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Robin Ashford
George Fox University, rashford@georgefox.edu

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Robin Ashford

QR codes and academic libraries

Reaching mobile users

QR (quick response) Codes, a type of barcode, are beginning to make inroads in the United States. They are still largely unknown, but early adopters in higher education and recent urban promotional campaigns are changing that. As with any new technology, it is important to understand what they can do and when they can help our users.

A QR code is a matrix barcode readable by smartphones and mobile phones with cameras. They are sometimes referred to as 2d codes, 2d barcodes, or mobile codes. On most phones purchased in the United States, one must download a free app (application) in order to read the QR code, although some phones have one preinstalled.

The QR code typically appears as a small white square with black geometric shapes, though colored and even branded QR codes are now being used. QR codes can hold much more information than a regular barcode. The information encoded in a QR code can be a URL, a phone number, an SMS message, a V-card, or any text. They are referred to as *QR* because they allow the contents to be decoded at high speed. QR codes were developed in 1994 by Denso-Wave, a Toyota subsidiary.

There are several reasons to believe this may be the time to prepare for mainstream use of QR codes in the United States, and for academic institutions and libraries to start implementing this technology. The number of smartphones and Internet-enabled cell phones in this country is increasing rapidly. Marketing data says we should expect smartphones to be in the hands of half of all U.S. mobile users by the end of 2011. As handsets change, so do the ways we use these devices. Remember when students used to walk around campuses with their ears glued to their cell phones? Now we see them walking and texting. Voice has become less relevant, and the focus has transitioned to data.

The 2009 ECAR study of undergraduate students and information technology found that 51.2 percent of respondents owned an Internet-capable handheld device, and another 11.8 percent planned to purchase one within the next 12 months.[1]

Although many students were not using those devices to access the Internet, partly due to data plan prices, that could quickly change. Price wars among carriers are driving data costs down. Mobile site creation by academic institutions, easy social network access, and the growing number of popular mobile apps, points to the likelihood that more students will opt for the convenient and useful data available to them via handheld devices.

QR codes are ubiquitous in Japan, where they originated, and have been popular for years. They appear in store windows, on posters, billboards, and buildings; they are on receipts, in doctor's offices, TV commercials, and on McDonald's wrappers, where the code is scanned for ingredients/nutritional content. A Japanese gravestone maker has even embedded QR codes within gravestones so that people are able to find out more about the person buried there.

Robin Ashford is reference and distance services librarian at George Fox University in Oregon, e-mail: rashford@georgefox.edu

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Essentially, QR codes are a convenient way to add the virtual to the physical—to provide useful content, often at the time of need. QR codes are also gaining traction in much of Europe, where many cities, academic libraries, and campuses have been exploring their potential. The "ACRL 2010 top ten trends in academic libraries" predicts "explosive growth of mobile devices and applications will drive new services."[2] The widespread use of QR codes could surely be a part of that.

QR codes are a low-threshold technology. Low-cost, easy to implement, and easy to use, they are a technology that provides a lot of bang for the buck, when implemented wisely.

Businesses are beginning to use QR codes in large U.S. cities to promote their brands and entice customers in new ways. They are following the trends that show we may soon have a critical mass of the population with the equipment in their hands to leverage this technology.

Big name brands like Ralph Lauren and Calvin Klein are beginning to embrace QR codes as a key component of their marketing efforts in magazine ads and posters. Luxury Manhattan retailer Michael C. Fina recently debuted its "mobile storefront" on 5th Avenue with QR codes to celebrate a line of featured designer jewelry.

In July, a giant QR code was displayed on the Thomas Reuters billboard in Times Square. When scanned, the code took users to a well-designed mobile site where they could watch the "Be the One" campaign video and sign a petition to help clean up the Gulf oil spill. More major brand use of QR codes is in development (television ads are coming), which will raise awareness and eventually lead to their mainstream use.

How are QR codes generated?

Creating a single QR code is a simple process. There are many free QR code generators available; one I regularly use is the Kaywa QR code generator.[3] This code generator allows four different content types, a URL, text, phone number, or SMS and a choice of four sizes—small, medium, large, or extra-large. Creating a code is as simple as choosing a content type, adding your URL or other data, and clicking the "generate" button. The QR code is immediately created and can be copied, saved, or embedded. An easy-to-use Google Chrome QR code extension allows one to create a QR code while visiting any URL in one easy click. A QR code is instantly generated and pops down from the corner of the browser's address bar, with an option to save to disk or share on Facebook.

