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This paper presents the findings of a study designed to assess the use of Quick Response (QR) Codes in visual materials exhibits in library, archive, and museum visual materials exhibits. Seven institutions were recruited to fill out a survey to assess the perceived ease or difficulty of implementation of QR Codes, usefulness of the technology, and likelihood of using this or other mobile technology in future exhibits. A lack of adequate survey responses prevented the author from presenting substantive statistical conclusions; however, the author speculates about a perceived decline in use of QR Codes in libraries, archives, and museums, as well as potential future research into mobile technologies in visual materials exhibits.

#### Headings:

- Quick response codes.
- Mobile telephony.
- Internet telephony.
- Audiovisual materials.

QUICK RESPONSE CODES IN VISUAL MATERIALS EXHIBITS

by  
Kait E. Dorsky

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Approved by

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Richard Marciano

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## **Introduction**

Archives, museums, and libraries contend with the constant challenge of increasing exposure and use of their collections, and implement exhibits of visual materials – photographs, moving images, art objects, etc. – to draw in patrons and publicize their holdings. However, many resources must be excluded from these exhibits, for reasons of access restrictions or simply the scope of the exhibit, but these resources are available online or for use on-site. In addition, institutions must also provide easy ways to link patrons from the exhibit back to finding aids to increase use beyond exhibit attendance, but making that link may be difficult, especially for exhibit visitors who may not have come for research in other collections.

With the increase in popularity of marketing via mobile technology, some institutions have included Quick Response (QR) codes in their exhibits. QR codes are “a type of two-dimensional barcode or data matrix.”<sup>1</sup> Users scan these codes with smartphones that have a QR code reader installed, at which point the code links the phone to digital content. In the context of a library, archive, or museum, the QR code could link users to saved searches of the institution’s online collections, additional text information about the exhibit, or other information to add value to the materials on display.

The purpose of this study was to evaluate the use, and perceived usefulness, of QR codes incorporated into visual materials exhibits in libraries, archives, and museums. In

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<sup>1</sup> Matthew Hoy, “An Introduction to QR Codes: Linking Libraries and Mobile Patrons,” *Medical Reference Services Quarterly*, 30 (2011): 295.

considering the use of this technology in these specific settings, my research attempts to evaluate a potential tool that may be used more broadly by exhibit coordinators to add value to exhibits, and broaden the exposure of their collections.

## **Research Questions**

In order to ascertain the perceived usefulness of QR codes in visual materials exhibits by staff members who made use of them, I focused on several specific research problems:

1. How are QR codes being used in visual materials exhibits? More specifically, how are they displayed, what information do they link to, and how many were used?
2. How did staff evaluate the usefulness of the QR codes?
3. What was the perceived benefit, if any, of implementing QR codes? Will staff that used QR codes in the past use them again?

By surveying staff that have used QR codes in the past, my goal was to evaluate their usefulness, considering their potential future use in visual materials exhibits, or reasons why staff will not be using them again.

## Literature Review

While scholarly literature related to QR codes has been increasing in recent years, the primary focus of these articles is on the use of these codes in marketing and advertising industries, which have been the most prolific users of the technology. For-profit companies have made use of QR technology since its inception, but some not-for-profit and cultural organizations have also begun to use codes to promote their services to a more digitally oriented generation. The Fort Smith National Park used QR codes on park signs to link to an informational video about the park's attractions and history and tracked use of the codes through their chosen generator.<sup>2</sup> While generating the codes and adding them to signs was a simple and low-cost task, park employees found that the logistical and financial challenges lay in creating content that would be captivating enough to encourage use by park patrons.

One example of QR code use occupies a space somewhere between marketing and cultural heritage use. The Tales of Things project, part of the larger TOTeM project based out of several universities in the United Kingdom, uses QR codes to tag and track objects, as a way to document social memory.<sup>3</sup> Users can create video or textual stories about their objects, which are linked through QR codes attached to the physical object. These stories are geolocated, allowing users to track the objects even if they are no longer the

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<sup>2</sup> Theresa Cramer, "Taking QR Codes to the Park," *Customer Relationship Management*, 15 (2011): 26.

<sup>3</sup> "About Tales of Things," Tales of Things, accessed February 20, 2013, <http://www.talesofthings.com/totem/about/>.

owner, and other people who find those objects can add additional information on top of the original story.

