

U.S. Public Libraries and the Use of Web Technologies, 2012

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Summary of Findings

This report presents the results of the third iteration of the biennial study, *U.S. Public Libraries and the Use of Web Technologies*. The Library Research Service launched this study in 2008 with the intent to document the use of various web technologies on the websites of public libraries throughout the nation (Lietzau, 2009). From its inception, it was conceived as a longitudinal study, with plans to revisit the sample libraries every two years to track changes in libraries' uses of web technologies. The study is conducted as a content analysis: researchers analyze a random sample, stratified based on legal service area (LSA) population, of public library websites throughout the United States (584 in 2012), as well as the websites of all public libraries in Colorado (114—9 of which are in the national sample). The results of the 2008 study set a baseline for the adoption of web technologies nationwide. The study was repeated in both 2010 and 2012, and these iterations expanded upon the 2008 findings by tracking the trends in U.S. public libraries' use of web technologies over time as well as by examining new technologies as they emerged (Lietzau & Helgren, 2011). Highlights from the **national portion** of the 2012 study are presented below:

What are web technologies?

The term “web technologies” refers to a variety of Web 2.0 tools that enable interactivity with users, such as social networking, virtual reference, RSS feeds, and blogs. For the sake of brevity, we use the term “web technologies” to encompass all of these types of software, tools, delivery methods, and techniques.

In 2012, **most U.S. public libraries in the sample had websites**, including:

- all of those serving LSA populations of 25,000 and more;
- 98 percent of those with LSA populations of 10,000 to 24,999; and,
- a little more than 4 in 5 (83%) of those serving LSA populations less than 10,000 (up from 71% in 2010).

Over time, library websites were analyzed for the presence of several **web features that enable interactivity with users** (for example, virtual reference, blogs, etc.). Some notable findings included:

- Generally, the biggest increases in terms of adoption of these features occurred in the smallest libraries. This was true for **online account access** (45% in 2010 vs. 70% in 2012), **blogs** (6% vs. 10%), **RSS feeds** (10% vs. 20%), and **catalog search boxes** (14% vs. 25%).
- In contrast, in larger libraries, many of these features either remained relatively constant or declined from 2010 to 2012. One notable exception was **text reference**, which increased from 13 percent to 43 percent in libraries serving more than 500,000.
- In most libraries, regardless of size, **ShareThis/AddThis features** increased, **email newsletters** and **online library card sign up** held relatively constant, and **chat reference** dropped from 2010 to 2012.

The majority of libraries had **social media accounts**:

- Almost all (93%) of the largest libraries, a little more than 4 in 5 (83%) libraries serving between 25,000 and 499,999, 7 in 10 (69%) of those serving 10,000 to 24,999, and 54 percent of the smallest libraries had at least one social media account.
- Of the 9 social networks that were analyzed, **libraries were most likely to be on Facebook** (93% of the largest libraries, 82% of libraries serving between 25,000 and 499,999, 68% of libraries serving between 10,000 and 24,999, and 54% of the smallest libraries). From 2010 to 2012, the smallest libraries had the biggest jump in adoption of this social network, from 18 percent to 54 percent.
- Other common social networks were **Twitter** (84% of the largest libraries were on this network) and **YouTube** (60% of the largest libraries). **Flickr** was also common, however, it has decreased in all population groups from 2010 to 2012; for example, 63 percent of the largest libraries used this social network in 2010 versus 42 percent in 2012.
- Close to one-third (31%) of the largest libraries were on **Foursquare**, 23% were on **Pinterest**, and 8 percent each were on **Google+** and **Tumblr**.
- The largest libraries were on an average of 3.54 social networks out of the 9 included in the analysis, whereas the smallest libraries averaged less than 1.

Since 2010, the number of libraries that catered to **mobile devices** has increased dramatically:

- Three-fourths of the largest libraries, about 3 in 5 libraries serving between 25,000 and 499,999, one-third of libraries serving between 10,000 and 24,999, and 17 percent of the smallest libraries offered some type of **mobile-friendly website access**. In contrast, in 2010, 12 percent of the largest libraries, 3 percent of libraries serving between 100,000-499,999, and no libraries serving less than 100,000 offered mobile-friendly website access.

In terms of the specific **type of mobile access**,

- 3 in 5 of the largest libraries, about half (48%-52%) of libraries serving between 25,000 and 499,999, 1 in 5 (19%) libraries serving between 10,000 and 24,999, and 2 percent of the smallest libraries offered **mobile applications (apps)**;
- 2 in 5 (41%) of the largest libraries, about one-fourth (23-25%) of libraries serving between 25,000 and 499,999, 1 in 5 libraries serving between 10,000 and 24,000, and 14 percent of the smallest libraries had **mobile versions of their sites** (i.e., the URL redirected to a mobile version of the website when viewed on a mobile device); however,
- just 9 libraries used **responsive design**.

Colorado highlights from the 2012 study:

In 2012, **9 in 10 Colorado public libraries had websites**, including:

- all of those serving LSA populations of 100,000+ and 10,000-24,999;
- 93 percent of those with LSA populations of 25,000-99,999; and,
- more than 4 in 5 (85%) of those serving LSA populations less than 10,000 (up from 79% in 2010).

Over time, Colorado public library websites were analyzed for the presence of several **web features that enable interactivity with users** (for example, virtual reference, blogs, etc.).

Some notable findings included:

- Technologies that increased from 2010 to 2012 included: **online library card sign up** (9% to 17%), **online account access** (75% to 80%), **email newsletter** (18% to 27%), **AddThis/ShareThis interface** (18% to 24%), **chat reference** (59% to 67%), and **text reference** (1% to 4%).
- Technologies that decreased included **blogs** (21% to 15%) and **email reference** (25% to 22%).
- However, these trends varied depending on the library's LSA population. The smallest libraries increased their adoption of many of the web technologies, with the exceptions of **blogs** (12% to 5%), **AddThis/ShareThis interface** (15% to 11%), and **email reference** (13% to 5%). The largest libraries decreased their use of **online account access** (100% to 92%), **non-blog RSS feeds** (67% to 58%), and **chat reference** (100% to 75%), while showing the biggest gains in **online library card sign up** (33% to 67%), **AddThis/ShareThis interface** (33% to 75%), and **text reference** (0% to 25%).

A little more than half (53%) of Colorado public libraries had **social media accounts**:

- Almost all (92%) of the largest libraries, close to three-fourths (71%) of libraries serving between 25,000 and 99,999, more than half (57%) of those serving 10,000 to 24,999, and 40 percent of the smallest libraries had at least one social media account.
- Of the 9 social networks that were analyzed, **libraries were most likely to be on Facebook** (51%). From 2010 to 2012, libraries serving 25,000-99,999 had the biggest jump in adoption of this social network, from 36 percent to 71 percent.
- About 1 in 5 (21%) Colorado public libraries were on **Twitter** and 1 in 10 were on **YouTube** or **Flickr**. However, **Flickr decreased** in all population groups; for example, 36 percent of libraries serving 25,000-99,999 used this social network in 2010 versus 14 percent in 2012.
- One-fourth of the largest libraries were on **Pinterest**, 17 percent each were on **Foursquare** and **Vimeo**, and 8 percent were on **Tumblr**.
- The largest libraries were on an average of 3.50 social networks out of the 9 included in the analysis, whereas the smallest libraries averaged less than 1.

Since 2010, the number of Colorado libraries that catered to **mobile devices** has increased dramatically, from 2 percent to 36 percent:

- More than 9 in 10 (92%) of the largest libraries, 71 percent of libraries serving between 25,000 and 99,999, nearly half (48%) of libraries serving between 10,000 and 24,999, and 15 percent of the smallest libraries offered some type of mobile-friendly website access.

In terms of the specific **type of mobile access**,

- About one-fourth (26%) of Colorado public libraries offered **mobile applications (apps)**;
- 1 in 5 libraries had **mobile versions of their sites** (i.e., the URL redirects to a mobile version of the website when viewed on a mobile device); however,
- just 3 libraries used **responsive design**.

Introduction

In 2008, researchers at the Library Research Service (LRS) undertook the *U.S. Public Libraries and the Use of Web Technologies* study, with the intent to document the use of various Internet technologies on the websites of public libraries throughout the nation (Lietzau, 2009). The results of that study set a baseline for the adoption of web technologies nationwide by studying a random sample of public library websites, stratified by legal service area (LSA) population group, and included a Colorado-specific section of all public libraries in Colorado. From its inception, *U.S. Public Libraries and the Use of Web Technologies* was conceived as a longitudinal study, with plans to revisit the sample libraries at regular intervals to track the changing nature of technologies on the websites of public libraries throughout the country and in Colorado. This report constitutes the results of the third iteration of the biennial study.

What are web technologies?

The term “web technologies” refers to a variety of Web 2.0 tools that enable interactivity with users, such as social networking, virtual reference, RSS feeds, and blogs. For the sake of brevity, we use the term “web technologies” to encompass all of these types of software, tools, delivery methods, and techniques.

In the vein of the first and second studies, the 2012 edition was conducted as a content analysis, as opposed to a survey to the field. Please see the first report for an explanation of the benefits and drawbacks to this methodology. During the fall and early winter of 2012-2013, LRS staff visited the websites of 689 public libraries in the United States, searching for the presence of various technologies. The national sample was comprised of 584 libraries, while the remaining 105 were Colorado public libraries that had not been selected as part of the national sample.

The results included here represent a “snapshot in time” for each library. It is quite possible that a library adopted a specific technology shortly after LRS staff visited its website. In such a case, for this study it will still be treated as not using the technology in question. Also possible, though less likely, would be libraries which abandoned technologies shortly after staff visited their sites.

Literature Review

Libraries and Web 2.0

Since the mid-2000s, “Web 2.0” has rapidly evolved from a conceptual term associated with the Semantic Web and interactivity to a more general term encompassing social networking sites, virtual community building, and the explosion of opportunity afforded in both. “Library 2.0” developed as an extension of this phenomenon to focus specifically on how libraries are using and incorporating elements of Web 2.0 tools and social media into their own services to encourage participation from users. The concept is not without controversy: Some argue its principles demonstrate a progression of traditional library services and Library 2.0 is a superior

iteration; others find Library 2.0 is simply part of the “continuum of library development” (Kwanya, Stilwell, & Underwood, 2012, p. 145). Regardless, it is clear that libraries are using such technologies to interact with their users. No longer are libraries debating whether to adopt the technologies; rather, they are making more pointed decisions about the types of technologies they will adopt, and how they will customize the technologies for their needs. In order to make these decisions, libraries must consider their own context and potential for engaging and serving their users through such technologies (Anttiroiko & Savolainen, 2011).

Current Research

Public libraries

The research specific to public libraries and Web 2.0 technology usage is limited in scope, geography, and size. Some studies focus on a specific Web 2.0 tool, such as blogs (Crawford, 2011; McKendrick, 2012), while others examine a particular user group (Naughton & Agosto, 2012). Naughton and Agosto (2012) studied a group of 30 teens from 3 public libraries in New Jersey to understand their use expectations and preferences for websites and used their results to make basic design recommendations such as simplifying layouts, keeping sites ad-free, and offering interactive and customizable features. Crawford (2011) tracked 252 public library blogs from 2007 to 2011 to determine general “health” of the blogs, whether they still existed, and how many comments appeared. While nearly 3 out of 4 blogs of the original 2007 batch were still around in 2011, just half of the blogs still active in 2011 had at least one post in a 2-week period, down from 54 percent in 2009 and 73 percent in 2007. Similarly, Library Resource Guide’s 2012 study of nearly 300 public library managers/librarians (summarized by McKendrick, 2012), found a decline in usage from 2011 to 2012 for wikis and blogs. This survey also found modest gains in social networking use, online reviews/ratings, and photo or video sharing web apps during this same time period.

Conducted annually by the State Library of South Carolina, one of the more comprehensive studies on libraries and Web 2.0 technology usage surveys nearly 550 librarians and library workers from all types of libraries to determine which Web 2.0 tools their libraries are using, what the tools are used for, and how effective the tools are at marketing library services (Rogers, 2011). When considering the results of this study, it should be noted that the effectiveness of these Web 2.0 tools was determined based on respondents’ perceptions, rather than measured outcomes. In 2011, the fourth iteration of this study, survey responses indicated libraries were using Web 2.0 tools to promote general library services, provide quick updates to users, and market specific adult programs or services. Facebook was by far the most common social media tool used; wikis were used the least. Respondents rated social networks as the most effective Web 2.0 tool for marketing and promoting library goals; virtual worlds were rated the least effective. Interestingly, online video and photo sharing were rated as the second- and third-most effective marketing tools, but were used by only 33 percent and 40 percent of libraries, respectively. Qualitative comments on each of these areas provided additional insight, particularly as some comments indicated restrictions or hesitancy on the part of library administration or local government to allow use of Web 2.0 tools in an official capacity.

