

# Notes on Operations

## Mobile Applications in Academic Libraries

Jamie Saragossi, Laura Costello, and Kathleen Kasten

Portions of this paper are based on a presentation delivered at the New York Library Association Annual Conference on Friday, November 4, 2016, at the Saratoga Hilton in Saratoga Springs, New York, and a virtual lightning talk delivered at the ALCTS Exchange on Thursday, May 11, 2017.

*This paper explores the challenges and opportunities presented by mobile applications in the context of an academic library collection. This emerging format raises important questions about selection, acquisition, access, instruction, outreach, and evaluation as these practices have been applied to traditional resources. A more nuanced understanding of the content and format of mobile applications informs a collection development strategy for discovering, acquiring, and maintaining these resources. The development of an outreach program that includes liaison activity, instruction, and research consultations is also explored as a way to drive users to these new resources. Using Stony Brook University Libraries as a case study, this paper discusses the potential of mobile applications as academic library resources plus practical ways to promote usage and enhance academic engagement.*

Providing access to library materials and services on mobile devices has become an imperative for libraries. A 2016 Pew Research survey estimated that 77 percent of adults in the United States now own and use smartphones. The ubiquity of mobile device ownership holds relatively steady even across traditional divisions like race and income.<sup>1</sup> Libraries have an opportunity to provide materials and services to a large population of users via mobile access, and new patterns of collection development and resource management have emerged to support this demand. Library mobile site optimization, acquiring mobile-ready or native mobile collections, nuancing selection practices to accommodate the evaluation of application content, and training and promotion for these activities are now essential practices for information professionals.

This paper explores the emerging processes of mobile application acquisition, support, and promotion at Stony Brook University Libraries. While the practice of adopting mobile applications and sharing them effectively with library communities is still developing, Stony Brook has endeavored to create strategies to acquire this new type of material and make it accessible and useable for patrons. As mobile applications (apps) become more integrated into the Libraries' resource landscape, they highlight challenges posed by traditional evaluation and acquisition models, prompting librarians to reconsider how users identify, access, and use information. Mobile applications may potentially serve a variety of functions in a library's collection, including expanding discovery or modes of access or functioning as point-of-need resources. Others contribute unique content not available through more traditional database subscriptions. In either case, mobile applications are a fundamental aspect of collection development in the modern academic library. Whether a particular app represents unique content,

**Jamie Saragossi** (jamie.saragossi@stonybrook.edu) is Head of Health Sciences Library, Stony Brook University Libraries. **Laura Costello** (laura.costello@rutgers.edu) is the Virtual Reference Services Librarian at Rutgers University Libraries in New Brunswick, New Jersey. **Kathleen Kasten** (kathleen.kasten@stonybrook.edu) is Head, Humanities and Social Sciences, Stony Brook University Libraries.

Manuscript submitted July 18, 2017; returned to authors for revision September 11, 2017; revised manuscript submitted November 12, 2017; reviews completed December 14, 2017; accepted for publication July 8, 2018.

the app format conditions the reader's experience to create a new, content-rich encounter with library content.

The need for clarity and praxis regarding mobile apps is crucial in the contemporary academic library because mobile apps represent both a new format and a new content type. Logistically integrating mobile apps into the collection development process requires communication and cooperation between departments and the establishment of new workflows. In this study, a review of the current literature is combined with practical strategy and case study to elucidate key questions, innovations, and future directions in the promotion and collection of mobile apps in academic libraries.

## Literature Review

The current landscape of library participation in mobile initiatives spans a wide variety of institutions and practices. There are examples in the literature of libraries evaluating and optimizing their websites and collections for mobile access. Adelphi University Libraries examined their database content for mobile compatibility in 2015 and found that 28 percent of the services they reviewed were appropriate for mobile use.<sup>2</sup> Since this paper was written, many more databases have incorporated mobile optimization into their strategies. The authors concluded in their study that mobile-incompatible databases were inappropriate for an increasingly mobile instruction and resource landscape, and this is still accurate. Pressure on vendors by librarians to increase mobile compatibility might help push them towards providing a better mobile experience for end users. To exert that pressure, librarians could begin by optimizing their own websites and resources for mobile devices. Caniano and Catalano conducted a survey of mobile device preferences among students, faculty, and staff at Hofstra University, concluding that increased usage of mobile technologies mandate apps as a collection development priority of modern academic libraries.<sup>3</sup>