In spite of the focus of related scholarship on marketing uses of QR codes, recent scholarship has also analyzed various applications in libraries. Beatrice Pulliam and Chris Landry discussed the logistics of mobile tagging, specifically using QR codes, in library systems in “Tag, You’re It! Using QR Codes to Promote Library Services.”<sup>4</sup> Benefits of this technology include flexibility of linked data types and ability to change those links as needed; low cost of production; the ISO standardization of QR codes make them widely usable; and, they can link to a large amount and wide variety of data, tying a physical sign to a digital object or set of information.<sup>5</sup> In the academic library featured in the article, QR codes were implemented as part of a group of new mobile services, and focused mainly on connecting students to reference and technology services; the public library featured them in promotions of library services and special events. The focus on marketing library services follows from the original use of this technology in marketing fields, and is a useful tool in library engagement strategies.

In “An Introduction to QR Codes: Linking Libraries and Mobile Patrons,” Matthew Hoy compares potential uses and benefits of QR codes with challenges to implementation. Some suggested uses are on shelf end caps linking to the contents of the shelf, on study rooms and reservation forms, and linking to Wi-Fi setup instructions.<sup>6</sup> However, while QR codes are relatively easy to implement, challenges lie in teaching patrons how to use the technology, ensuring that the necessary applications are installed

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<sup>4</sup> Beatrice Pulliam and Chris Landry, “Tag, You’re It! Using QR Codes to Promote Library Services,” *The Reference Librarian* 52 (2010).

<sup>5</sup> Pulliam and Landry, “Tag, You’re It!” 69.

<sup>6</sup> Hoy, “An Introduction to QR Codes,” 297.



on their mobile devices, and creating captivating content to encourage use.<sup>7</sup> Megan Dempsey reiterates many of the same challenges in “QR Codes: Fun Fad or Valuable Tool for Libraries,” acknowledging the learning curve and possible technological barriers to QR codes becoming ubiquitous in libraries.<sup>8</sup> examples noted in her article include codes in academic libraries linking to reference services and library information, as well as incorporation into a library introductory tour for new college students.<sup>9</sup> These types of QR code use are aimed at young people, primarily students, who are typically more likely to already be familiar with this technology and own a compatible code-reading device. Further challenges exist in spreading QR code use beyond this population and aiming QR code engagement to a wider audience.

Other cultural institutions, specifically museums, have used QR codes to engage audiences and add value to exhibits. The Brooklyn Museum has experimented with attaching QR codes to several art installations, which provide users with additional information about the exhibit that is otherwise available at information desks or computers.<sup>10</sup> Chris Speed, the primary researcher on the Tales of Things project, has also worked with the National Museum of Scotland, where curators of the “living memory” gallery installed QR codes on the everyday objects included in that gallery. The codes allowed users to add personal stories related to those objects in a similar fashion to the

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<sup>7</sup> Hoy, “An Introduction to QR Codes,” 298.

<sup>8</sup> Megan Dempsey, “QR Codes: Fun Fad or Valuable Tool for Libraries,” *Journal of Electronic Resource Librarianship*, 23 (2011): 296-297.

<sup>9</sup> Dempsey, “QR Codes,” 295-296.

<sup>10</sup> “QR Code Conundrum,” Brooklyn Museum, last modified October 20, 2011, <http://www.brooklynmuseum.org/community/blogosphere/2011/10/20/qr-code-conundrum/>.

Tales of Things project, which further support the mission of creating social histories of these objects.<sup>11</sup>

The primary goals of many libraries in incorporating QR codes into their marketing and engagement strategies are to attract patrons to the library by promoting services and events, as well as enhancement through connection to online content. Tim Blevins examines use of QR codes in both capacities by the Pikes Peak Library District in “How QR Codes Add Value to Library Programming.”<sup>12</sup> Codes included on promotional postcards advertising a movie screening were minimally used. However, they met greater success by including codes in an exhibit of historical photographs of the community, entitled “Framing Community/Exposing Identity: Iconic Images Capturing Life at the Foot of Pikes Peak.” The codes were included on signs with basic descriptive information, linking to brief videos in which exhibit curators discussed the photograph in further detail.<sup>13</sup> This type of linked digital content allows exhibit patrons to explore the collection more fully and may encourage further use of the collections in the future.