Social media and social networks

Research suggests libraries and their users have 4 main types of interactions using social media and Web 2.0 technologies: knowledge or content sharing, communication, knowledge gathering, and information dissemination (Anttiroiko & Savolainen, 2011; Chen, Chu, & Xu, 2012). According to Chen, Chu, and Xu (2012), academic library users were more engaged in communication—activities including conversations between librarians and patrons—while public library users were most interested in knowledge sharing, such as librarians sharing information resources with patrons. Different tools and sites can be best used for one or more of these interactions; the driving factor is that “libraries should base their adoption of social media on their own natural context and learn the best way of applying its methods in their core processes” (Anttiroiko & Savolainen, 2011, p. 96). In other words, these technologies are used to enhance and renew existing library services—such as readers’ advisory and technology training—not to take the place of such services.

While engaging with patrons using social media has important relationship-building benefits, there are also drawbacks to these tools if not used effectively. The risk exists of social networking sites becoming another kind of “information feeding machine, sending content in one-way [rather] than interacting with users” (Chen, Chu, & Xu, 2012, p. 7). Avoiding this “information dump” can be achieved with assessment, evaluation, and strategic planning. Anttiroiko and Savolainen (2011) go further and state that the challenge for libraries is “to find ways of redesigning their core processes with the help of Web 2.0 applications and emerging trends in social media,” and suggest such redesign will require deep understanding of users’ needs and a willingness to transform core activities (p. 97).

Practitioner resources

As Web 2.0 technology usage becomes more matter-of-course, library-related publications are less focused on explaining why libraries should adopt Web 2.0 technologies, and more focused on offering adaptable, individualized methods suited to local needs. For example, Lammers (2012) mapped out the path Henrico County Public Library took to approach its county administration and craft a social media policy. And, Hane (2011) offered a quick rundown of the Boopsie app and San Jose Public Library’s experience in implementing a mobile app of the company’s design. While San Jose recommended implementing an app, staff also suggested developing a scaled-down mobile-friendly version of the library website. King (2012) got more specific in his brief on using Google Analytics and Facebook page statistics to determine how and what was being talked about or read within the Topeka & Shawnee County Public Library (TSCPL) website and its social media networks. His experience reiterates that the goal of these web tools is ultimately user engagement with the library and library services, not the website or the library’s social media channels. For TSCPL, blog posts on new collection services, featuring content teasers across multiple channels, and asking questions or offering space for user questions all boosted engagement.

Social media strategies and best practices for libraries are becoming easy to find as more libraries create accounts, experiment, and discover what works for them. Harmon and Messina (2013), Steiner (2012), Soloman (2011), and Soloman (2013) are just a few of the longer works devoted to effective use of social media, evaluation, assessment, and practice. A common

thread in these works is focusing on integrating these outlets into individual library services and the user experience rather than using social media as a “magic bullet” or standalone tool to obtain and ensure patron engagement.

No matter the outlet or method or delivery format, practice-based literature verifies that the content being posted is important and so is marketing. Users will not be engaged in content that is not important or indicative of excellent service, nor will they know about social media outlets that are not apparent on the library’s website (Dorris, Cassidy, et al., 2011).

Mobile technologies

Mobile devices are quickly becoming the go-to method of accessing the Internet, with more than half of all adult cell phone owners accessing the internet through their mobile phones in 2012—up from 25 percent in April 2009 (Smith, 2012). Thirteen percent of adults have accessed library websites or other library services via mobile device in 2012—up from 6 percent in 2009 (Rainie, Zickhur, & Duggan, 2012). Those earning lower incomes and who have not graduated from college are also more likely to go online mostly on their cell phones. Libraries are attempting to mirror this trend and support users by offering email alerts for holds and overdues, using responsive design on their websites, and providing mobile access to e-resources (Carlucci Thomas, 2012; Enis, 2013; Krishnan, 2011). Krishnan (2011) suggests there is a generational aspect to the prevalence of mobile devices and library users. Adapting to users who have grown up with easy access to information requires a staged approach to mobile services, starting with email or text alerts and culminating in a mobile OPAC interface, complete with database access.

Mobile applications

In the tech world, debate is rampant on how the mobile experience should be designed. Some argue mobile design should be tailored to the “on-the-go” user (e.g., by cutting content to just hours and location information) via a separate app or standalone website. Others hold firm that the only difference with device users and PC or laptop users is the size of the screen—not the browsing behavior—so content should be available in the best format no matter the device. A Nielsen Norman Group 2011 usability study suggested users perform better with apps than with mobile sites, but Nielsen himself posited mobile sites may win in the future (Budiu & Nielsen, 2011; Nielsen, 2012). Graham (2012) argued “...People do not browse library websites for enjoyment but instead to gain the information they need. To library end users, the catalog is the website and the website is the catalog: They are one and the same” (p. 53). For another library perspective, Griggs, Bridges, and Gascho Rempel (2009) suggested:

If a library’s initiative is to provide a mobile version of their site they should develop applications that work on smart phones...However, if the initiative is to build innovative applications that use functionalities that are included on a family of devices, then developing an application that exploits the device’s capabilities to enhance a user’s experience is the better solution. (Content Adaptation Techniques section, para. 2)

There is disagreement, however, on how to best wrangle the mobile application market. Carlucci Thomas (2012) predicted more integration with payment systems, gamification (using

game design strategies in non-game applications to make the user experience more fun¹), social sharing, and content curation through apps designed specifically for libraries by vendors like Mosio, Boopsie, and SirsiDynix. Enis (2013) recommended that librarians consider suggesting apps to patrons like they would any other information resource during a reference transaction, particularly those offered by database vendors (EBSCO, Gale) and highly reliable agencies (U.S. Census Bureau, Securities & Exchange Commission). Enis (2013) and Young, Jr. (2011) agreed that apps are fundamental educational and learning tools, not simply replacements for laptops or standard mobile browsing. Barnhart and Pierce (2011) envisioned opportunities where aspects of in-person communication could be reintegrated to reference service thanks to mobile computing technologies. Herein rests the dichotomy of current literature discussing library apps: apps as convenient ways for patrons to access library resources and services since they're already using this format, versus apps as instructional and learning tools worth using for this inherent value.

Future Research

As libraries enter a more experienced and nuanced phase of Web 2.0, more research will ensue and be integral in understanding the efficacy of these technologies. Assessing and measuring the effectiveness of using Web 2.0 tools is crucial, as is understanding library users and their usage behaviors. The definitions surrounding Web 2.0 and Library 2.0 will likely remain vague as technologies fade, change, and become popular. The specific tools associated with Web 2.0 and Library 2.0 will also likely change, but the general consensus is that mobile will be a major player.

In a broad sense, additional research is needed to investigate how Web 2.0 impacts core library services and practices. How is engagement measured in these tools? Who is producing content and ensuring users stay interested? What do users actually prefer? And perhaps most importantly, what are the specific benefits to using and integrating Web 2.0 technology?

U.S. Public Libraries and the Use of Web Technologies

Current research offers helpful tips for libraries curious how others are managing Web 2.0 technologies, but most is limited to descriptive accounts of specific tools, experience, or type of library. While studies of library web technologies do exist, they are limited by size of the sample, type of library, or specific resources examined. Longitudinal studies like *U.S. Public Libraries and the Use of Web Technologies* offer a broader snapshot of what American public libraries are trying, how actively they are using these tools, and potential longevity of particular resources. As technology changes and new tools are available, this study becomes useful in tracking trends over time.

¹ Read more about this strategy at <http://gamification.org/>.

Methodology

Sample

Public libraries of different sizes have vastly different characteristics in terms of inputs and usage, and these differences no doubt appear in the realm of web technology usage as well. To address these disparities, a stratified sample of public libraries was generated for the first iteration of this study based on each library's LSA population. At that time, sample libraries were pulled from the 2005 Public Library Survey, as collected and reported by IMLS. One hundred libraries were randomly selected from each of the following population groups: less than 10,000 served, 10,000-24,999 served, 25,000-99,999 served, and 100,000-499,999 served. In addition, all 83 public libraries in the country that served at least 500,000 people were included in the study.

The same libraries were used and expanded upon as the basis of the 2010 edition of the study, which relied upon 2007 IMLS data to group the libraries by LSA population. In addition to the original study libraries, the sample for the 2010 edition of the study included an additional 25 libraries from each population group, bringing the total number of libraries in the sample for each population group to 125, as well as all 84 libraries that served at least 500,000 people.

For 2012, the sampling methodology continued as described above and used 2010 IMLS data (the most recent data available) to group libraries by LSA population. All 114 public libraries in Colorado (9 of which were in the national sample) were also analyzed to provide a case study of the state's web technology trends.

Data Elements

Many of the data elements used in the 2008 and 2010 surveys were included in this iteration with little to no modification. Again, LRS staff looked for the presence of blogs and RSS feeds, virtual reference, and social networking when assessing the web presence of the libraries in the study. A few categories were dropped or significantly changed in the 2012 study based on difficulties during the first two rounds or technology changes since 2010. For example, researchers did not investigate personalized online account features, library catalog elements, or audio or video files. In addition, some data elements were added during this iteration. A significant addition was a more detailed consideration of mobile technology—namely mobile apps, mobile versions of websites, and the use of responsive design. Specific social networking outlets were updated to include those increasing in popularity since the 2010 report—such as Pinterest and Tumblr—while MySpace was dropped. More in-depth social media questions also attempted to gauge interactions and engagement through features such as age of the account, number of likes/followers, and number of postings. General areas of research included:

- **Basic Website:** Did the library have an online presence, provide access to the patron's online account, and offer the ability to sign up for a library account online and immediately start using resources?
- **Extended Website:** Did the library's website have a catalog search box on the homepage or a ShareThis/AddThis-type interface, offer an email newsletter, or have a virtual branch?

- Blogs/RSS: Did the library have a blog or provide RSS feeds for non-blog content?
- Virtual Reference: Which types of remote reference services did the library provide, including chat, email, and text messaging?
- Social Networking: Did the library have a presence on various social networking sites (Facebook, Flickr, Foursquare, Google+, Pinterest, Tumblr, Twitter, Vimeo, and YouTube) and how actively did the library or its patrons use them?
- Mobile: Did the library have a mobile version of its website, offer a mobile app, or have a website with responsive design?

Study Procedures

During the fall and early winter of 2012-2013, LRS staff members examined the websites of the public libraries included in the study for the presence of these data elements. In order to be counted, the elements either needed to be present on the homepage or linked from the homepage (e.g., a “contact us” link from the homepage that leads to a page with links to the library’s social media sites). Social media accounts were only included in the study if they were linked from the library’s website or from another social media account (e.g., a Foursquare link from the library’s Facebook page).

National Results

This section examines the rate of adoption of various web technologies by public libraries in the U.S. and discusses how adoption rates have changed in the years between studies. Findings are presented based on the size of the libraries’ LSA population.

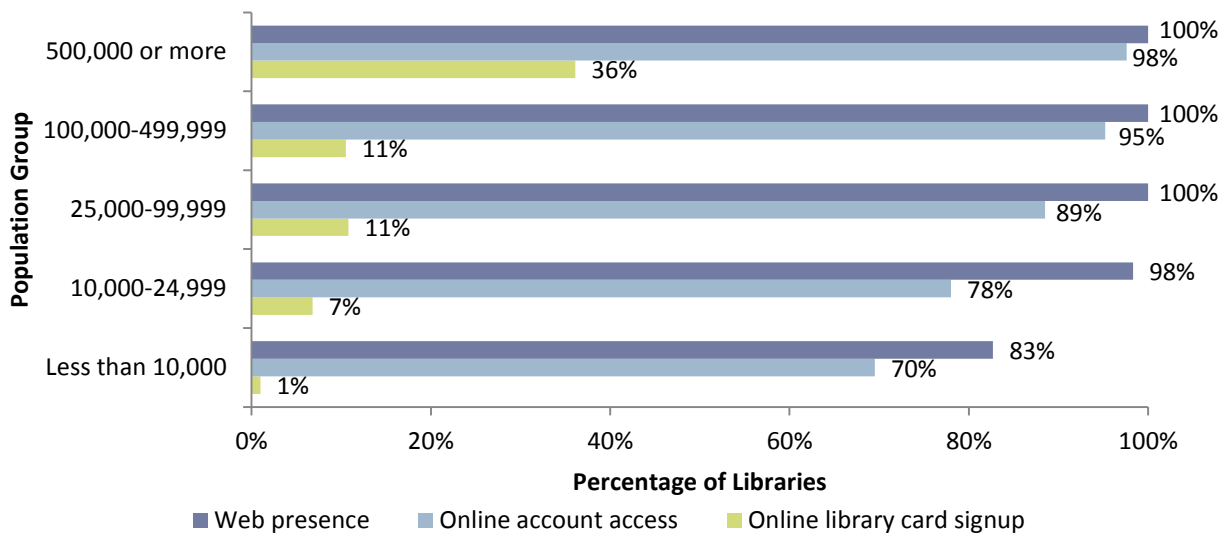
Web Presence, Patron Access, and Online Card Signup

As was found in the 2008 and 2010 editions of the study, by far the majority of libraries in the sample had a web presence; all libraries serving at least 25,000 had a website. Percentages of libraries with a web presence for smaller communities increased from 2010, slightly for libraries serving 10,000-24,999 (94% to 98%), and a larger jump for the smallest libraries (71% to 83%). Four of the smallest libraries had Facebook pages but no website.²

In addition to a web presence, more than 4 out of 5 libraries in the sample (86%) offered online access to a patron’s library card account. Interestingly, since 2010 all but the smallest libraries experienced small decreases in offering online account access. In contrast, this feature was offered by 45 percent of the smallest libraries in 2010 compared to 70 percent in 2012. Researchers also searched for the ability to sign up for a library card online and to start using library resources, such as online databases, immediately. The prevalence of this particular service seems to have stagnated since 2010. For all population groups but the smallest, minimal changes were observed (1-2% increases or decreases). The smallest libraries’ use of online card signup has remained at the same level of 1 percent.