For batch QR code creation, I spoke with Alex Rolf, technical services librarian at my library, to find out how he created a batch of codes for the current magazine and journals area at the main campus library. "I signed up for a 24-hour account with qrstuff.com to batch-produce several hundred QR codes," said Rolf. "I chose them because they could do a batch, they made them about the right size, and they were fast and cheap. When I got my zip file of several hundred JPGS, I used Excel to generate HTML code arranging them all in a table, then just printed the Web page."[4]

How are libraries using QR codes?

Librarians and staff in large research universities, small liberal arts institutions, public libraries, and museums are experimenting and discovering useful ways to implement QR codes in both their physical and online libraries.

"Library Success: A Best Practices Wiki" has a QR Codes page and is one place where librarians and others can share and link to how their libraries are using QR codes.[5] The wiki provides a great way to find ideas and learn from each other.

Examples of QR code uses in libraries include:

- Library exhibits that include a QR code link to songs, videos, Web sites, surveys, contests, etc. or other information that augments the exhibits.
- Codes in the library stacks/end caps or magazine/journal areas that point to online electronic holdings of print materials or related subject guides.

Figure 1. QR Code for a George Fox University (GFU) Library video playlist.

• Linking to library audio tours for orientations.

• Code added to print handouts for additional information on mobile friendly sites.

• QR code with text that loads the library's text message reference service and other contact information into the patron's phone.

• Art shows or permanent art in libraries with a QR code linking to the artists' Web sites.

• In catalog records to offer patrons basic info about an item, including the location and call number. Users can scan the code and head to the stacks rather than writing or printing.

• Taped to video/DVD cases, linking to mobile-friendly video trailers.

• Code placed on staff directory pages and research guides that go to mobile friendly sites for later reference.

• Code placed on audio book cases for author interviews or books for reviews.

• Code placed on study room doors connecting to room reservation forms.

• Library video tutorials—individual videos or create a QR code to a YouTube playlists of videos, which create a great mobile home screen app that can be saved for easy access, as needed.

At my library, we're experimenting and learning. Our goal is to use QR codes in interesting and useful ways. It can be a challenge, as some URLs, which could be potentially very useful, aren't yet available in mobile friendly formats. We created a QR code to link to our library's short introductory video playlist on YouTube (See Figure 1 and Figure 2), to point to online magazine/journal access, video trailers for DVDs, and more.[6]

Questions we've been asking ourselves as we plan for the future include: Just how useful is a QR code that does not take the person to a mobile friendly site? Does scanning the code provide library users with something they might regularly use on a mobile device (i.e., a mobile library catalog)? Does the code provide additional information at a point of need? Does it make sense for mobile use?

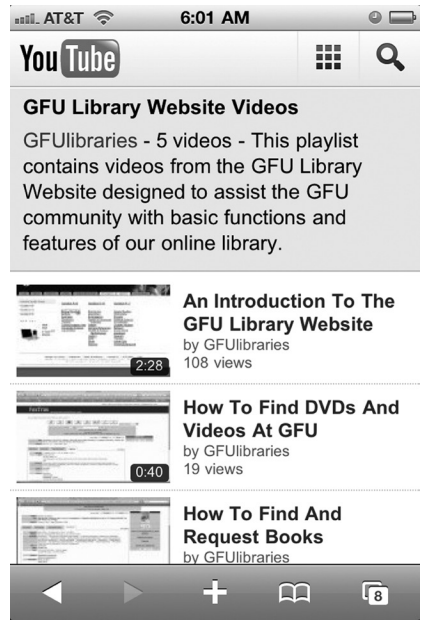

Figure 2. GFU Library video playlist mobile iPhone screenshot.

An even greater challenge is the need to educate our university communities about QR codes and their uses, how to make them work on different devices, etc. San Diego State University Library and University of Bath Library have both done a nice job of incorporating QR codes in their catalogs and elsewhere on their sites and provide links under the QR codes to a library information page with resource links, a perfect time and place to educate users.

Library promotion of QR codes is also important to consider (see Figure 3). This will be our next project, as our mobile library catalog has just been released. A QR code for our mobile catalog, one of the most practical uses of

a QR code (which can be added to a mobile device home screen for future reference), will be placed on promotional materials, most likely a bookmark or small card of some kind along with the library logo, and distributed widely in physical spaces around campus, as well as on our library Web site.

Figure 3. QR code-University of Amsterdam promotes their mobile site. Image credit: lukask's photostream.

There is growing educational potential for QR codes. New mobile apps for reading codes are regularly being released. For instance, i-nigma, a free QR code reader that works on more than 400 different devices, keeps a history of scans inside your app and includes options to add to a favorites folder of scanned QR codes. This means, for example, a student who scans QR codes from a library catalog in the middle of the night in his or her dorm room could head to the library stacks the next day, click open the app to refer to the call numbers of the titles scanned the night before, and quickly find the books. Also, expect to see QR code scanner/reader apps that allow users to tag, share, comment, collaborate, and more in the future.