While assessing the likelihood of those who make use of these codes to return to the library or archives would be impractically difficult, tracking use of the codes is a step that most libraries have included in their implementation of QR codes. Kwabena Sekyere gives suggested instructions for tracking and analyzing use of QR codes in libraries in

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<sup>11</sup> “#MuseumNext video QR codes, Smart Objects, Museums and Public Engagement,” Digital Museums, last modified August 11, 2012, <http://www.scoop.it/t/digital-museums?tag=Chris+Speed>.

<sup>12</sup> Tim Blevins, “How QR Codes Add Value to Library Programming,” *American Libraries Magazine*, 43 (2012): 18-20.

<sup>13</sup> Blevins, “How QR Codes Add Value,” 18.

“QR Codes in Libraries: Uses and Usage Tracking.”<sup>14</sup> These instructions suggest creation of an in-house system and database for data collection and tracking, with Google Analytics as an alternative.<sup>15</sup> The importance of tracking and analyzing use data is critical to assessing the effectiveness of QR codes as an engagement tool in libraries and archives, as well as for defense to administrators as a beneficial use of time and resources.

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<sup>14</sup> Kwabena Sekyere, “QR Codes in Libraries: Uses and Usage Tracking,” *College & Undergraduate Libraries*, 19 (2012): 95-100.

<sup>15</sup> Sekyere, “QR Codes in Libraries,” 99-100.

## **Methodology**

This study sought to evaluate the perceived value of including QR codes in visual materials in archives, libraries, and museums, and the likelihood of future use by these institutions. A survey was designed to evaluate these topics, including questions regarding the means of implementation, tracking of QR code and collection use, perceptions of usefulness and difficulty, and plans to use QR codes and/or additional mobile technology in future exhibits. The survey included a combination of multiple choice and free response questions.

In order to evaluate the perceived usefulness of QR codes, I identified a sample of seven library, archival, and museum institutions that have used QR codes as part of visual materials exhibits. Study participants were solicited by email, including an explanation of the study, as well as an attached survey. The survey was available for three weeks, with reminder emails sent out two, and then one week prior to the submission deadline. Surveys were returned via email, and compiled in a Microsoft Word document.

## Survey Results

The single respondent to the survey was a librarian in the Harvard Map Collection, who made use of QR codes in an exhibit titled “Going for Baroque: The Iconography of the Ornamental Map”<sup>16</sup> in 2011. The QR codes linked to digitized maps, including more detailed images of the maps on display, as well as additional descriptive information.<sup>17</sup> The digital components linked to by the QR codes were created specifically for this exhibit, and the QR codes were generated using Kaywa.com<sup>18</sup>, which carried no cost. More than 10 QR codes were used in the exhibit, displayed on item labels with no instructions for use. Use of QR codes was tracked using bit.ly<sup>19</sup>. While the librarian found QR codes easy to implement, and did not encounter problems or complaints from users, library staff did not feel that the codes increased use of linked resources, and do not plan on using QR codes or other mobile technology in future exhibits.

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<sup>16</sup> “Going for Baroque: The Iconography of the Ornamental Map,” Harvard Map Collection, accessed March 18, 2013, <http://www.hcl.harvard.edu/libraries/maps/exhibits/baroque/>.

<sup>17</sup> “QR Codes Reveal Hidden Messages in Maps,” Harvard College Library News, last modified June 14, 2011, [http://www.hcl.harvard.edu/news/articles/2011/baroque\\_maps.cfm](http://www.hcl.harvard.edu/news/articles/2011/baroque_maps.cfm).

<sup>18</sup> “Kaywa,” Kaywa, accessed March 18, 2013, <http://www.kaywa.com/>.

<sup>19</sup> “Bitly,” Bitly, accessed March 18, 2013, <https://bitly.com/>.

**Limitations**

The most significant limitation of the study was the fact that only one solicited participant returned a completed survey. Because of this, there is no way to evaluate a sample of institutions for statistical information on the use of QR codes, and any conclusions from the returned survey cannot be extrapolated by more than speculation.

In addition, this study only evaluated the use of QR codes in visual materials exhibits. Further study is needed to evaluate the use of this technology in textual materials exhibits, as well as other functions of cultural institutions.

## Conclusions

There are several notable aspects to the survey results. First, the QR codes were displayed on labels for exhibited items, but had no instructions for use. It is possible that exhibit patrons may not have known what the codes were, or how to use them. While one might hope that patrons would ask library staff about how to use the codes, it is a perennial challenge in many aspects of librarianship that patrons are often reluctant to ask for assistance. In addition, had it been made more apparent what the codes' purpose was, and what kind of information could be found by using them, it is possible that they might have been more effective.