² After this section, all percentages are calculated based on those public libraries in the national sample that had websites. Libraries that did not have websites are not included.

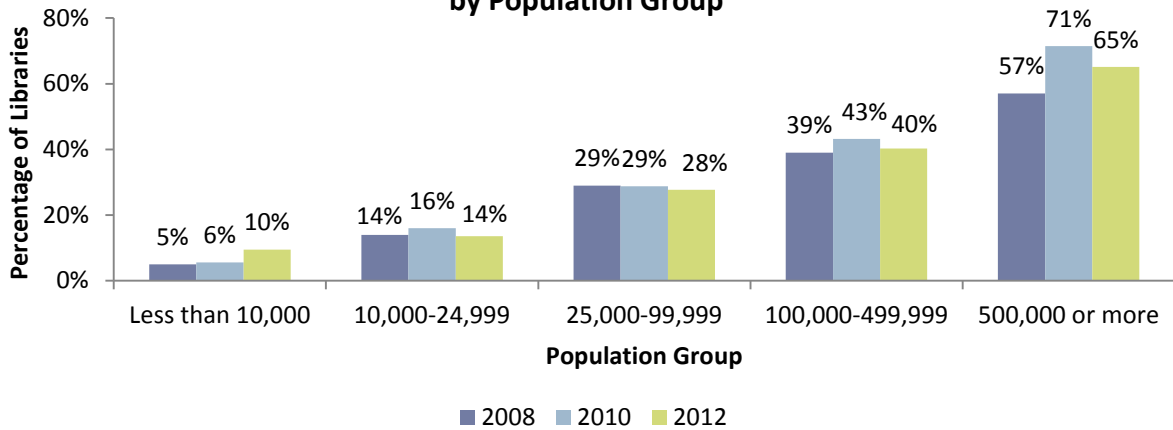
Percentage of U.S. Libraries with Web Presence, Online Account Access, and Online Card Signup, 2012, by Population Group



Blogs / RSS Feeds

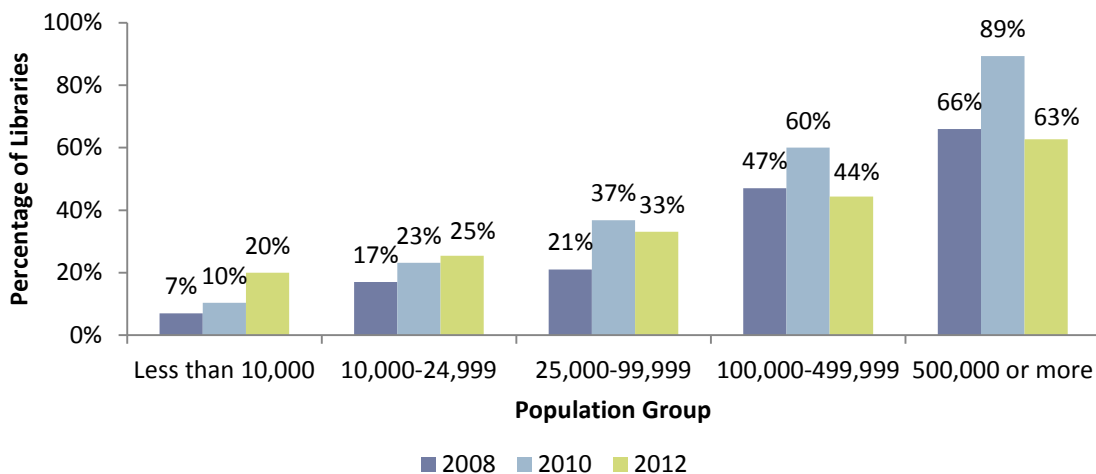
One of the first Web 2.0 technologies that public libraries used to reach out to patrons was a blog where library staff could relay information and interact with their communities. In 2008, more than half (57%) of the largest libraries offered blogs, although they were less common in smaller libraries. After peaking in 2010, most libraries have tapered off in offering blogs. The only population group that increased its rate of offering a blog was the smallest: almost twice as many of these libraries offered a blog in 2012 than in 2010. In contrast, this feature declined for the largest libraries from 71 percent in 2010 to 65 percent in 2012. Other populations saw minimal decreases, a trend that seems to mirror other research findings highlighted in the literature review above. Going a step further, researchers also investigated how recently a post had been made to the blog, as well as whether comments were made. Of those libraries in the national sample that had blogs (166, or 30%), a median of 19 days had elapsed since the most recent post. Nearly half (48%) of libraries that had a blog received at least one blog comment within the 10 most recent blog posts.

Percentage of U.S. Libraries with Blogs in 2008, 2010, and 2012, by Population Group



The presence of non-blog RSS feeds decreased from 2010 to 2012 for most libraries, however smaller libraries continued to adopt this particular technology. In fact, similar to the blog findings discussed above, twice as many of the smallest libraries offered RSS feeds in 2012 than in 2010. It could be that these increases are a product of smaller libraries modernizing their web presences in general, rather than specifically seeking out these particular Web 2.0 tools. On the other end of the spectrum, the largest libraries dramatically reduced instances of RSS feeds in 2012, dropping from 89 percent to 63 percent (slightly below 2008 levels). Libraries serving 100,000-499,999 mirrored this trend, bottoming out at 44 percent in 2012 after a peak of 60 percent in 2010.

Percentage of U.S. Libraries with RSS Feeds in 2008, 2010, and 2012, by Population Group



Search Box/Email Newsletter/Sharing Interface

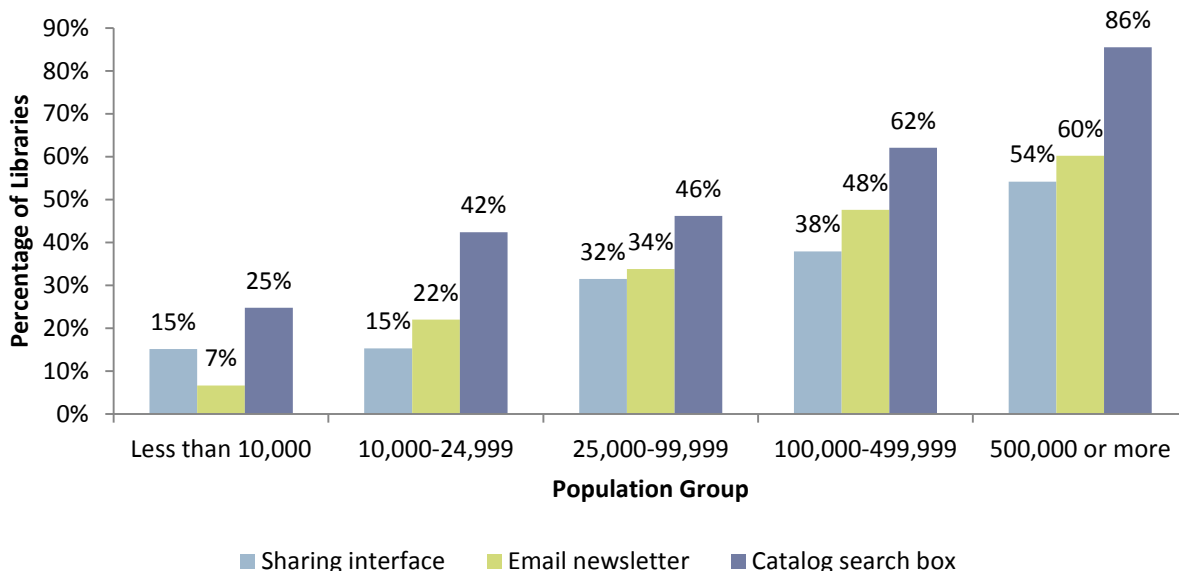
For a closer look at tools included on library websites, the 2010 study added questions regarding the availability of a catalog search box, email newsletter, and ShareThis/AddThis-type application. The 2012 edition continued to investigate these elements. As might be expected, a

catalog search box embedded on the home page continues to be the most popular of these tools. However, fewer libraries in most population groups offered this tool in 2012 than in 2010. The smallest libraries saw the greatest increase (from 14% to 25%), while the three largest library population groups saw drops. However, this decrease may be because of a slight definition change within the survey: In 2010, researchers noted whether a search box appeared on the home page or on most pages; in 2012, researchers noted whether the website had a catalog search box on the home page.

Availability of an email newsletter has remained the same overall from 2010 to 2012, with different population groups experiencing minimal increases or decreases. Researchers noted that quite a few libraries offered NextReads, an email readers' advisory newsletter from NoveList.

A relatively newer web technology tool is that of sharing website content through an application like ShareThis or AddThis. These features allow users to post content directly to their favorite social media outlet. As might be expected, this feature is gaining traction with nearly a third (30%) of libraries in the sample offering this kind of interface in 2012. The smallest libraries as well as those serving between 25,000 and 99,999 lead the pack in gains: the rates of adoption jumped from 6 percent to 15 percent and 22 percent to 32 percent, respectively, since 2010. Across this same time period, other population groups experienced more modest increases.

Percentage of U.S. Libraries with a Catalog Search Box, Sharing Interface, and Email Newsletter in 2012, by Population Group

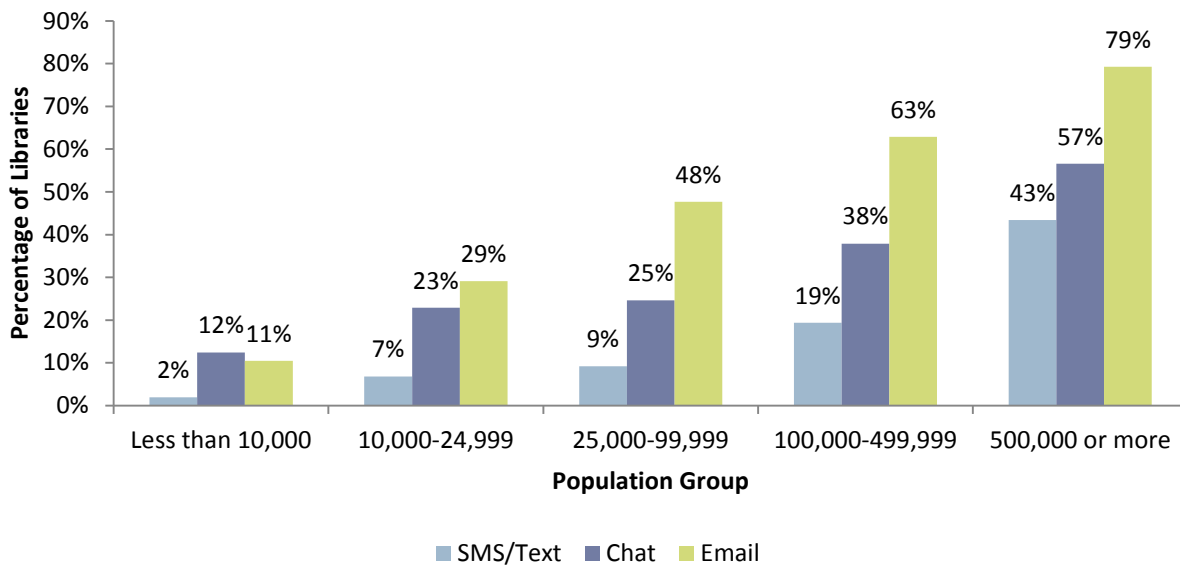


Electronic Reference

Many public libraries are using the web to bring one of the most traditional library services—reference—online. Virtual reference is embraced in one way or another by the majority of larger libraries and some smaller libraries. As in 2008 and 2010, email continues to be the most popular form of virtual reference, with well over half of libraries in communities of at least

100,000 providing email reference services, and libraries serving 25,000-99,999 nearing this milestone as well. It is worth noting that 2012 data collection maintained the 2010 standard in defining “email reference”: The library website had to explicitly solicit reference questions to qualify, not just offer a “contact us” or general inquiry form. Chat reference is still offered by many public libraries but appears to be experiencing a decline since 2010, with substantial drops at the larger libraries: libraries serving 500,000 or more dropped from 71 percent to 57 percent and those serving 100,000-499,999 fell from 49 percent to 38 percent. Reference by text is one area of virtual reference that has seen extensive growth at the largest libraries and moderate growth across all libraries. Only the largest library population group offered any text reference services in 2008. Just 13 percent of the largest libraries offered text reference in 2010; in 2012, more than 3 times as many (43%) did. About 1 in 5 libraries (19%) serving 100,000-499,999 offered text reference services in 2012 while just 4 percent did in 2010.

