



Innovative Practice

Making Physical Objects Clickable: Using Mobile Tags to Enhance Library Displays

Laura Baker
Abilene Christian University Library
Abilene, Texas

Abstract

Many libraries struggle with making library displays fresh and effective. This article describes how Abilene Christian University Library (ACU) used two-dimensional barcodes to enhance a library display for a freshman common book experience, providing interactive learning and a greater connection between the library's physical and electronic resources. Two dimensional barcodes, also called quick response or QR barcodes, are part of a larger technology known as mobile tagging. They are barcodes that contain more information than conventional barcodes and are readable by cell phones. Patrons connect to online information simply by using their cell phones to scan the tag rather than typing a URL. As an information delivery method, mobile tagging offers huge, yet untapped potential for bridging information in physical objects with digital information in databases and websites. By using a mobile tag enhanced display, ACU experienced a 95% checkout rate for display books, greater utilization of related library resources, and a new method of delivering mobile library services that was free to implement, had high patron impact, and required relatively low library effort.

Displays are a long established part of libraries. While typically not central to the library's primary function of managing and facilitating access to information resources, they nevertheless hold a solid auxiliary role in encouraging cultural awareness, enhancing education, promoting the library's collections, and creating community (Dutka, Hayes, & Parnell, 2002). A well-designed display can showcase the library in a new and positive light.

Many libraries, however, experience frustration with displays. Librarians typically are not trained in exhibiting materials and may struggle with the artistic aspects of proper design. Display creation may not be part of anyone's job description, leaving the responsibility to one individual or a few hastily drafted volunteers. Lack of patron response can also be demoralizing. Even libraries fortunate enough to have a display committee may wonder if a display was worth the effort of creating it.

Such was the situation at the Abilene Christian University (ACU) Library. The library seemed stuck in the old routine of arranging books on a common subject, such as poems for Poetry Month or environmentalism for Earth Day. Every display looked alike, and most of the books ended up on a table that no one bothered to view. Like many libraries, much of ACU's collection consists of online information relevant to exhibit topics that is not easily put in a display case. There may be electronic books and journals on an exhibit topic but no appealing method of displaying them. How does one exhibit an electronic book? The collection includes song performances and recordings of poetry readings that would be wonderful additions to an exhibit on jazz or urban art, but library staff had no way to showcase audio in a visual display. Likewise for web sites, videos, and other digital media meant to be enjoyed on a computer rather than hung on a gallery wall, display shelf, or table.

How can the library incorporate its rich digital content within a physical display? How can the library maximize display impact with minimal staff time? Is there an effective way to point patrons from the display to the library catalog so they discover other material available to them? The library needed to revitalize exhibits in a way that would engage patrons and better highlight the whole spectrum of the collection while not straining the people creating the displays.

Enter the Two-Dimensional Barcode

Two-dimensional (2D) barcodes, sometimes called QR or Quick Response barcodes, are part of a larger technology known as mobile tagging (McKiernan, 2009). Two-dimensional barcodes differ from conventional barcodes partly in the way they store data. Conventional barcodes make use of only the horizontal dimension so that adding data increases the width of the barcode. In some cases the barcodes become too wide to scan with traditional equipment. Two-dimensional barcodes make use of both the vertical and horizontal dimension, therefore storing more data. Two-dimensional barcodes can store text, numbers, or URLs, and can function as cell phone-readable physical hyperlinks (Rondeau & Wiechers, 2005). To use the code, a patron downloads free 2D reader software to a cell phone. Any cell phone will work, as long as it has a

camera and Internet access. When patrons take a picture of a 2D code, the software decodes the barcode and links to the information via the Internet (Kroski, 2008). In this manner, one can conveniently interact with both print and electronic media. In a matter of seconds after scanning, patrons receive information related to their interest. Data charges may result depending on the patron's phone plan. If the library offers free wireless access, as ACU and many others do, then there is no cost at all to the patron.

Two-dimensional barcodes have been used commercially in Europe and Japan with great success and are an emerging trend in U.S. marketing. For instance, a person might see a movie ad in a magazine. The person scans a 2D barcode printed on the ad to watch a movie preview or to order tickets online. In Japan, fast food restaurants print 2D codes on food wrappers and menus. Customers scan the barcode and see nutritional information for their food order (Fiorella, 2007).

A few libraries are making early forays into mobile tagging. The University of Bath includes mobile tags in their library catalog to link searches to books on the shelves, and the Columbus Metropolitan Library created a tag to market their mobile catalog (Blowers, 2009). The Greenpoint branch of the Brooklyn Public Library hosts a community poetry site where readers scan barcodes located throughout the city that link to a blog where they can write about their reactions inspired by the barcode's location (Hill, 2009). Figure 1 shows a mobile tag that links people to the ACU Library web site.

