their mobile device was certainly a surprise. Our assumption was that basic library information would suffice on a mobile Web site; however, the students who participated in this study wanted to be able to interact with library resources on their mobile devices. When planning a mobile Web version of their site, academic librarians may wish to gather data regarding user expectations, particularly their level of interest in using their mobile device. It may be necessary to offer more than contact information and hours on the mobile Web.¹⁸

Students at Kent State University were most interested in using research databases on their mobile phone and wanted to be able to begin their research using those databases by searching for relevant articles and saving citations for later review. They also expressed strong interest in reading the materials in the course reserves on the mobile device between classes or while killing time somewhere.¹⁹ The students at Kent State University also had many other wishes for the mobile library website:

- being able to search the library catalog on a mobile device
- being able to request an item or place it on hold from their phone
- having customizable options and personalized information from the library regarding their library account and other services, such as
 - being contacted by text message when a requested library item was available for pickup or when material was nearing its due date
 - receiving text message reminders about upcoming library appointments
- having options for customizing their mobile web experience, such as being able to pick their favorite databases or choose their own top ten links to see on a mobile website
- being able to refer to a library building guide and an explanation of the call number system
- having a live chat or text message exchange with a librarian about a research question or how to cite a source²⁰

The students at Kent State University were not alone in wanting all of these tasks supported by a mobile library website. A student survey conducted by Ryerson University Library in the fall of 2008 showed that one of the top services that library patrons

requested for the mobile library website was booking group study rooms, which is not widely supported in mobile library websites.²¹

The fact that library patrons are willing to perform a variety of complex tasks with a mobile device may seem surprising considering how inconvenient it can be to manipulate the small touchscreen and its tiny keyboard. But in light of the common mindsets of mobile device users, this may appear more understandable. In his book *Tapworthy*, Josh Clark observed that there are three major mobile mindsets:

- "I'm microtasking."
- "I'm local."
- "I'm bored."²²

Microtasks are short dashes of activity that are likely to be performed during downtime, and many smartphone productivity apps target such microtasking. According to Clark, those apps are tuned for short but frequent hits and encourage users to capture new information and ideas as they happen, typically to be processed and massaged later.²³ Think about the e-mails or the RSS feeds that we read on the smartphone while waiting in line or during a commute. If it is short, we may read an entire e-mail or news article, but otherwise we simply scan and mark those that we want to read later. This type of mobile behavior applies to research activities as well. What the students in the focus group at Kent State University Libraries wanted was an activity of this same nature. They wanted the convenience of accessing and retrieving documents from research databases and course reserves, not necessarily to read them as they would on a desktop computer but to quickly scan during downtime that is otherwise wasted and then to review later.

Requesting or placing an item on hold and getting a text message reminder for item pickup or for the approaching due date of a borrowed item also allow library patrons to microtask on the mobile device. If the due date reminder lets patrons renew an item on the spot, it would be even more preferred since patrons can act as soon as they are notified on their mobile devices. These tasks can also be done when patrons are bored. When people are bored they may use their mobile devices for entertainment, such as playing a game. But they can just as easily do something productive. In terms of motivation for using a mobile device, microtasking and being bored are not too far apart. On the other hand, looking at a library building guide, perusing an explanation of the call number system, or booking a group study room are the tasks best performed on the mobile device when a library patron is in the mobile mindset of "I'm local." If the mobile library website can make performing these tasks quick and effortless for library patrons when they are on site, it will most certainly improve their mobile experience of the library.

Improve Your Library's Mobile Website Step by Step

1) Create a Mobile Website

Needless to say, if your library does not have a mobile website yet, the number one priority is to provide a mobile website even if it includes only the most basic information. There are many tools that a library can use for this purpose. The WordPress content management system, for example, has many plugins that instantly reformat any WordPress site into a mobile-friendly format when the site is viewed on a mobile device. WP Mobile Detector, WordPress Mobile Pack, and MobilePress are examples of such plugins. These plugins can be used in conjunction with WordPress to quickly create a simple mobile website for the library.

WP Mobile Detector

<http://wordpress.org/extend/plugins/wp-mobile-detector>

WordPress Mobile Pack

<http://wordpress.org/extend/plugins/wordpress-mobile-pack>

MobilePress

<http://wordpress.org/extend/plugins/mobilepress>

If your library uses the LibGuides system, you may also use LibGuides to create a mobile-friendly version of your library website since the system automatically reformats itself when a user accesses the site on a mobile device. If your library has the staff with knowledge about basic HTML and CSS, mobile frameworks such as iUI or JQuery Mobile can also be used to create a mobile website. Make sure to add a link to your library's full desktop site in the footer of your mobile website so that library patrons can opt out and use the familiar desktop website instead.