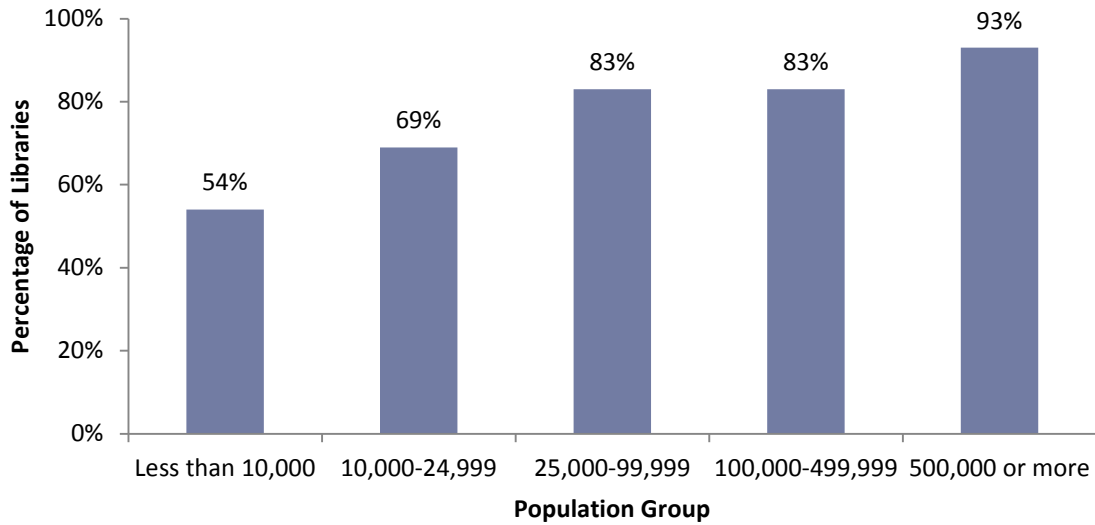
Percentage of U.S. Libraries with Chat, Text, and Email Reference in 2012, by Population Group



Social Media Presence

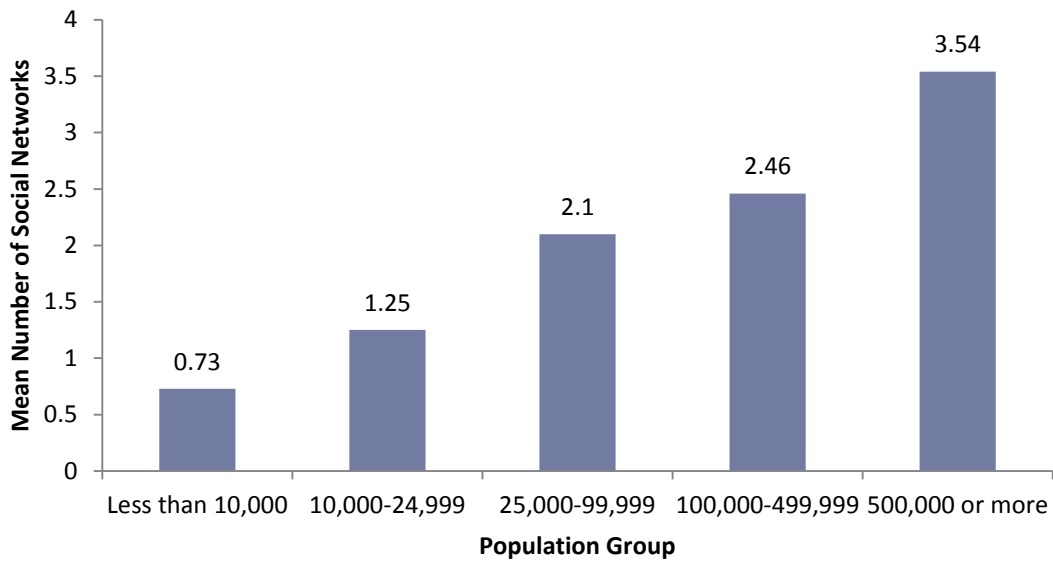
Of all the web technologies examined in this study, the greatest change has been observed in public libraries’ use of social media. This arena, which was nonexistent several years ago and into which very few public libraries had ventured in 2008, has seen a veritable explosion of growth. In 2012, almost all (93%) of the largest libraries had at least one social media account, followed by a little more than 4 in 5 (83%) of those libraries serving populations between 25,000 and 499,999, 69 percent of those libraries serving between 10,000 and 24,999, and more than half (54%) of the smallest libraries.

Percentage of U.S. Libraries with at Least One Social Media Account in 2012, by Population Group



The largest libraries had an average of 3.54 social media accounts out of 9 possible networks examined in this study. In comparison, the smallest libraries averaged less than 1.

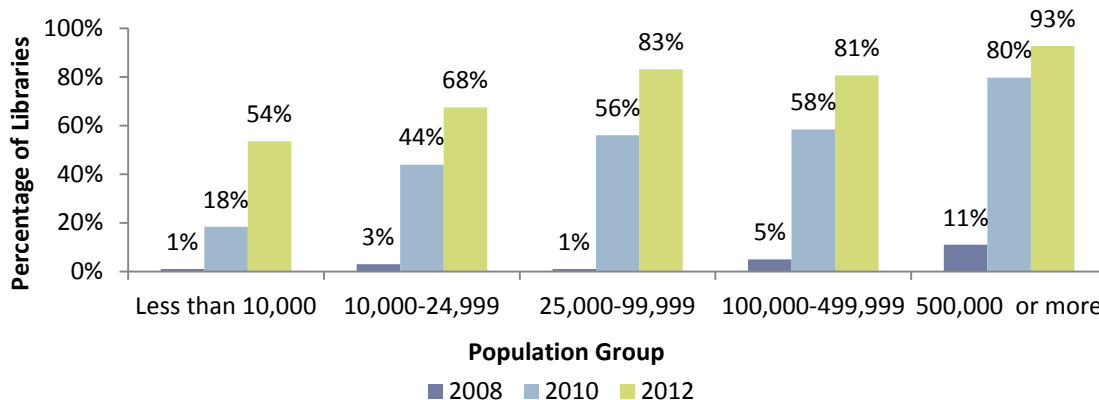
U.S. Libraries' Mean Number of Social Network Accounts in 2012, by Population Group



Libraries of all sizes were most likely to be on Facebook: nearly 3 out of 4 (74%) libraries in the sample had a Facebook presence in 2012, and more than 9 out of 10 (93%) of the largest public libraries had accounts. In comparison, in 2008, just 1 in 10 (11%) of the largest libraries and between 1 percent and 5 percent of libraries serving all other population groups were on

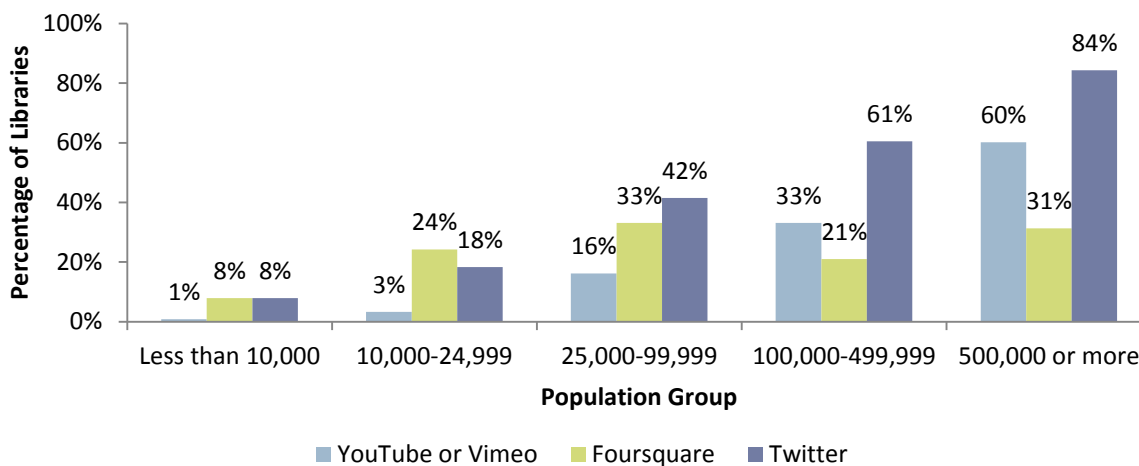
Facebook. In 2012, even in the smallest libraries, more than half (54%) were interacting with patrons on Facebook.

Percentage of U.S. Libraries with a Facebook Presence in 2008, 2010, and 2012, by Population Group



For libraries that served 25,000 or more, Twitter was the second most common social network. However, Foursquare was at least as common as Twitter in the smaller libraries. For libraries that served 100,000 or more, YouTube/Vimeo was the third most common network, followed by Foursquare. In contrast, YouTube/Vimeo was the least common of these three networks for libraries that served less than 100,000.

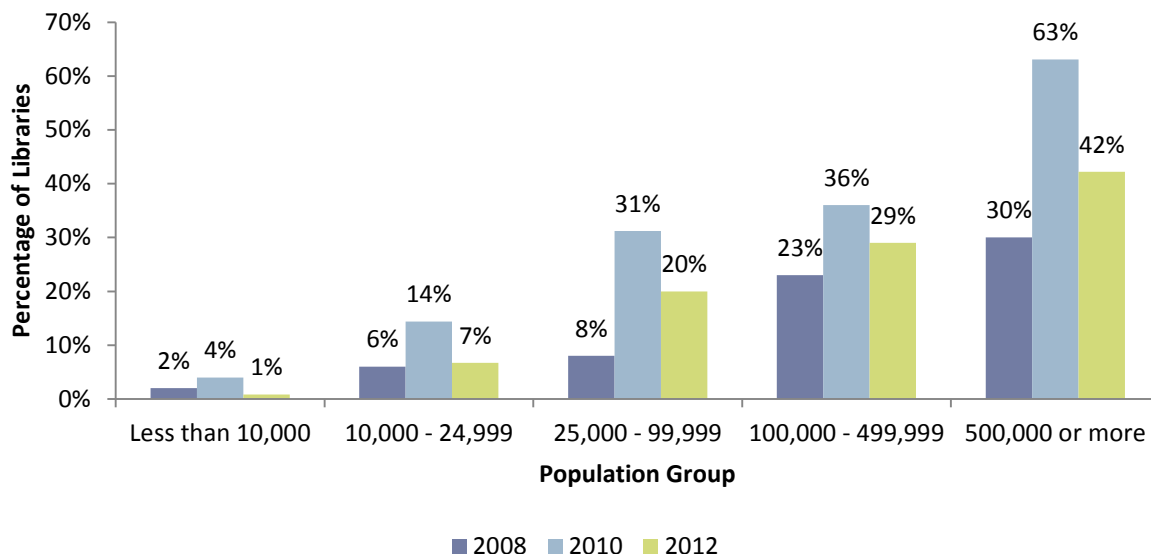
Percentage of U.S. Libraries with a Presence on Twitter, YouTube/Vimeo, or Foursquare in 2012, by Population Group



Flickr has been included in this study since 2008, but its popularity has seen a marked decrease since 2010. The largest libraries were Flickr's heaviest users in 2010 with nearly 2 out of 3 libraries (63%) using the site. In 2012, this number dropped to 42 percent. Although not as dramatic, all other population groups experienced similar decreases. As other social media

outlets, namely Facebook and Twitter, have become more image-friendly, perhaps these tools have proven more effective and efficient than maintaining a separate Flickr account.

Percentage of U.S. Libraries with a Presence on Flickr in 2008, 2010, and 2012, by Population Group



The 2012 survey was updated to reflect current popularity in social networking sites. In addition to Foursquare, for which the results were reported above, Pinterest, Tumblr, and Google+ were added, and MySpace was dropped. Far fewer libraries used these social media sites than Facebook or Twitter, but it is interesting to consider how these sites were used, given the different strengths of each tool, as well as to establish a baseline for future iterations of the study. Pinterest was more common than Tumblr or Google+, with about 1 in 10 (11%) libraries in the sample using it. Almost 1 in 4 (23%) of the largest libraries and 15 percent of libraries serving 25,000-499,999 used Pinterest. Neither Google+ nor Tumblr had large followings, with just 8 percent of the largest libraries using each tool.