The effort to accommodate mobile users in libraries is far from complete. Bomhold investigated the library websites of academic institutions with very high research activity, as ranked by the Carnegie Foundation for the Advancement of Teaching, for evidence that these libraries had made an effort to accommodate mobile users.<sup>4</sup> She found that about 71.2 percent of these institutions had made some effort to provide mobile access, but that approaches varied. Slightly over half of the institutions provided a designated mobile app. The remainder offered a mobile optimized website or linked to a mobile website from the desktop homepage or from the institution's homepage. A significant number of institutions—28.7 percent of those studied—did not provide a mobile option for library resources.

Her research raises another significant point, which is that mobile access is not just a different access format but also a different access philosophy. Mobile users want to be able to access help and content seamlessly, placing potentially different expectations on the role of the library in their research. Making the accommodation of mobile users essential in library website and app design is an important step in changing practice to meet these users' needs. To properly evaluate, acquire, and promote mobile content from external sources, access points through the library website for mobile users must be established. Creating a basic level of mobile access is the first step in facilitating app access, and it is a continuing effort. Wong developed a desktop website and mobile application for a library event. Usage was surprisingly similar between the two platforms.<sup>5</sup> Since this study, increased mobile adoption and patron outreach initiatives by libraries may have changed this trend to favor mobile users. At this time, it seems that library users have come to expect mobile access to library resources and increasingly demand access to mobile-ready and mobile-native content. Once users enjoy basic access to library resources through mobile platforms, libraries can begin to respond to demand from users for app acquisition. This transition has implications for library collection development policies and strategies, as demonstrated by DeRosa and Jewell.<sup>6</sup> Their study of mobile app collection development at Memorial Sloan Kettering Library emphasizes the need for a coherent, relevant set of procedures to facilitate the selection, testing, and ultimate evaluation of mobile resources. Though app evaluation relies on many of the same metrics that are useful when applied to more traditional library resources, this procedure necessitates increased consideration of factors such as user-friendliness, legal approaches when there is no contract or site license available, and questions of copyright and fair use.

Some early papers on mobile app acquisition in libraries are from the field of medical librarianship. Access to library content outside of the traditional formats has been a priority for clinicians and medical professionals for the past several years because access to information for these users frequently takes place during the course of their medical practice rather than within a library. The demand for immediacy is an important factor in the development of app acquisition in health sciences libraries. As early as 2012, Prince and O'Hagan published papers reviewing and describing emerging applications to assist medical librarians in developing collections in this area.<sup>7</sup>

While mobile apps offer complexity in collection development, cataloging, and other technical services workflows, the successful adoption of these technologies relies on access, and an effective strategy includes promotion, outreach, and patron-facing troubleshooting. Some institutions that include mobile apps in their collection strategy have

offered best practices for promotion and outreach. DeRosa and Jewell propose website-based promotion to appeal to users who are likely to be interested in apps, rather than flyers and other strategies based on visits to the physical library.<sup>8</sup> Research from Boopsie highlights the effectiveness of banner and web-based advertising for library mobile app adoption.<sup>9</sup> Other strategies recommended in this study include social media, instruction sessions, campus outreach, online video tutorials, and workshops, including app content on Springshare's LibGuides.

The inherent challenges in marketing mobile apps to library users are well defined by Swogger and Linares in their study of BrowZine.<sup>10</sup> The authors highlight the necessity of showing the app to users to market it, a task that is not always feasible on a retail basis. BrowZine is a platform that integrates existing electronic journal content into a mobile-ready wrapper so it does not function like a journal that can be added to an institution's catalog or index. They underscore the fact that BrowZine's creator, Third Iron, knows that marketing their product can be problematic for libraries. This understanding is demonstrated by the expected compatibility of the new web version of BrowZine with online learning platforms, and the company's commitment to creating materials and custom widget codes for libraries. Marketing BrowZine has prompted Third Iron to partner with academic libraries to make their platform more visible, thereby helping libraries to assess their outreach strategies in a targeted way.<sup>11</sup>