LibGuides

<http://springshare.com/libguides>

iUI

<https://code.google.com/p/iui>

JQuery Mobile

<http://jquerymobile.com>

2) Mobilize Your Library Catalog

If your library has a mobile website that offers only basic information such as library hours, address, and

contact information, then adding more content and features to the mobile website would significantly improve the mobile experience. In considering which features to add, priority should be given to those tasks that library users most often perform on the mobile device. Mobilizing the library catalog is without question one of the most useful features for the library's mobile patrons. Depending on your library's integrated library system vendor, mobilizing a library catalog can be relatively easy or quite complicated. There are also commercial products on the market, such as Boopsie and Library Anywhere, that mobilize a library catalog.

Boopsie for Libraries

www.boopsie.com/library

Library Anywhere

www.librarything.com/blogs/thingology/2010/10/library-anywhere-is-live-2

3) Provide a Search Box on the Mobile Home Page

Once your library catalog is mobilized, make sure to add the library search box to the home page rather than creating a separate search page and linking to it. Since more and more library patrons are expecting to search and find a library item using a mobile device, showing the library catalog search box prominently on the mobile website home page will improve their library mobile experience. For a mobile site, it is preferable to use one simple search box that can search for both books and other library items, such as journal articles or documents in a digital repository. If your library uses a web-scale discovery service such as EBSCO's Discovery Service, ProQuest/Serials Solutions's Summon, OCLC's WorldCat Local, or Ex Libris's Primo Central Index, consider using that system as the default search box in your mobile website. In the previous section, we saw that academic library patrons showed great interest in using a mobile device to start their research and access library resources online.

Primo Central Index

www.exlibrisgroup.com/category/PrimoOverview

4) Add More Mobile-Friendly Library Resources and Content

Capable mobile devices made content consumption one of the main functions of a mobile device. Library content—the resources a library licenses for patrons—is

no exception. We have seen that library patrons are very interested in accessing library resources such as e-books, e-journals, databases, and electronic course reserves on a mobile device. Unfortunately, not all library resources are mobile-friendly, and libraries have little control over the user interface of vendor systems. But be sure to feature mobile-friendly resources prominently on your library's mobile website so that patrons can easily discover and try them. You may also consider listing non-mobile-optimized databases, journals, and other library resources as well, as long as the content can be displayed on a mobile device. Since many library resource vendors provide only a small subset of content for their mobile-friendly versions, library patrons will want to access the full site on the mobile device for such missing content.

If your library has content and resources that mobile device users would be interested in accessing directly on their mobile devices, make them mobile-friendly and link to them on the mobile library website (see figure 3.16). For example, mobile-friendly e-reserves at an academic library are highly valued by students who want to utilize their downtime by reading their course readings. Library instruction handouts and program materials would be particularly handy if the topic of those handouts and materials relates to tasks that a library patron would want to and can do on a mobile device, such as accessing a mobile-friendly library e-book or downloading an audio file from a library's music database.

Public library patrons also often look for reading recommendations and would welcome content of this type on a mobile device. Scottsdale Public Library created a mobile web app called Gimme, which provides random book recommendations to library patrons, instead of a generic mobile library website based upon the direct input and suggestions from library patrons.²⁴ Orange County Library System's Shake It! app for iOS and Android also provides book recommendations for library patrons and information about how to borrow the books from the library. Users simply shake their device to get a random book recommendation and more information about taking the item out from the library.²⁵

Scottsdale Public Library: Gimme
<http://gimme.scottsdalelibrary.org>

Orange County Library System: Shake It!
www.ocls.info/downloadables/mobileapps.asp

In addition, both public and academic libraries can make their unique digital collections mobile-friendly to library patrons. For example, check out the Indiana University–Purdue University Indianapolis (IUPUI)

Library's mobile digital collection (see figure 3.17).

5) Offer a Library Account Management Feature on Mobile

Also useful on the mobile device is the library account management feature. Library patrons want to be able to use their handheld devices to view and renew checked-out items and to place a hold on a library item for a later pickup. SMS notification services can bring even further improvement to the library mobile experience. For example, a due date reminder for checked-out items sent directly to a mobile phone in the form of a text message would greatly help library patrons in keeping track of library items they have checked out. If the same reminder text message allows a patron to renew items through a link directly on a mobile device, that would be even more convenient. The Oriental Institute of Technology Library in Taiwan implemented exactly such mobile services in September 2008. According to the system log analysis results, the usage of the due date reminder and renewal request service improved the average number of overdue occurrences, average amount of overdue fines, average amount of overdue fines per transaction, and average overdue rate.²⁶ Also, the survey, which received 421 valid responses, showed that 71.3 percent of respondents were strongly satisfied with the due date reminder service and 87.5 percent with the renewal request service.²⁷ The Oriental Institute of Technology Library also implemented four additional mobile services: overdue notification, request arrival notification, news and event reminder, and new title notification.²⁸