Social Media Activity

In 2012, the survey included additional questions about each social networking site to assess the libraries' activity on these sites. The results indicated that across most population groups, libraries joined YouTube and Flickr before Facebook and Twitter:

Median Age of U.S. Libraries' Social Network Accounts, by Population Group

Population Group	Facebook	Twitter	YouTube	Flickr
500,000 or more	3 years, 6 months	3 years, 7 months	4 years, 4 months	4 years, 4 months
100,000-499,999	2 years, 10 months	3 years, 2 months	3 years, 7 months	5 years, 4 months
25,000-99,999	2 years, 10 months	2 years, 11 months	2 years, 2 month	4 years, 3 months
10,000-24,999	2 years, 9 months	3 years, 1 month	--*	--
Less than 10,000	2 years, 3 months	--	--	--

*-- = Insufficient data for this category.

In terms of how recently libraries had posted on social media sites, libraries were most current on Facebook and Twitter. The largest libraries had posted on both of these networks the same day as when the researcher reviewed them. In contrast, a median of 18 days had elapsed since the largest libraries posted content on Flickr, and 36.5 days since they posted a video on YouTube. The Flickr and YouTube content for libraries serving between 25,000 and 99,999 was actually more current than those of libraries serving between 100,000 and 499,999, however it is possible this was because larger libraries were discontinuing or cutting back on their use of these networks.

Median Days Elapsed Since Most Recent Post on U.S. Libraries' Social Network Accounts, by Population Group

Population Group	Facebook	Twitter	YouTube	Flickr
500,000 or more	0	0	36.5	18
100,000-499,999	1	1	103	56
25,000-99,999	1	1.5	79	35.5
10,000-24,999	3	1	--*	--
Less than 10,000	7	--	--	--

*-- = Insufficient data for this category.

Not surprisingly, larger libraries had more followers on Facebook and Twitter than did smaller libraries. However, when looking at these numbers in relation to the size of the population served, a different story emerges. Smaller libraries had higher numbers of followers per 1,000 served.

Number of Followers of U.S. Libraries' Social Network Accounts, by Population Group

Population Group	Median Number of Followers		Number of Followers Per 1,000 Served	
	Facebook	Twitter	Facebook	Twitter
500,000 or more	2,790	1,018	3.02	1.32
100,000-499,999	781	373	4.08	1.46
25,000-99,999	455	104	11.20	2.16
10,000-24,999	249	101	15.69	6.41
Less than 10,000	91	--*	29.54	--

*-- = Insufficient data for this category.

Virtual Branch

Recently, some libraries have begun offering a “virtual branch” or “e-branch.” These efforts are being undertaken to centralize patrons’ access to digital collections and services such as virtual reference through a webpage on a library’s website, as well as to market the library as a resource that is available 24/7. To track this trend, the 2012 survey included a new question regarding whether the library website included reference to a virtual branch or e-branch. The definition of this feature was very specific, and required that the library use the language of “virtual branch,” “digital branch,” or “e-branch” on its website. Only 4 percent of the national sample had virtual branches of some kind.

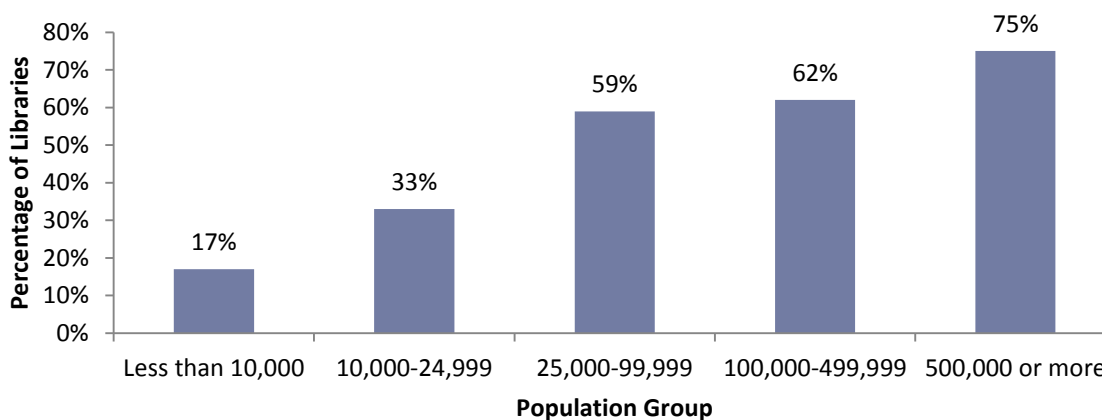
Mobile

Researchers looked for any of the following types of mobile-friendly website access:

- Mobile version of website: The URL redirects to a mobile site (e.g., “m.citylibrary.org”) when viewed on a mobile device.
- Mobile app: A software application is downloaded by users to run on their smartphones or other mobile devices.
- Responsive design: The website is designed in a way that is accessible to a wide range of devices, from smartphones to desktop LCDs, through the use of fluid, proportion-based grids, flexible images, and media queries.

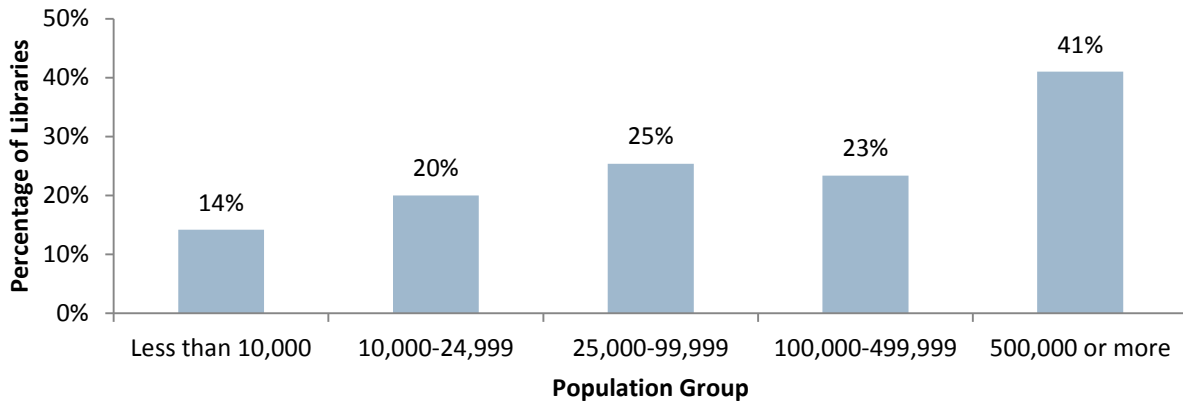
In 2010, researchers detected the presence of any type of mobile-friendly website access in only 12 percent of the largest public libraries, 3 percent of libraries serving between 100,000 and 499,999, and no libraries serving less than 100,000. In 2012, three-fourths of the largest libraries offered at least one of the types of access defined above (mobile site, mobile app, and/or responsive design), followed by about 3 in 5 libraries (59%-62%) serving between 25,000 and 499,999, one-third of libraries serving 10,000 to 24,000, and 17 percent of the smallest libraries.

Percentage of U.S. Libraries Offering Any Type of Mobile-Friendly Access in 2012, by Population Group



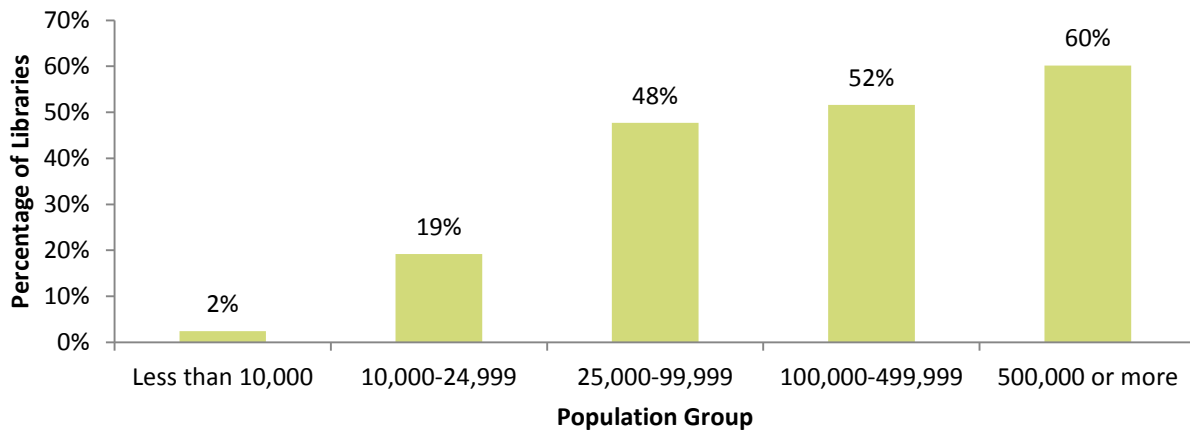
About 2 in 5 (41%) of the largest libraries had mobile versions of their websites, followed by between 20 percent and 25 percent of libraries serving between 10,000 and 499,999, and 14 percent of the smallest libraries.

**Percentage of U.S. Libraries With Mobile Versions of Website in 2012,
by Population Group**



In 2012, more than a third (35%) of libraries in the sample offered a mobile app. Interestingly, this technology is not dominated by just the largest libraries: about half of libraries serving 25,000 people or more offered an app as well.

**Percentage of U.S. Libraries Offering a Mobile App in 2012,
by Population Group**



Responsive design has not been widely adopted yet. Just 9 library websites in the national sample (1% of the largest libraries, no libraries serving between 100,000 and 499,999, and 2-3% of libraries serving less than 100,000) adapted to different screen sizes to provide optimal viewing experiences independent of the device or machine used to access it. As noted in the literature review, above, there is debate in the technology community whether apps or mobile-friendly websites are a “better” approach to usability. Continued study of these mobile technology elements will provide insight into how the library community approaches and leverages these tools.

Colorado Results

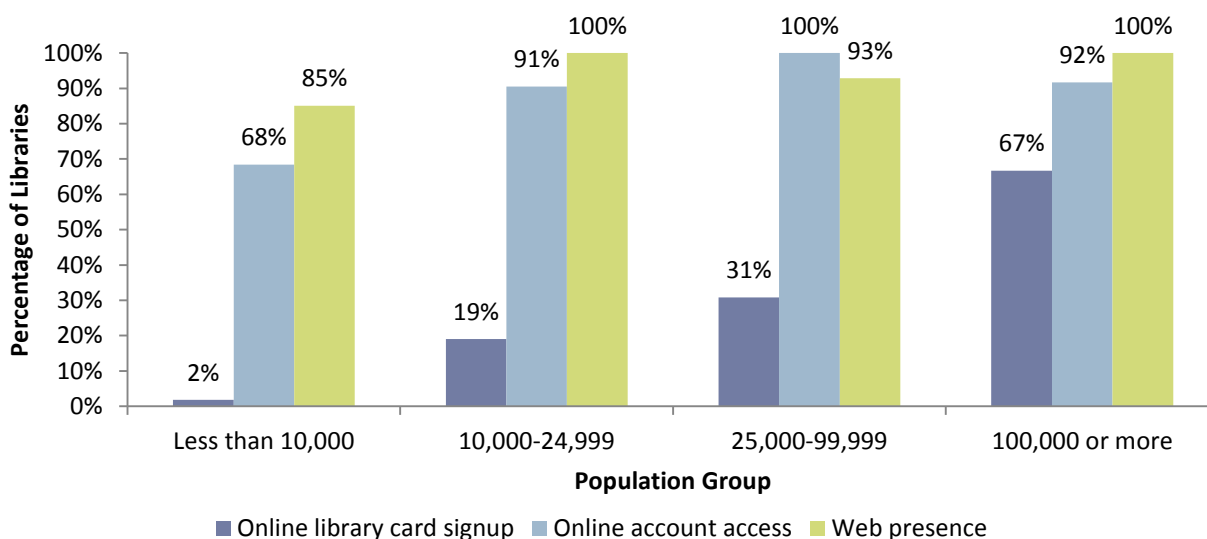
In addition to the libraries included in the national sample, the study examined all 114 Colorado public libraries. This section discusses the degree to which these libraries have implemented various technologies on their websites, whether use of the technologies has increased or decreased since the 2008 and 2010 studies, and how Colorado libraries compare to the national sample. As Colorado only has a few libraries that fall in the 500,000+ LSA population category, the categories for this section have been adjusted such that the largest libraries are those serving 100,000 or more.

Colorado Libraries' Use of Web Technologies in 2012

Web Presence, Patron Access, and Online Card Signup

In 2012, 9 out of 10 (90%) Colorado public libraries had a web presence. Since 2008, web presence for libraries serving more than 25,000 has not changed, and Colorado lags slightly behind the national sample for libraries serving 25,000-99,999 (93% vs. 100%). In contrast, Colorado libraries serving smaller communities saw an increase in web presence in 2012. All libraries serving 10,000-24,999 offered a website (as was the case in 2010), and web presence in the smallest libraries jumped from 7 out of 10 in 2008 to more than 4 out of 5 in 2012 (71% to 85%). This has kept web presence of Colorado libraries ahead of the national sample in the smallest population groups. One advantage that Colorado's smaller public libraries have is the opportunity to build a library website through the Plinkit³ toolkit.⁴

Percentage of Colorado Libraries with Web Presence, Online Account Access, and Online Card Signup, 2012, by Population Group



³ Plinkit is a multi-state collaborative supported by state libraries and consortia to provide libraries in Colorado, Oregon, Illinois, Texas, Michigan, and Virginia with a template for creating a website using open-source software. For more information on Plinkit, visit <http://www.plinkit.org/>.