Second, library staff created digital resources specifically for the purposes of linking them to the exhibit through QR codes. While the respondent noted that they did not find QR codes difficult to implement, using existing digital resources instead of creating new ones may have further lightened the work required to incorporate QR codes into the exhibit.

Third, the content of the exhibit – maps – may have made mobile phones a problematic platform through which to explore related content. Assuming that the linked visual materials were more maps – the respondent did not clarify the specific types of materials that were digitized for the exhibits – they may have been difficult to navigate on such a small screen. Users may not have been able, or patient enough, to become fully engaged with the digital content in a way that would encourage further use of the collections

While it is impossible to make large assumptions about general opinions regarding QR codes from a single survey result, it is clear from that result that at least this

institution did not receive any notable benefit from the implementation of QR codes in their visual materials exhibit. While there are many low- or no-cost methods of implementing QR codes, and means of making them a low time commitment in terms of implementation and tracking, it seems from this result that library, archives, and museum staff are not especially interested in making further use of this technology.

The lack of wider response to this survey may further serve to emphasize the possibility that QR codes have gone out of technological fashion. Websites like the Tumblr “Pictures of People Scanning QR-Codes”<sup>20</sup> demonstrate the perceived user decline of the technology, as the website intentionally has no posts. Recent articles in business magazines have discussed the fading popularity of QR codes in advertising from a user perspective in contrast to the advertising industry’s continued inclusion of codes in advertising campaigns. According to the founder of Scan (a QR code generator and reader company), most failed QR code campaigns have failed due to poor implementation – overly complicated linked sites, links to sites that users are not interest in visiting.<sup>21</sup> An article in Businessweek pointed out that while QR codes were useful for tracking manufacturing equipment (they were invented for use in the automobile industry) and seem to be catching on for mobile ticketing, advertisers are pushing them

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<sup>20</sup> “Pictures of People Scanning QR-Codes,” Tumblr, accessed March 31, 2013, <http://picturesofpeoplescanningqrcodes.tumblr.com/>.

<sup>21</sup> “QR Codes Are Dead! Long Live QR Codes! A Conversation With Scan’s Founder, Garrett Gee,” Forbes, last updated December 6, 2012, <http://www.forbes.com/sites/alextaub/2012/12/06/qr-codes-are-dead-long-live-qr-codes-a-conversation-with-scans-founder-garrett-gee/>.



on unwilling audiences.<sup>22</sup> Because people expect advertisements from QR codes, they often do not use them to avoid those ads.

This disinterest in using QR codes may extend to use in cultural institutions, which are using them in what amount to advertising campaigns, for their collections instead of products for purchase. Nonetheless, other applications of QR codes – linking to institutional help and how-to sites, or links from exhibits to simpler web content – may prove more successful in cultural institutions and other non-profits. Additional studies could investigate the potential success of these changes, and shared knowledge and experiences between the cultural and advertising industries may serve to improve the user engagement for both. Further research is also needed to establish whether new mobile technology, like augmented reality, has replaced or will replace QR codes in these settings, or whether staff is focused on other methods of engaging patrons and publicizing collections.

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<sup>22</sup> Mark Milian, “QR Code Fatigue,” Bloomberg Businessweek, last updated June 28, 2012, <http://www.businessweek.com/articles/2012-06-28/qr-code-fatigue>.

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**Appendix – Participant Survey**

1. Background info  
Name:  
Institution:  
Job Title:
2. What was the subject matter of the exhibit using QR codes?
3. What code generator did you use to create the codes? Was there a cost associated?
4. What type of resources did you link to through the codes (visual, manuscript)?  
Visual:  
Manuscript:  
Audio-Visual:
5. Were the linked resources created for this use, or did they already exist?
  - a. Created for this purpose
  - b. Already digitized
6. How many QR codes did you use?
  - a. 1-3
  - b. 4-6
  - c. 7-9
  - d. 10 or more
7. How did you display the codes (posters, item labels, etc.)? Did you include instructions?
8. Did you find them difficult to implement?
9. Did you track use of codes during exhibit? If so, what software did you use?
10. Did you encounter problems or complaints from users?
11. Do you feel that using codes increased use of linked resources?
  - a. Yes
  - b. No

12. Do you plan to use codes in future exhibits?

- a. Yes
- b. No

13. If not, are there other mobile technology tools that you're using instead?