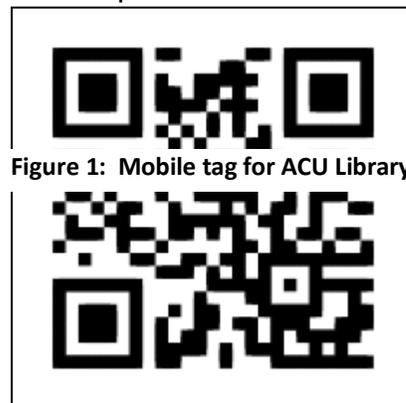


Figure 1: Mobile tag for ACU Library

Mobile tags may use proprietary methods to encode data requiring specific readers or software to decode them. These types of tags may not work with anything other than the systems for which they were designed. More useful are the non-proprietary systems. The software is free, works on multiple platforms, and reads 2D barcodes using commonly owned cell phones. The ease of use and compatibility of non-proprietary systems make them ideal for libraries and patrons. Table 1 identifies some of the barcode generators and readers.

Incorporating the Idea: Traditional Meets Technology

In the fall 2008 semester, the dean of the campus First Year Program asked the library to prepare a display in support of the freshman common book activity. The First Year Program coordinates the reception and learning of freshmen and new transfer students. The idea behind a common book is that everyone reads the same book, giving the group a mutual vocabulary and experience to talk about. The common book for 2008 was *Same Kind of Different as Me* by Ron Hall and Denver Moore.

Table 1: Free Mobile Tag Generators and Readers

<http://www.2dsense.com>

<http://www.beetag.com>

Also offers realtime statistics.

<http://www.kaywa.com>

www.semapeda.org

Lists barcode readers according to phone model

A prevalent theme of the book is that of community service. The library created a display around this service-inspired theme. Library staff enlarged photos of student service learning projects into poster-sized images. The staff styled the images to give them the same graphic look as the cover of the common book and to tie the images together visually. When framed and hung on the library's entry wall, the images formed a grouping that was artistically and visually appealing. The staff also gathered books on service-related topics and displayed them alongside the posters.

Mobile tagging was the innovation that made the display interactive. Library staff placed a simple sign near the display to explain 2D barcodes, how to use them, and how to get the free reader software. Using the resources mentioned earlier, staff created 2D barcodes that expanded on various pieces of the display and placed them next to the physical objects to which they related. For example, a person could look at photos of students helping at the Salvation Army, scan the barcode on the poster, and watch a video of the event on their phone. While perusing books on poverty, a person could scan a barcode and see a real-time search of the library catalog for books on poverty, request books online, and link to book reviews and summaries. The person could check out a copy of the common book and scan 2D codes to download podcasts of book discussion groups on campus. Before leaving the display, the person could scan another barcode to sign up for volunteer opportunities in the community. Two dimensional barcodes were a fun and effective way of delivering enhanced information directly and conveniently to patrons. Barcodes also made the display's impact more personal. Images of the display can be found at

<http://www.flickr.com/photos/aculibrary/tags/mobiletagging/>.

Statistics measuring how many times each barcode was scanned would be the most direct method to assess how the display was used. At the implementation of this project, however, not many statistics services were available and those that existed were fee-based. Given the library's short time frame for the project and the newness of the technology, the library was not able to take advantage of the services. More companies, such as BeeTagg, now offer real-time statistics and the library plans to use them for future projects. Nevertheless, the library has other indicators of how 2D barcodes enhanced the first experimental exhibit that ran from September to November of 2008:

- Of the 62 books featured in the exhibit, 95% were checked out, far surpassing the circulation percentage from any other book display.
- There were other library resources on the exhibit topic that patrons found in the stacks and checked out on their own. These books had not been pulled for exhibit but were part of the catalog search targeted by several of the 2D barcodes.
- Library staff checked the number of hits for campus-based web sites embedded in the barcodes. These web sites experienced a 33% to 48% increase in page views for the time period of the display.