⁴ After this section, all percentages are calculated based on those Colorado public libraries that had websites. Libraries without websites are not included.

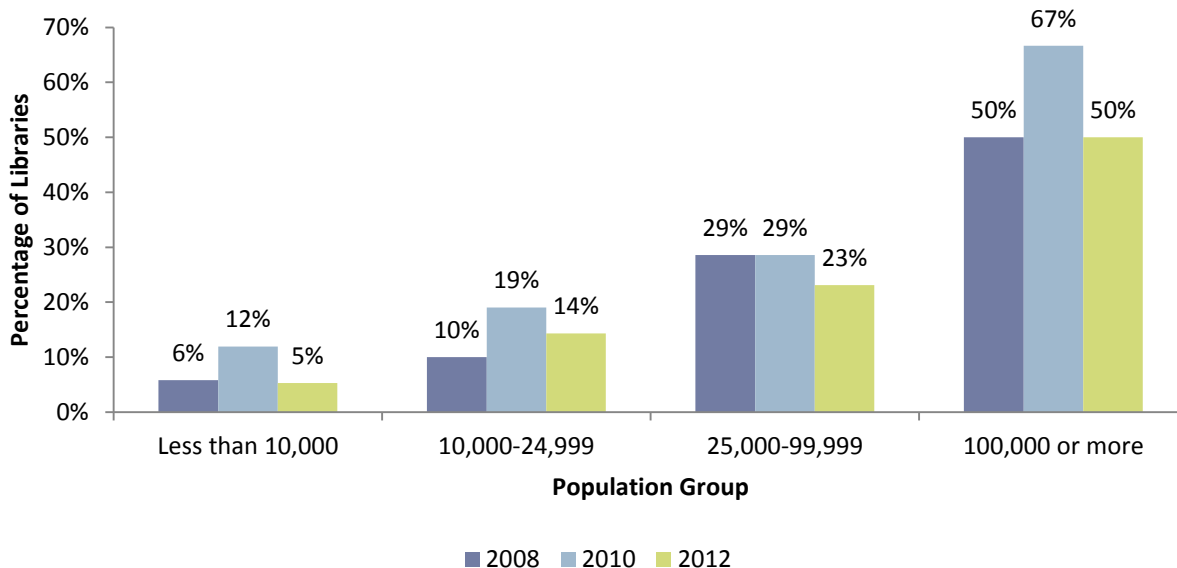
Online account access increased for the smallest libraries, from 60 percent to 68 percent. However, online account access fell slightly for the largest libraries, from 100 percent to 92 percent in 2012, and from 95 percent in 2010 to 91 percent in 2012 for those serving 10,000-24,999. Colorado kept up with larger libraries across the country but pulled ahead noticeably when it came to smaller and medium-sized libraries providing online account access (compare 91% of Colorado libraries serving 10,000-24,999 with 78% nationwide, and 100% of Colorado libraries serving 25,000-99,999 with 89% of those nationwide).

More than 1 in 6 (17%) Colorado libraries offered the option to sign up for a library card online and immediately start using resources in 2012, compared to 9 percent in 2010 and 10 percent in 2008. Every population group saw an increase in online card signup offerings, with the largest libraries experiencing the biggest jump from 2010 to 2012, from 33 percent to 67 percent. Within all population groups, Colorado was ahead of the national sample in offering online card signup.

Blogs / RSS Feeds

Fewer Colorado libraries offered blogs in 2012 than in 2010, dropping from 21 percent to 15 percent. This mirrors national trends of blog usage, with most population groups experiencing similar stagnation or small drops in blogging popularity. In fact, in 2012, both the largest and smallest Colorado libraries returned to 2008 levels of blogging, with libraries serving less than 10,000 falling to 5 percent and those serving 100,000 or more decreasing to 50 percent.

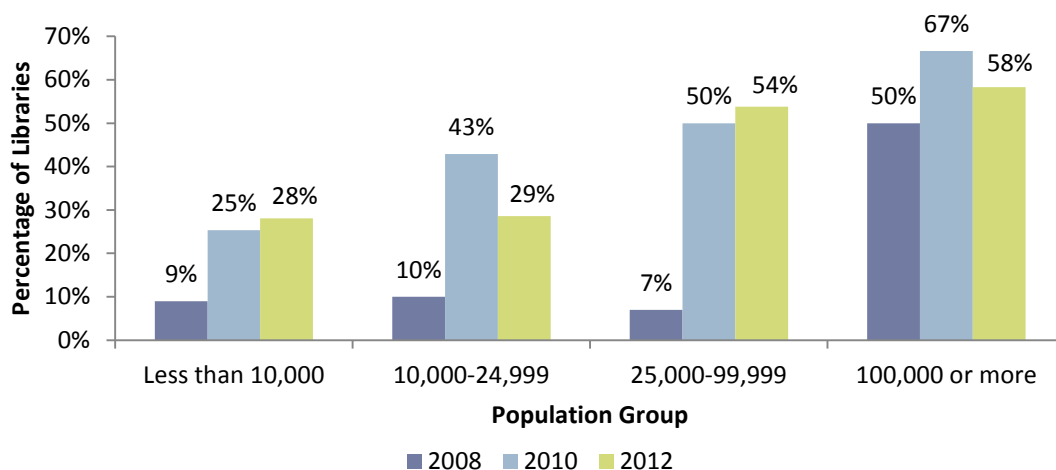
Percentage of Colorado Libraries with Blogs in 2008, 2010, and 2012, by Population Group



Non-blog RSS feeds stagnated in popularity while maintaining a higher rate of adoption than blogs, with 35 percent of Colorado libraries offering RSS feeds of some kind. The greatest drop in RSS feed offerings was in libraries serving 10,000-24,999, falling from a high of more than 2 in 5 libraries (43%) in 2010 to just 29 percent in 2012. The smallest libraries as well as those serving 25,000-99,999 slightly increased their rates of RSS feed usage. These trends also mirror what's happening on the national stage: RSS feed adoption was mixed across national

population groups from 2010 to 2012, with just 36 percent of libraries from the national sample offering non-blog RSS feeds in 2012. However, when making comparisons within each population group, all but the largest Colorado libraries were still ahead of the national sample in offering RSS feeds.

Percentage of Colorado Libraries with RSS Feeds in 2008, 2010, and 2012, by Population Group

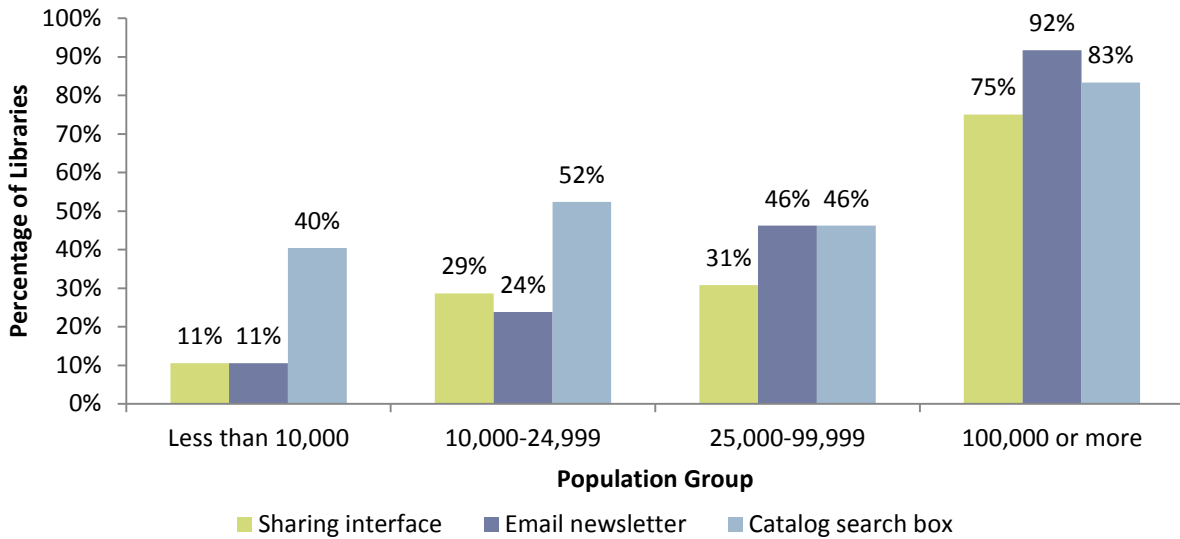


Search Box / Electronic Newsletter / Sharing Interface

A catalog search box was embedded on half (49%) of Colorado libraries' home pages, with more than 4 out of 5 (83%) of the largest libraries offering this feature. For 2012, the definition of a search box was more explicit than in previous years, focusing specifically on the ability to search the library catalog from the library home page, instead of the home page or most of the pages. The percentage of libraries serving 10,000-24,999 and 25,000-99,999 both experienced notable drops in offering catalog search boxes, with the former falling from 71 percent in 2010 to 52 percent in 2012 and the latter decreasing from 57 percent to 46 percent. However, this may be attributed more to the search box definition change rather than significant differences in web technology offerings; national figures suggest a similar drop from 2010 to 2012.

Email newsletters were more common for the largest Colorado libraries than a catalog search box, with 92 percent offering some kind of bulletin, but their popularity plummeted with library size: just 11 percent of the smallest libraries offered an electronic newsletter. Overall use of email newsletters by Colorado libraries (27%) was nearly the same as that of a newer web technology feature: a sharing interface (24%). The largest Colorado libraries greatly increased their use of ShareThis-type features since 2010: usage jumped from just 1 in 3 libraries in 2010 to 3 in 4 libraries in 2012. In fact, only the smallest libraries decreased the use of a sharing interface from 2010 to 2012 (from 15% to 11%).

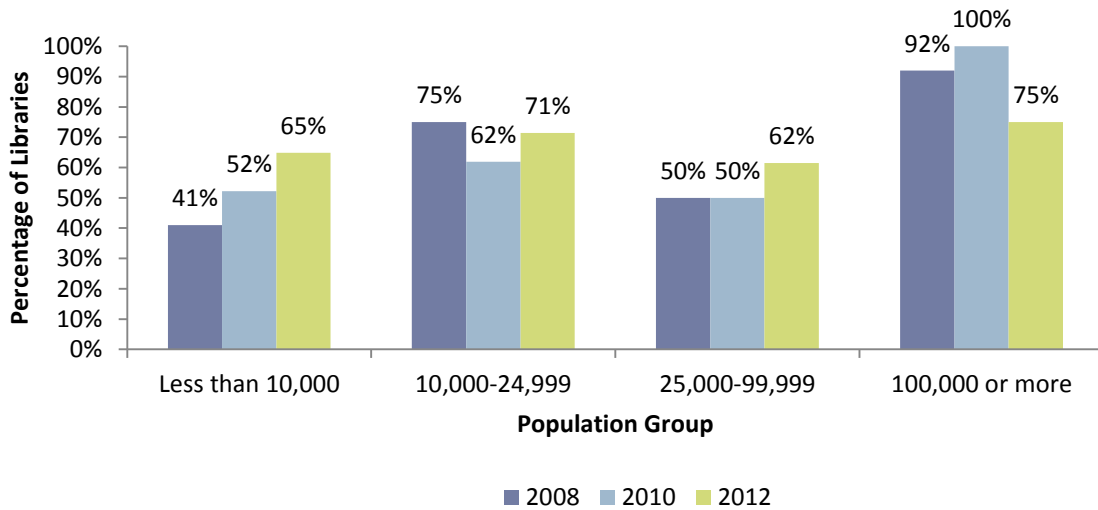
Percentage of Colorado Libraries with a Catalog Search Box, Sharing Interface, and Email Newsletter in 2012, by Population Group



Electronic Reference

The most popular e-reference tool in Colorado libraries was chat reference, with 2 out of 3 libraries providing the service, a steady increase since 2008. The smallest libraries and those serving 25,000-99,999 continued growing in this area, while the largest libraries and those serving 10,000-24,999 have decreased chat reference services since 2008.