An innovative library vendor

Alexander Street Press (ASP) has devised an innovative use for QR codes in their subscription-based Music Online databases. In a July 2010 press release, ASP President Stephen Rhind-Tutt announced that "Patrons of subscribing libraries can now listen to hundreds of thousands of classical, jazz, world music, and other recordings from smart phones and other mobile devices."[7]

I gave it a try and here's how it worked—I logged in to one of our Music Online databases and searched a name, found a playlist I was interested in, and clicked a small cell phone icon next to the list. This opened a pop-up window titled, "Send to Mobile Device" with three options listed (see Figure 4).

Of the three ways to send the playlist to a mobile device, Option 3, the QR Code, is

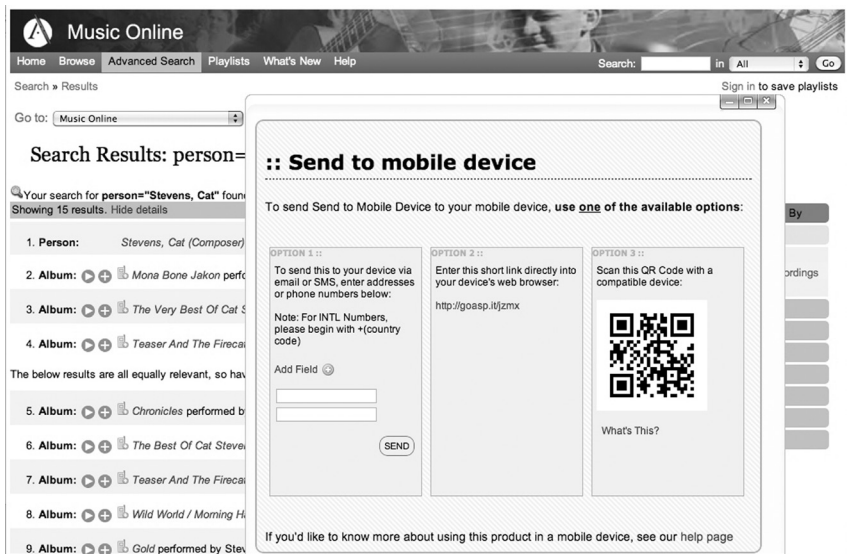

Figure 4. Music Online Database—send to mobile device.

the simplest. It states "Scan this QR Code with a compatible device," and provides a "What's this?" link below, which links to a Wikipedia page on QR codes.

I scanned the code and was delighted by the playlist in a very nice music player that appeared instantly on my mobile device; in less than two seconds, I was listening to music. My device also presented an option to "Add to Home Screen." Now I could open the app to listen to music anywhere at my convenience. The music downloaded this way expires after 48 hours; to listen to it after that, one would login again to repeat the simple process. Impressive, and they are doing the same thing to their streaming video collections. I hope more vendors follow their lead and develop easy ways to send content to mobile devices. QR codes are a great choice to include as an option in the process.

Conclusion

Academic libraries are poised to benefit from the momentum created by the uptake of QR codes in the corporate world and popular culture. However, for this to succeed, we need to take care to implement QR codes where they really make our users' lives easier. Blanketing a library with QR codes that provide little value could backfire, leaving users less apt to try other QR codes. This could result in a lost opportunity for libraries and campuses to leverage a really useful technology.[8]

Notes

1. Shannon D. Smith, Gail Salaway and Judith Borreson Caruso, "The ECAR Study of Undergraduate Students and Information Technology, 2009" (Boulder, CO:Educause Centre for Applied Research, 2009), www.educause.edu/ir/library/pdf/ers0906/rs/ERS0906w.pdf.

2. ACRL Research Planning and Review Committee, "2010 top ten trends in academic libraries: A review of the current literature," *C&RL News* 71, no. 6 (June 2010): 286–92.

3. Kaywa QR code generator can be found at http://qrcode.kaywa.com/.

4. Alex Rolfe, e-mail message to author, September 26, 2010.

5. Visit www.libsuccess.org.

6. A Flickr set of images with descriptions of our QR code use can be found at http://bit.ly/9cJ0Ao.

7. Alexander Street Press, "Alexander Street Streaming Music Collections Go Mobile—Easy Access Options Include QR Codes." Last modified July 15, 2010.

8. Resources mentioned in this article and more on QR codes is available at www.delicious.com/rashford/ACRL_QRcodes.

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