Academic librarians view app outreach as a component of the broader mission to educate patrons about emerging research modalities and technologies. In their survey of app usage in Canadian academic libraries, Canuel and Crichton insist that librarians have a responsibility to understand the app landscape and to guide users through it.<sup>12</sup> Apps offer opportunities to engage students learning information literacy principles in new ways, and to help researchers manage bibliographic data. Their survey demonstrates that many academic libraries are already promoting apps, while also engaging with important cost and collection development considerations raised by apps in academic libraries.<sup>13</sup> Furthermore, app outreach initiatives are consistent with librarians' broader mandate to communicate information and technological literacy.<sup>14</sup>

## Collections

As academic libraries expand their collections to embrace mobile apps, they face challenges that echo those encountered with the arrival of e-books and streaming media. Similarly, apps present challenges with regard to evaluation, acquisitions, licensing, access, cataloging, and technical support. These challenges require creative solutions,

updates to existing policy, and collaboration across library departments. DeRosa and Jewell outline the relevant considerations for collection development policies relating to the acquisition of mobile apps, underscoring the potential obstacles posed by the variability and instability of the content, format, and restrictions of mobile apps.<sup>15</sup> At Stony Brook University Libraries the move toward mobile apps was accompanied by reflections on the implications for the selection, budgeting, and support necessary to meet patron requests and expectations.

Collection development librarians at Stony Brook University Libraries do their own research on emerging app content and functionality within their disciplines. However, they also receive suggestions and requests from faculty and students in two additional ways, both of which highlight the importance of apps as both format and content. Patrons contact subject liaisons directly to request app content and other resources to support their research and teaching. They can also submit requests through the Libraries' Purchase Recommendation Form, an online form available on the website that gives users the option to select a format when making a recommendation. The documentation of these requests helps to provide a record of the frequency of requests and the ways that content and format intersect as components of patron interest. This informs policy by helping the library to gauge the relative importance of content and the means by which it is delivered and accessed. This agnostic attitude toward the consideration of format allows the Libraries to emphasize content and researcher experience when making collection development decisions within the broader context of the particular acquisitions and technical challenges posed by emerging formats such as apps. A prime example of this is type of demand was evident in the case of Stony Brook University Health Sciences Library's acquisition of the Visible Body Application. For several years the library had a standard version of the Visible Body Database. This reference tool consists of 3D anatomical images with the ability for the user to manipulate and review thousands of anatomical images, structures, and systems. The Visible Body has been hosted on the authors' database page and is accessible with proxy authentication. Many of Stony Brook's students are currently enrolled in courses that distribute iPads. It became necessary for students to be able to study for anatomy on their mobile devices. The library decided to also purchase the Visible Body Application. This standalone app can be downloaded through an institutional link hosted on the library's mobile app webpage. Once students authenticate, they have access to the anatomy app on their device for ninety days. As evidenced by increased downloads and frequently asked reference questions, this app continues to be in high demand. This duplication of content for the traditional desktop and mobile environments required careful consideration. This type of acquisition could be likened to

purchasing an electronic copy of a print resource and must be done in close consultation with collection development specialists, with the understanding of the anticipated usage and adoption of the product. However, there are often cases for the purchase of multiple copies or multiple formats of items and accessibility can be a consideration in the decision-making process and collection development implications for mobile applications.

BrowZine, which was noted earlier, is a mobile app that provides access without necessarily offering unique content. It is subscription-based, allows researchers to browse journal content, and is a portal to content that already exists in the library's holdings. Nevertheless, BrowZine presents researchers with a reading experience that combines the serendipity of a print journal with the ease-of-access of an app. In the updated version of this product, users can curate their own reading lists and bookshelves, turning the app into an effective means of being alerted to new content in a particular field. Additionally, BrowZine's format, which privileges access to sequential issues of a journal, permits a juxtaposition of articles and ideas that is less likely to occur when researchers access journal content through an electronic database or discovery layer. Rather than seeing the article in isolation, the researcher encounters it within the context of a journal's editorial priorities, or even of the wider discourse of a particular field of inquiry. BrowZine offers the convenience and accessibility that are the hallmarks of well-designed mobile apps intended for academic research. However, the ways in which the content it makes accessible can be accessed and curated by the user underscore its utility as a tool. The potential for synthesis and discovery in BrowZine are critical factors that outweigh the apparent redundancy of its content. This consideration rests on the curatorial function of collection development librarians, while also creating important outreach and instruction opportunities to make users aware of the app's potential as both a discovery tool and an intellectually rich reading experience.