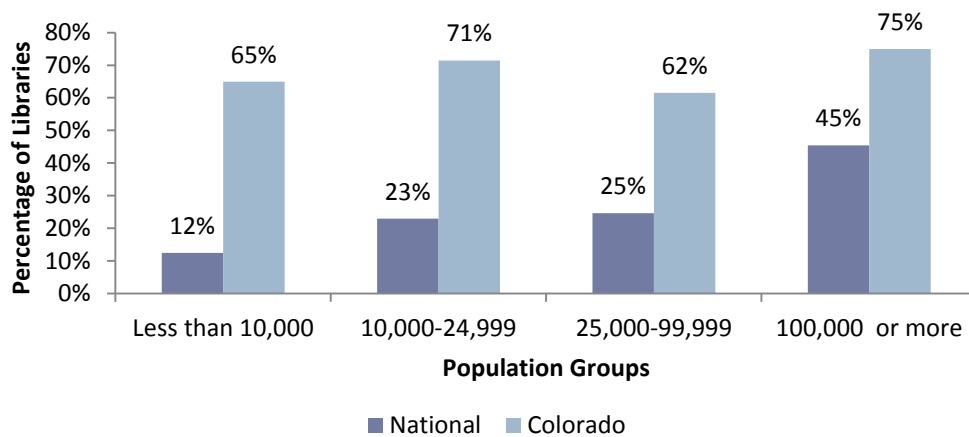
Percentage of Colorado Libraries with Chat Reference in 2008, 2010, and 2012, by Population Group



The prevalence of chat reference in Colorado public libraries is primarily because of a statewide service, AskColorado, which is provided by the Colorado State Library (only two Colorado

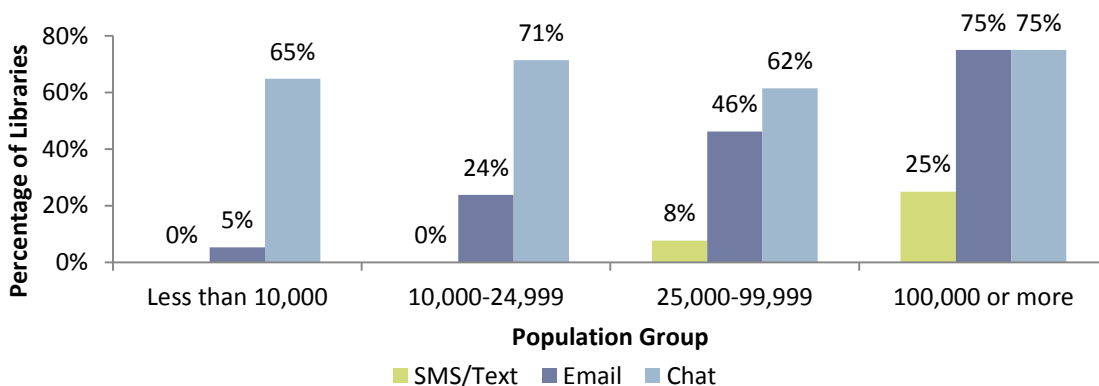
libraries offering chat reference did not use AskColorado at the time of the study). It is important to note that several other states offer similar statewide chat reference services, and researchers noticed that these locations typically had a higher percentage of libraries offering chat reference. In other words, Colorado is likely not the only state to have such high percentages of libraries with chat reference, but the small sample size for other individual states makes it impossible to draw definitive conclusions about them. However, comparisons between Colorado and the national sample indicate that Colorado is far more likely to offer chat reference within all population groups.

Percentage of National and Colorado Libraries with Chat Reference in 2012, by Population Group



A little over 1 in 5 (22%) Colorado libraries provided email reference in 2012. This was a small drop from 2010, when 1 in 4 Colorado libraries offered this form of e-reference. Text reference was offered by just 4 percent of Colorado libraries in 2012, and none serving populations less than 25,000. However, similar to the national findings, text reference has increased dramatically in the largest libraries. No libraries serving 100,000 or more offered this type of reference in 2010, compared with 25 percent in 2012.

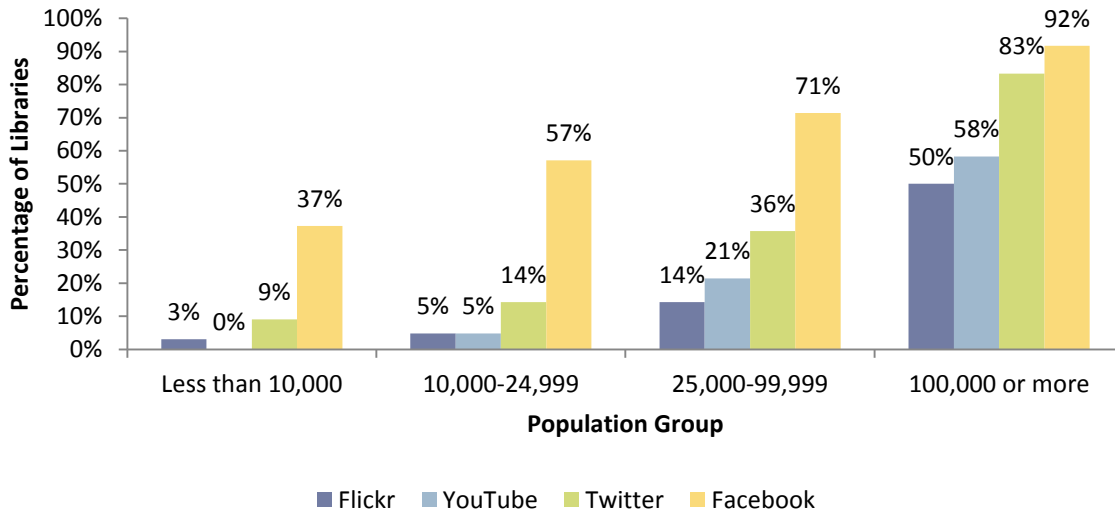
Percentage of Colorado Libraries with Chat, Text, and Email Reference in 2012, by Population Group



Social Media Presence

In 2008, less than 5 percent of Colorado libraries were experimenting with any social media and they used only MySpace and Flickr. Four years later, the popularity of social media has skyrocketed and expanded to include a greater variety of options. In particular, libraries' use of Facebook has exploded: While in 2008 researchers found no Colorado libraries on the social networking site, about half (51%) had profiles for their organization in 2012. More than 9 out of 10 (92%) of the largest libraries, 71 percent of those serving 25,000-99,999, nearly 3 out of 5 (57%) of those serving 10,000-24,999, and more than one-third (37%) of the smallest libraries had a Facebook presence, making it by far the most popular social media site for Colorado libraries of all sizes. Twitter took second place, with 1 in 5 (21%) Colorado libraries maintaining an account in 2012. The largest libraries have quickly adopted the service, jumping from 50 percent in 2010 to 83 percent in 2012.

Percentage of Colorado Libraries with Various Social Media Accounts in 2012, by Population Group



The photo sharing site Flickr and video-viewing service YouTube tied for third place with 10 percent of Colorado libraries having a presence on each of the sites in 2012. As social media outlets have changed and popularity of resources shifted, so too have the survey questions regarding specific networking sites. New for 2012, researchers investigated Pinterest, Foursquare, Tumblr, Vimeo, and Google+. Ten or fewer Colorado libraries had accounts with each of these social media sites. Time will tell whether these grow in popularity like Facebook and Twitter or fall to the side like MySpace.

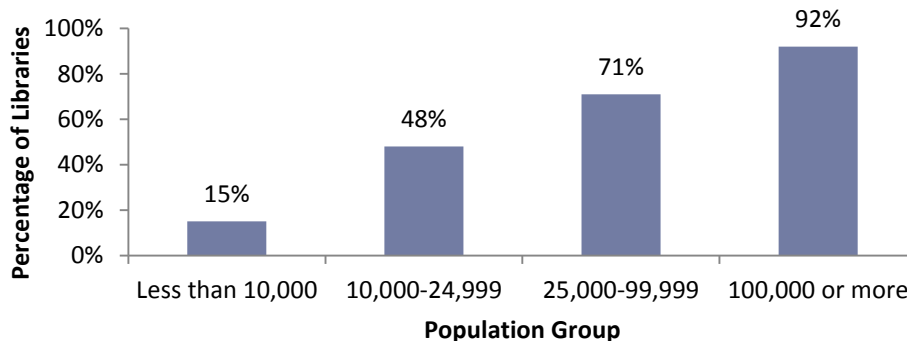
Virtual Branch

The 2012 web technologies survey included a new question regarding whether the library website offered a virtual branch or e-branch. Just 6 Colorado libraries offered this type of branch.⁵ Similarly, only 4 percent of the national sample had virtual branches of some kind.

Mobile

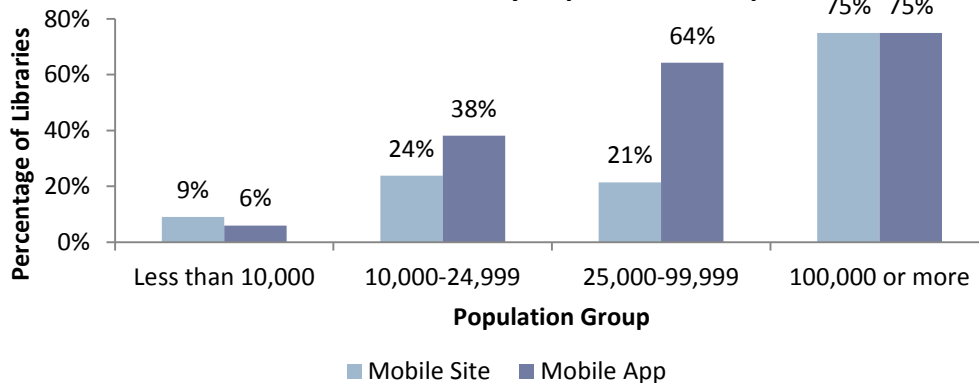
Since 2010, the creation of mobile-friendly sites has exploded. In the 2010 national sample, less than 1 percent of libraries—and only those serving more than 100,000 people—attempted to make their websites compatible with mobile devices. Not many more Colorado libraries attempted to offer mobile access (less than 3%). By 2012, the scene had drastically changed in Colorado. Overall, more than one-third (36%) of libraries offered some type of mobile access, and for the largest libraries, more than 9 in 10 (92%) did.

Percentage of Colorado Libraries Offering Any Type of Mobile-Friendly Access in 2012, by Population Group



About a quarter (26%) of all Colorado libraries offered mobile apps and 1 in 5 had mobile versions of their websites. While mobile apps and mobile sites were equally common among the largest libraries, mobile apps were more common than mobile sites for those libraries serving between 10,000 and 99,999, and less common than mobile sites for the smallest libraries.

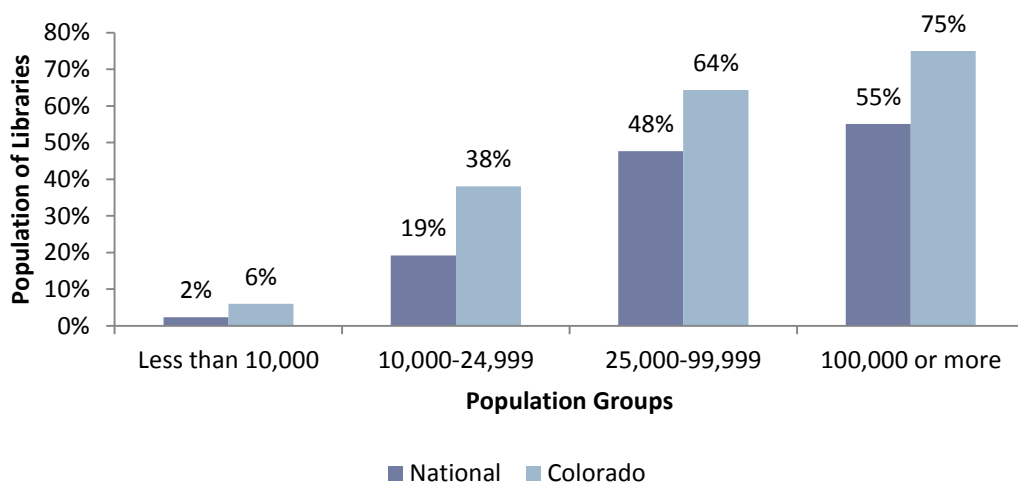
Percentage of Colorado Libraries Offering a Mobile App or Mobile Site in 2012, by Population Group



⁵ For an example, see the Douglas County Libraries' Digital Branch at <http://douglascountylibraries.org/digital-branch>.

Colorado was well ahead of the national sample by population group in offering mobile apps. It is also surprising to find how popular apps were among the medium-sized libraries: One expects the largest libraries to be early adopters, as was the case here at 75 percent; however, apps were also prevalent at libraries serving 25,000-99,999 (64%).