SMS notification services are not a new idea. The SMS Notification Services section on the Library Success wiki page on M-Libraries includes a list of SMS

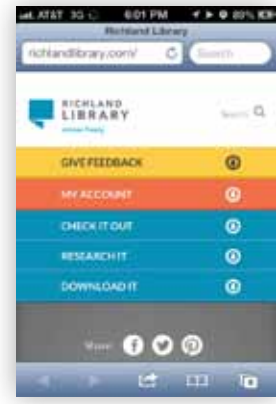


Figure 3.16 Richland Library's responsive website on a mobile device screen [<http://richlandlibrary.com>]. This website prominently features content that library patrons would be interested in interacting with: items people can borrow; databases, magazines, and other resources for research; and items that are downloadable

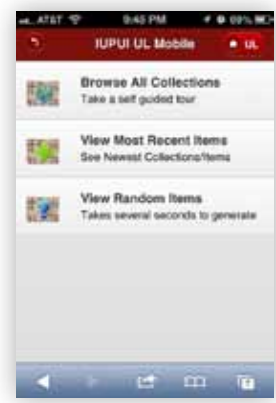


Figure 3.17 IUPUI Library mobile digital collection [<http://m.ulib.iupui.edu/collections.php>]

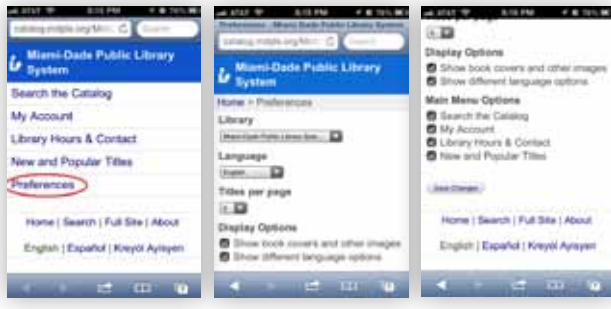


Figure 3.18
Miami Dade Public Library's mobile website [http://catalog.mdpls.org/mobile] allows a patron to set preferences.

notification services and lists the libraries that have implemented some of them. Now that the capable smartphone has been widely adopted, text messages can be used to offer seamless service that allows library patrons to receive timely notifications and to immediately take necessary action on their mobile devices.

Library Success: M-Libraries: SMS Notification Services

www.libsuccess.org/index.php?title=M-Libraries#SMS_notification_services

A mobile website that lets patrons pay library fines would be another useful service. If your library already allows patrons to pay fines online using a credit card or PayPal, making that payment part mobile-friendly would greatly help library patrons who want to use that feature on their mobile devices. This feature can be further enhanced by SMS notification of library fines with a link to the mobile web page where library patrons can make an online payment.

6) Other Features and Experiments

The study at Kent State University showed that library patrons wanted the library's mobile website to provide customizable options such as being able to pick their favorite databases or choosing their own top ten links to see on the mobile website.²⁹ This makes sense considering the small screen size of a smartphone and the wide variety of library resources and services. For example, at a large public library or an academic library system, patrons tend to use one library branch heavily. Allowing them to set the library branch they frequent as the default place in the mobile library website can save them a great deal of time. Miami-Dade Public Library's mobile website offers a range of customization options, from setting the default library location to displaying the library catalog search or library hours (see figure 3.18).

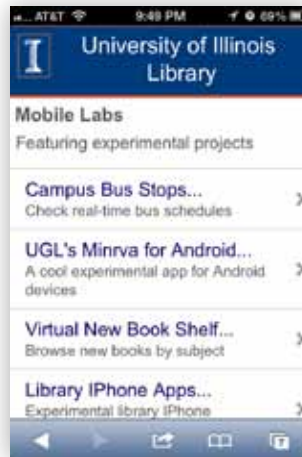


Figure 3.19
University of Illinois Library mobile website "Mobile Labs" page [http://m.library.illinois.edu/labs.asp]

If your library can afford to invest in developing other mobile versions, it is a good practice to showcase them even as beta versions for library patrons who may be interested in trying them out and giving feedback. The University of Illinois Library showcases dozens of its experimental mobile library services on the "Mobile Labs" page of its mobile website (see figure 3.19). In developing a mobile application for library patrons, make sure that it addresses the needs of mobile device users when they are in those mobile mindsets: microtasking, bored, or being local.

University of Illinois Library showcases dozens of its experimental mobile library services on the "Mobile Labs" page of its mobile website (see figure 3.19). In developing a mobile application for library patrons, make sure that it addresses the needs of mobile device users when they are in those mobile mindsets: microtasking, bored, or being local.

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