While the content available through Visible Body and BrowZine is accessible through other formats, apps that provide exclusive content have emerged as a format to consider for acquisition. These proprietary resources host content that may no longer be available in print or even as an e-book. For example, the Johns Hopkins' ABX Guide ([https://www.hopkinsguides.com/hopkins/index/Johns\\_Hopkins\\_ABX\\_Guide/](https://www.hopkinsguides.com/hopkins/index/Johns_Hopkins_ABX_Guide/)), a standard resource for clinicians, is now offered through a mobile app to help facilitate the continual updates that occur with clinical and drug information. Individual libraries should consider developing guidelines for the type of mobile applications that fit within their larger collection development policies and mechanisms for requesting materials in this new format. The necessity of fiscal restraint can mean making difficult choices between platform and content. To support and defend such difficult decisions, mobile

applications should be included in an institutional collection development policy. According to DeRosa and Jewell, evaluative criteria for the selection of mobile apps should reflect the process used for other traditional formats: subject relevance, quality of content, reputation of publisher/provider, cost, access, legal issues, and copyright.<sup>16</sup>

Besides evaluating these resources intellectually, using liaison expertise and the Purchase Recommendation Form, librarians confront collection development decisions within a larger budgetary context. Many academic libraries are currently facing flat collections budgets at best. It is imperative that allocations and expenditures for electronic resources ensure greater impact than their traditional counterparts. Mobile apps typically provide frequent updates that alleviate the need to replace physical copies or maintain annual subscriptions with additional platform fees for individual titles. Furthermore, mobile app versions of some standard library resources are often available as part of a traditional subscription. Libraries should work to identify which resources in their current holdings offer mobile app versions and provide promotion and instruction, ensuring that they are taking full advantage of subscription benefits. Mobile application downloads and access have evolved greatly, making license administration less burdensome for the individual library.

Workflows should also be considered when deciding to implement the acquisitions of these new resources, including communications and work strategies of acquisitions, cataloging, and IT support. The profession may consider taking lessons from previous format transitions, such as the switch from analog (VHS and DVD) to streaming video. Explaining the transition to streaming video at Brigham Young University, Schroeder and Williamsen observed that it "required the unified expertise of subject librarians, acquisitions librarians, catalogers, and information technology personnel."<sup>17</sup> Consideration must be given to both the policies surrounding the collection and the workflows necessary to make these resources discoverable, accessible, and sustainable. In addition to the work necessary to catalog other formats, the mobile application may be hosted outside the integrated library system (ILS) and catalog, such as on a web page that requires metadata and IT support.

The ways that our end-users interact with mobile app providers can pose unique budgetary challenges to libraries. A recent example is Read by QxMD. Read is a product developed for physicians and medical students to address the need for immediacy and the need for quick access to evidence-based resources. This mobile application helps to aggregate newly published content in specific clinical disciplines and provide users with an easy way to connect to full text through the library's subscription. It was initially developed, launched, and marketed as a free tool. However, its use was adopted by clinicians and students at

several universities and medical centers. To continue supporting the needs of their growing user base, the company switched to a paid model. This led to a situation where the library was left with patrons unable to connect to the full text they had come to expect. At Stony Brook University, the demand was so great that the authors investigated whether they could identify funds to add this type of app. Although the functionality and use were clearly beneficial to patrons, from a collection development standpoint, it was important to identify that the app functions as an aggregator or mobile discovery layer that provides access to content already available through traditional mechanisms.

While the Read by QxMD app assists in discovery and facilitates article interaction in the mobile environment, Stony Brook University's Library is paying for this layer while also maintaining access to the full-text content from the individual publishers. As with the Visible Body application previously cited, accessibility to information and content will need to be considered as an evaluative criterion in the collection development process for mobile applications. Additionally, the authors learned through their review of mobile apps to be mindful of vendor platform compatibility and authentication issues. In the case of Read by QxMD, following rigorous review, including multiple vendor demonstrations to all health science librarians plus conversations with several faculty and clinicians, the authors decided to move forward with a one-year pilot subscription. The potential improvements to the clinical workflow using Read by QxMD and the possible increased access to their subscribed content were considered beneficial enough to justify the cost. The authors will closely track the number of downloads and usage through the app platform to evaluate their subscription after one year. Stony Brook University Libraries are currently working closely with the vendor to ensure proper integration using IP range for user authentication.