Percentage of National and Colorado Libraries with Mobile Apps in 2012, by Population Group

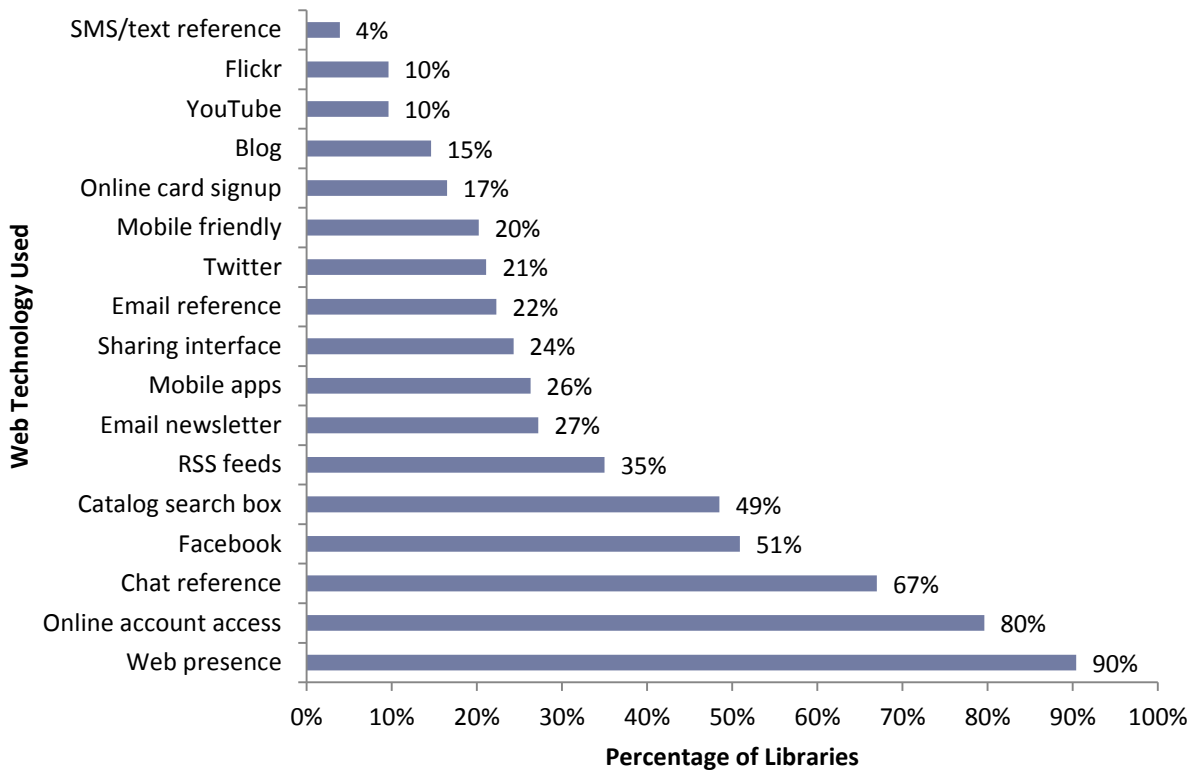


The 2012 study also considered responsive design elements of the library homepage. Only 3 Colorado libraries and just 9 libraries from the national sample used this design technique on their websites. It will be particularly interesting to note how these figures change in the next cycle of this study: Will apps continue in prominence or will general adaptation to mobile devices become more popular?

Colorado Results: All Libraries

The chart below summarizes Colorado’s public library web technologies as of 2012. Four out of 5 Colorado public libraries had websites that offered patrons online access to their accounts, two-thirds (67%) offered chat reference services, and about half had a Facebook account (51%) and/or a catalog search box (49%) on the library home page. Just over a third (35%) of Colorado libraries used RSS feeds, and about a quarter offered email newsletters (27%), mobile apps (26%), or a sharing interface (24%). Beyond that, implementation of various Web 2.0 technologies drops to just 1 in 4 libraries or less.

Percentage of Colorado Libraries Using Various Web Technologies in 2012



Conclusion

Since the first Web Technologies study, public libraries across the United States have made varying degrees of progress in adopting Web 2.0 tools. Using the 2008 results as a baseline, the 2010 and 2012 studies have served as opportunities to identify new web technologies and track changes in what libraries are adopting.

The 2010 report predicted that:

[I]n the coming years it is probable that libraries will abandon some of the original web technologies in favor of new ones that better respond to users' changing interests and information seeking habits. Areas to watch include social media, which has already exhibited massive growth, [text] reference, and mobile compatibility of libraries' websites, which is likely to become more common as the general popularity of web-enabled mobile devices increases. (Lietzau & Helgren, 2011, p. 42)

The results of the 2012 study confirm these predictions and indicate that this is a transition time for web technologies in public libraries. From 2008 to 2010, libraries tended to increase their level of adoption for most of the web technologies examined in this study, with larger libraries

doing so at the fastest rate. In contrast, from 2010 to 2012, smaller libraries had the most dramatic increases in adoption for many of the web technologies, including websites, online account access, blogs, RSS feeds, catalog search boxes, sharing interfaces, Facebook, and Twitter. Larger libraries tended to level off in their use of many of these technologies and, in some instances, dropped them, and they turned their attention to mobile-friendly sites and text reference, as well as a variety of social media networks including—but extending beyond—Facebook and Twitter. Perhaps these trends are indicative of a cycle that will repeat itself in the coming years.

In the 2008 and 2010 versions of this study, those libraries that scored in the top 20 percent of their population group on an index assessing their level of web technology adoption were identified as Early Adopters. Early Adopters were compared to all other libraries on a variety of output measures, and in both 2008 and 2010, early adopters had higher visits, circulation, and program attendance than did all other libraries. However, in 2012, the Early Adopters index was no longer an accurate tool to gauge which libraries were leaders in web technology adoption given the transitional nature of libraries' implementation of the various technologies. One task for the next iteration of this study will be to determine whether it is appropriate to develop a new index based on revisions to the data elements as well as an examination of the trend data from 2012 to 2014.

The 2012 results suggest that social media, text reference, and mobile access will continue to grow, although the ways in which they will be implemented are uncertain. The social media landscape continues to expand, as do the methods for mobile accessibility. Ideally, libraries will match these evolving options to their users' technology preferences and information-seeking behaviors so that they can provide an optimal user experience. As libraries work through these ongoing experiments, LRS will continue to document the process: In spring 2014, staff will embark on the fourth iteration of this study, refining its focus as indicated to accurately reflect public libraries' current web technology strategies.

References

- Anttiroiko, A.-V., & Savolainen, R. (2011, June). Towards Library 2.0: The adoption of Web 2.0 technologies in public libraries. *Libri*, 61(2), 87-99. doi 10.1515/libr.2011.008
- Barnhart, F., & Pierce, J. (2011). Becoming mobile: Reference in the ubiquitous library. *Journal of Library Administration*, 51(3), 279-289.
- Budiu, R., & Nielsen, J. (2011). *Mobile website and application usability*. Nielsen Norman Group. Report available for purchase at <http://www.nngroup.com/reports/mobile-website-and-application-usability/>
- Carlucci Thomas, L. (2012, February 1). The state of mobile in libraries 2012. *Library Journal*. Retrieved from <http://www.thedigitalshift.com/2012/02/mobile/the-state-of-mobile-in-libraries-2012/>
- Chen, D. Y.-T., Chu, S. K.-W., & Xu, S.-Q. (2012). How do libraries use social networking sites to interact with users. *Proceedings of the American Society for Information Science and Technology*, 49(1), 1–10. doi: 10.1002/meet.14504901085
- Crawford, W. (2011, Jul/Aug). Crawford at large: Public library blogs. *Online*, 35(4), 58-60.
- Enis, M. (2013, February 1). Mobile evolution. *Library Journal*, 138 (2). Retrieved from <http://www.thedigitalshift.com/2013/02/mobile/mobile-evolution/>
- Graham, T. (2012). Rethinking library web sites with user experience design: Conference report. *Journal of Electronic Resources Librarianship*, 24(1), 53-54. doi 10.1080/1941126X.2012.657114
- Griggs, K., Bridges, L., & Gascho Rempel, H. (2009). Library/mobile: Tips on designing and developing mobile web sites. *Code4Lib Journal*, 8. Retrieved from <http://journal.code4lib.org/articles/2055>
- Hane, P. (2011, June). Newswatch: Mobile solutions for libraries. *Information Today*, 28(6), 8.
- Harmon, C., & Messina, M. (Eds.). (2013). *Using social media in libraries: Best practices*. Lanham, MD: Scarecrow Press.
- King, D. (2012, Aug/Sept). Use and engagement on the digital branch. *Library Technology Reports*, 48(6), 12-16.
- Krishnan, Y. (2011). Libraries and the mobile revolution. *Computers in Libraries*, 31(3), 6-9.
- Kwanya, T., Stilwell, C., & Underwood, P. (2012). Library 2.0 versus other library service models: A critical analysis. *Journal of Library and Information Science*, 44(3), 145-162.
- Lammers, D. (2012). Still facing obstacles to Web 2.0 use by your library? Try Henrico's approach. *Virginia Libraries*, 58(1), 26-28.

- Lietzau, Z. (2009). *U.S. public libraries and the use of web technologies* (Closer Look Report). Denver, CO: Colorado State Library, Library Research Service.
- Lietzau, Z., & Helgren, J. (2011). *U.S. public libraries and the use of web technologies, 2010* (Closer Look Report). Denver, CO: Colorado State Library, Library Research Service.
- McKendrick, J. (2012, July/August). The rise of the digital public library. *Computers in Libraries*, 32(6), 17-20.
- Naughton, R., & Agosto, D. (2012). Favorite websites: Understanding prior knowledge of teens' mental models of public library websites for teens. *Proceedings of the American Society for Information Science and Technology*, 49(1), 1-11. doi: 10.1002/meet.14504901109
- Nielsen, J. (2012, February 13). Mobile sites vs. apps: The coming strategy shift. Retrieved from <http://www.nngroup.com/articles/mobile-sites-vs-apps-strategy-shift/>
- Rainie, L., Zickhur, K., & Duggan, M. (2012, December 31). *Mobile connections to libraries*. Pew Research Center's Internet & American Life Project. Retrieved from http://libraries.pewinternet.org/files/legacy-pdf/PIP_MobileConnectionsToLibraries.pdf
- Rogers, C. (2011, November). Social media, libraries, and Web 2.0: How American libraries are using new tools for public relations and to attract new users – Fourth annual survey November 2011. South Carolina State Library. Retrieved from http://www.statelibrary.sc.gov/docs/pr/201202_com_social_media_survey_dec_2011.pdf
- Soloman, L. (2011). *Doing social media so it matters: A librarian's guide* (ALA Editions Special Reports). Chicago: American Library Association.
- Soloman, L. (2013). *The librarian's nitty-gritty guide to social media*. Chicago: American Library Association.
- Smith, A. (2012, June 26). *Cell internet use – 2012*. Pew Research Center's Internet & American Life Project. Retrieved from http://pewinternet.org/~media/Files/Reports/2012/PIP_Cell_Phone_Internet_Access.pdf
- Steiner, S. (2012). *Strategic planning for social media in libraries*. Chicago: ALA TechSource.
- Young, Jr., T. (2011, May/June). Smartphone & library apps: Where are we, where are we going. *Library Media Connection*, 29(6), 52-56.

Appendix – Survey Instrument

Public Libraries and the Use of Web Technologies, 2012

1. Researcher's name:
2. What is the library's FSCS key?
3. Today's date:

Basic Website

4. Does this library have a web presence? Yes (go to #5) No (go to #18)
5. What is the library's web address? _____
6. Does the library's website have a catalog search box? Yes No
7. Does the library's website offer a sharing interface? Yes No

Features

8. How does the library offer an email newsletter?
 - 1 newsletter for all
 - Focused/customizable newsletters
 - No newsletter
9. Does the library have a virtual branch (digital branch, e-branch)? Yes No
10. Does the library have at least one blog that you can find? Yes No
11. What is the date of the most recent blog post you can find?
12. What is the date of the most recent blog comment that you can find? Only go back as far as the 10 most recent posts.
13. How does the library offer RSS feeds for non-blog content?
 - Customizable/multiple feeds
 - Single feed only
 - No non-blog feeds

Patron Account

14. Does the library offer online access to the patron's account? Yes No
15. Can you sign up for a library account online? Yes No

Virtual Reference

16. Which of the following types of reference services does the library provide?
 - Chat

- SMS (text messaging)
- Email
- None

17. For Colorado Libraries - could you find the presence of AskColorado on the library's website? Yes No

Social Networking

18. Describe the library's presence in the following:

Facebook: Yes No

Number of likes:
Date of most recent post:
Date joined:

Twitter: Yes-linked from library website Yes-not linked from library website
No

Number of followers:
Number following:
Date of most recent tweet:
Number of tweets:
Date joined:

YouTube: Yes-linked from library website Yes-not linked from library website No
Number of subscribers:
Number of videos:
Video views:
Date of most recent video upload:
Date joined:

Flickr: Yes-linked from library website Yes-not linked from library website No
Number of contacts:
Date of most recent photo upload:
Date joined:

Foursquare: Yes-linked from library website Yes-not linked from library website No
Total people:
Total check-ins:

Tumblr: Yes-linked from library website Yes-not linked from library website No
Number of posts:
Date joined:

Pinterest: Yes-linked from library website Yes-not linked from library website No
Number of followers:
Number following:
Number of pins:

Vimeo: Yes-linked from library website Yes-not linked from library website No

Number of videos:

Google+: Yes-linked from library website Yes-not linked from library website No
Number of +1s:
Number of followers:

Responsive Design/Mobile

19. Does the library offer mobile apps? Yes No

20. Does the library website use responsive design? Yes No

21. Does the library have a website optimized for mobile devices? (if #19 is “no”)

- Yes
- No
- Can't determine