From the library's standpoint, the 2D enhanced display offered further benefits:

- Mobility – Patrons don't have to be tethered to a desktop, laptop, or any other bulky device. The technology works on cell phones they already carry in their pockets, and once they scan a code, it remains on their phone to be recalled at the touch of a button. Their phone becomes a walking "webliography" of resources.
- Dynamic content – Even though the display ran for a little over three months, it always had fresh content because of the real-time electronic material included. The tags for catalog searches were dynamic URLs that executed a fresh search each time the tag was scanned. The results always reflected the latest new acquisitions and book availability. If the tag connected to a web site, library staff could update the site with new links, podcasts, or other resources without having to change the mobile tag itself. Patrons always saw the latest information contained on the site to which the tag pointed. Patrons chose what codes they wanted to explore, therefore each person experienced the exhibit in a unique way.
- Convenience – 2D codes are easy to use. This was especially apparent on the barcodes that executed a search of the library catalog. Very few people want to type a lengthy URL, much less one as complicated as a database query containing expert search strategies. Some of those URLs were over 60 characters long, but the 2D code rendered it in one click. Resources that patrons would have bypassed as too much trouble suddenly became convenient and valuable.

The caveats of using mobile tags are few but worth noting. The barcodes themselves need to be printed using highly contrasting colors. Black and white is most commonly recommended, as is having some white space around the barcode to act as a quiet zone for scanning. Also, the amount of data one can encode in a tag varies according to the type of barcode used. This limitation showed up most noticeably on the URLs for our catalog searches, which are very long. Camera quality can vary greatly across cell phone brands, and initially library staff had trouble decoding the most data-dense of mobile tags, either because of the phone's camera or simply because of the tag's data limits. Using a URL shortener, such as TinyURL, solved the problem. Library staff found BeeTagg's summary of usage tips and barcode characteristics very helpful (BeeTagg, 2009). For most library applications, however, the storage capacity of tags was not an issue.

While mobile tags can enhance a library display they do not guarantee the success of one. The subject matter of the exhibit should be sufficiently interesting to make patrons pursue the extra information in the tag. In addition, while most people have cell phones, not everyone does. The library staff was careful to make the exhibit sufficiently robust to be enjoyable to everyone, not just those people with cell phones, in order to equalize information access. The best use of mobile tags appears to be in creating an enhanced experience, not the core experience.

Conclusion

As an exhibit technique, mobile tags delivered many benefits. Tags allowed the library to incorporate electronic resources with physical objects, creating a richer display and showing more of what the library had to offer. Patrons could choose which tags to explore, enabling them to shape their experience according to individual interests. The tags also led patrons to discover other resources through the library's catalog because of the ease with which they could execute a tagged catalog search. Using tags provided a big return for a comparatively small amount of the library staff's time.

The library's first experience with mobile tagged displays was positive and is one ACU intends to develop. Mobile tagging offers many possibilities worth exploring. Libraries exist in both a physical and electronic environment. Given the ability of mobile tagging to bridge the two environments, this technology offers strong potential for the future-oriented library.

References

- BeeTagg (2009). QR Code System From BeeTagg. Retrieved from <http://www.beetagg.com/beetaggssystem/default.aspx>
- Blowers, H. (2009, June 26). QR tags & concept leadership [Web log message]. Retrieved from <http://www.librarybytes.com>
- Dutka, A., Hayes, S., & Parnell, J. (2002). The surprise part of a librarian's life: Exhibition design and preparation course. *College & Research Libraries News*, 63(1), 19-22.
- Fiorella, M. (2007, January 17). Japanese QR codes provide marketers a glimpse of the future [Web log message]. Retrieved from http://www.japanmarketingnews.com/2007/01/in_previous_art.html
- Hill, N. (2009). Hyperlinking reality. *Library Journal*, 134(12), 38-39.
- Jones, G. (2007, January 21). Mobile codes are coming [Web log message]. Retrieved from <http://interactivemarketingtrends.blogspot.com/2007/01/gr-code-generatorreader.html>
- Kroski, E. (2008). On the move with the mobile web: libraries and mobile technologies. *Library Technology Reports*, 44(5), 23-24. Retrieved from <http://alatechsource.metapress.com/content/r7n19515884u2618/fulltext.pdf>
- McKiernan, G. (2009, August 14). JISC/MLA: An introduction to QR codes [Web log message]. Retrieved from <http://mobile-libraries.blogspot.com/2009/08/introduction-to-mobile-web.html>
- Rondeau, A. R., & Wiechers, M. (2005). About Semapedia. Retrieved from <http://en.semapedia.org/community/about>

Laura Baker, B.B.A., M.L.I.S., is the Emerging Technologies Librarian at Abilene Christian University Library, Abilene, Texas.

©2010, L. Baker. *Journal of Library Innovation* is an open access journal. Authors retain the copyright to their work under the terms of the following Creative Commons license: Attribution-Noncommercial-No Derivative Works 3.0 (United States)
<http://creativecommons.org/licenses/by-nc-nd/3.0/us/>