It is imperative for libraries to establish their own evaluative criteria, standard platform requirements, and methods for data capture for mobile applications. Most mobile app platforms are not standardized across publishers or developers. The authors have not identified any apps in their current research that are COUNTER compliant, as is the case with other subscribed database platforms. Libraries may need to monitor the number of downloads through their own web platform or work with vendors to provide meaningful statistics that will assist in future decisions and justification for continuing subscriptions.

### Promotion of Mobile Applications

The adoption of mobile apps as an emerging format within the Libraries' collections necessitates a varied outreach strategy that endeavors to make apps accessible

and approachable. Because barriers to app use in research include questions of content and technical issues, it is necessary to address user concerns by providing high-quality apps in conjunction with responsive services. This can be achieved through hands-on workshops or the creation of robust resources for online users.

The motivation for use of these applications must be considered when providing support for mobile applications. Each user has a different comfort level and understanding of the scope and use potential of these applications. Many users are interested in exploring the technology; others enjoy quick access to information. Still others prefer to fully integrate the applications into their research practice. While considering the aforementioned issues of access, technical services, and technical support, these varying levels of interest and motivation for use should be incorporated in the decision-making process.

The authors organized a workshop designed to help attendees use mobile apps for their research. The workshop focused on the rich and varied content contained in apps, the practicality and timeliness of their format, and how they allow users to access information. Additionally, the workshop addressed common access issues, such as downloading apps and using them on mobile devices. Held in a library computer classroom and simulcast online, this event focused on the process of downloading and using the Libraries' subscription apps from a student and faculty perspective plus the use of free apps and those that are available from the University independently of the Libraries.

Moreover, the Libraries host a LibGuide to help students discover the apps offered and how to use them effectively at Stony Brook University Libraries.<sup>18</sup> The authors will begin recording and hosting tutorials that can be accessed by patrons at the point of need. The tutorials will provide narration and visual step-by-step instructions about the download process for subscribed mobile applications. The instructions will present the processes for different types of devices. As the authors learned from their experiences with e-books, procedures can differ greatly with every publisher on each type of device. These guides, workshops, and tutorials were developed to close the technology gap for this new format and to help users connect to content through apps as easily as they access library content through our databases or discovery system.

Besides acquiring and promoting external app content, Stony Brook University Libraries is developing a native library app to help users access library content appropriate for their mobile devices, including both apps and traditional library offerings. This library app was developed in response to various iPad one-to-one initiatives across Stony Brook's campus. For the last two years, Stony Brook has provided iPads to students in the

Educational Opportunity and Advancement on Individual Merit Programs (EOP/AIM) through an initiative called Mobile/Digital Now. The EOP/AIM students are high-potential applicants from historically disadvantaged backgrounds, and the Mobile/Digital Now program gives these students a technology portal to scholarly content. The Libraries are working with the EOP/AIM program to ensure that the app is preloaded on the iPads so that students have direct access to the Libraries' resources. Similar programs are beginning in Stony Brook's School of Medicine and Athletics Programs, and the Libraries will partner with each of these programs to promote access to library resources via the library app.

Currently, Stony Brook Medicine is implementing an iPad initiative. All incoming students will be given an iPad, and instructors are encouraged to use interactive tools and mobile apps to deliver content that can be accessed by students remotely to support interactive learning and classroom engagement.<sup>19</sup> To respond to this initiative, the Libraries created a LibGuide for mobile applications with information on downloading library-supported and departmental apps. This provides the library with an opportunity to stay informed regarding the use of these resources and to proactively provide support and instruction for users in this program. This LibGuide is also a platform for course-integrated instruction. It allows the librarian to customize sessions to apps with a specific function or content focused towards particular disciplines or programs.

## Conclusion

The need to develop acquisitions policies and promotion procedures for mobile apps arose from an understanding of the needs of Stony Brook University's researchers and students. The acquisition and evaluation of mobile apps are becoming increasingly crucial in academic libraries. Mobile-enabled patrons require library content that fit their devices and their needs. To create responsive collections, librarians must approach apps as an emerging resource type at the confluence of content and format. Documenting user requests and behavior with regard to point-of-need apps can help librarians demonstrate a demand for these resources as an emerging format capable of yielding new insight by virtue of its ability to on-demand access. Though mobile apps represent a collection development opportunity because of their ability to support new research modalities, they can also be an important means of accessing unique content only accessible through this format.

The body of literature addressing the acquisition and promotion of mobile apps is still limited. Many libraries are in the process of adapting their sites and traditional content to mobile users, and a growing number of institutions are working to license and distribute external app content. As we encounter and adjust our policies to adapt to this new format, we should be assessing and documenting effective practices to share with the field. Developing best practices to serve the mobile user will help librarians at all types of institutions build more responsive collections.

## References

1. Pew Research Center, "Mobile Fact Sheet," accessed February 13, 2017, [www.pewinternet.org/fact-sheet/mobile/](http://www.pewinternet.org/fact-sheet/mobile/).
2. April Grey and Rachel Isaac-Menard, "Database Mobile Accessibility Assessment at Adelphi University Libraries," *Journal of Web Librarianship* 9, no. 2–3 (2015): 85–98.
3. William T. Caniano and Amy Catalano, "Academic Libraries and Mobile Devices: User and Reader Preferences," *Reference Librarian* 55, no. 4 (2014): 298–317.
4. Catharine Bomhold, "Mobile Services at Academic Libraries: Meeting the Users' Needs?," *Library Hi Tech* 32, no. 2 (2014): 336–45.
5. Shun Han Rebekah Wong, "Which Platform Do Our Users Prefer: Website or Mobile App?," *Reference Services Review* 40, no. 1 (2012): 103–15.
6. Antonio P. DeRosa and Sarah T. Jewell, "Establishing a Mobile Resources Collection Development Policy," *Journal of Electronic Resources in Medical Libraries* 11, no. 3 (2014): 144–54.
7. J. Dale Prince, "Ten Essential Cloud-Based Apps for Medical Librarians," *Journal of Electronic Resources in Medical Libraries* 9, no. 2 (2012): 155–66; Emma O'Hagan, "Getting Started with Medical Apps: Apps You Should Know About," *Journal of Hospital Librarianship* 12, no. 2 (2012): 162–70.
8. DeRosa and Jewell, "Establishing a Mobile Resources Collection Development Policy," 144–54.
9. Danielle Kane and Jeff Schneidewind, "QR Codes as Finding Aides: Linking Electronic and Print Library Resources," *Public Services Quarterly* 7, no. 3–4 (2011): 111–24.
10. Susan E. Swogger and Brenda M. Linares, "BrowZine: A Method for Managing a Personalized Collection of Journals," *Medical Reference Services Quarterly* 35, no. 1 (2016): 83–93.
11. Matthew Ismail, "Marketing BrowZine in Michigan Universities," *Against the Grain* 25, no. 5 (2016): 22.
12. Robin Canuel and Chad Crichton, "Leveraging Apps for Research and Learning: A Survey of Canadian Academic Libraries," *Library Hi Tech* 33, no. 1 (2015): 2–14.
13. Ibid.
14. Robin Canuel, Chad Crichton, and Maria Savova, "Tablets as Powerful Tools for University Research: Teaching the

- Relevant Skills,” *Library Technology Reports* 48, no. 8 (2012): 35–41.
15. DeRosa and Jewell, “Establishing a Mobile Resources Collection Development Policy,” 144–54.
  16. Ibid.
  17. Rebecca Schroeder and Julie Williamsen, “Streaming Video: The Collaborative Convergence of Technical Services, Collection Development, and Information Technology in the Academic Library,” *Collection Management* 36, no. 2 (2011): 89–106.
  18. Stony Brook University Libraries, “Mobile Resources and Apps for Library Research,” accessed March 1, 2017, <http://guides.library.stonybrook.edu/mobile/home>.
  19. “Mobile Medicine Education,” Stony Brook Medicine, accessed October 4, 2017, <https://medicine.stonybrookmedicine.edu/mmeded>.