

Overhyped Fad or Missed Opportunity? A History of Academic Libraries and the Social Web

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Citation for this version and the definitive version are shown below.

Citation to Publisher Version: Deodato, Joseph. (2017). Overhyped Fad or Missed Opportunity? A History of Academic Libraries and the Social Web. *Journal of Web Librarianship* 11(3), 1-27. <http://dx.doi.org/10.1080/19322909.2017.1390424>.

Citation to this Version: Deodato, Joseph. (2017). Overhyped Fad or Missed Opportunity? A History of Academic Libraries and the Social Web. *Journal of Web Librarianship* 11(3), 1-27. Retrieved from [doi:10.7282/T38S4SZ3](https://doi.org/10.7282/T38S4SZ3).



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Overhyped Fad or Missed Opportunity? A History of Academic Libraries and the Social Web

Joseph Deodato

Abstract

The emergence of social media has radically transformed the way we create and consume information. These changes have in turn given rise to new models of librarianship centered on principles of participation, interaction, and collaboration. Over the last decade, academic libraries have eagerly adopted social media as a means of enhancing services and connecting with a new generation of users. But how exactly has this technology changed libraries? In what ways has the social web transformed library services or our relationships with users? This article attempts to assess the impact of social media on academic libraries in the United States through a review of the literature published since 2005. In particular, it looks at how academic libraries have used social media to improve or develop new services. By comparing published case studies with the theoretical literature, this article seeks to separate theory from practice and determine the extent to which the social web has transformed library practice. The author concludes that, despite several noteworthy examples, the majority of social library applications ultimately fail to live up to the transformative potential promised within the literature and that this failure may have more to do with philosophical rather than technical limitations.

Keywords

academic libraries, social media, user-generated content, Web 2.0

Introduction

Back in 2005, it was difficult to pick up a journal or attend a conference without hearing about how the social web was poised to revolutionize libraries. Wikis, blogs, and social networks were seen as offering new and exciting ways to deliver library services and connect with a new generation of users. Advocates stressed the importance of building a strong social media presence and developing services that were “2.0.” More than just a fleeting tech trend, social media was profoundly changing the way people create and share information and inspiring a new vision for libraries in the 21st century. More than a decade later, it is difficult to find a library that does not play in the social media space or offer services that invite patron participation and user-generated content. But exactly how has this technology changed libraries? In what ways has the social web transformed the services of the library or its relationships with users?

This article attempts to assess the impact of social media on U.S. academic libraries through a review of the literature published since 2005. In particular, it looks at how libraries have used social media to enhance a wide range of activities such as outreach, reference and instruction, information retrieval, scholarly communication, and digital collections. By examining published reports and case studies describing the adoption and use of social media in libraries, it seeks to separate theory from practice and hype from reality. The article begins by briefly tracing the history of social media, its place within the ongoing evolution of the web, and its role within newer models of librarianship. It then examines some of the ways in which libraries have used social platforms to connect with users and deliver services, including the strengths and weaknesses of these approaches. Contrary to claims made within the literature, this review suggests that most libraries have used these technologies to achieve traditional ends rather than deliver new services or transform library practice. Libraries have also typically used

these tools in ways that allow them to maintain rather than distribute control over content. The author argues that the failure of libraries to utilize the social web in more innovative or transformative ways may be due to a fundamental misalignment between Web 2.0 principles and traditional library values.

A Brief History of the Social Web

Once considered a passing fad, social media has grown exponentially over the last decade to become a central component of the contemporary information economy. According to a 2015 Pew Research Center report, two-thirds (65 percent) of U.S. adults use some form of social media, a nearly tenfold increase over the preceding decade. The data also suggest that use of social media is no longer simply a generational phenomenon. While young adults continue to account for the majority of users, 35 percent of seniors over age 65 are also now users (Perrin 2015). Although keeping in touch with friends and family continues to be a strong motive for participation, users are increasingly using these tools to enhance other aspects of their personal, professional, and academic lives. More importantly, social features that facilitate networking, collaboration, and content creation are increasingly being integrated into all aspects of the web, fundamentally changing the way information is produced and consumed. How has this change impacted the role and function of libraries? To answer this question, the following section explores the nature of social media, its place within the larger discourse of Web 2.0, and its impact on current models of library practice.

Social Media

Social media refer to a set of internet-based applications that foster social interaction and allow people to easily create, discuss, and share content on the web. The emergence of social media dates back to the turn of the millennium and includes a variety of technologies such as blogs, wikis, social networks, and media sharing sites (see Table 1). These applications have introduced significant changes to the ways in which information is created, distributed, and consumed within networked environments. Changes to the way people communicate have, in turn, begun to alter the ways they work, study, and play with others.

Table 1: Types of social media

Blogs	Regularly updated websites that consist of discrete chronological entries and typically allow for reader comments	WordPress, Blogger, LiveJournal
Wikis	Websites in which content is collaboratively created and edited by a community of users	Wikipedia, Wikibooks, wikiHow
Social networks	Platforms that allow users to create personal profiles, exchange messages, and connect with friends or users with similar interests	Facebook, Google+, LinkedIn
Microblogs	Platforms that allow users to share brief but typically frequent posts with followers and subscribers	Twitter, Tumblr, FriendFeed
Media sharing sites	Platforms that allow users to upload and share image, audio, or video content	YouTube, Flickr, Instagram
Social bookmarking sites	Platforms that allow users to save, tag, organize, and share links to websites or online resources	Pinterest, Delicious, StumbleUpon
Social news sites	Websites that feature user-posted news stories that are ranked and commented on by other users	Reddit, Digg, Slashdot
Social question and answer sites	Websites where users submit questions and receive answers from other users	Yahoo! Answers, WikiAnswers, Quora

Given the variety of applications that social media encompasses, characteristics can be difficult to generalize. One way to define social media is to understand what distinguishes it from

traditional forms of mass media such as film, broadcasting, and publishing. Perhaps the most noteworthy difference lies in the way content is created. In traditional mass media, content creation is resource-intensive and therefore tends to be centralized and produced by only a few large entities. Content is said to flow from the top-down. In social media, content creation is decentralized because the tools of production are readily accessible to anyone. Anyone with a free WordPress, Instagram, or YouTube account can publish their own ideas, exhibit their own works of art, or distribute their own films. This allows content to flow from the bottom-up. Although the quality of content tends to be highly variable, so too is the range of cultural expression.

Social media changes not only the way content is produced, but also the contexts in which it is consumed. In social media, content is typically consumed within virtual communities or personalized networks where users can connect and interact with others, frequently including the content creator. Whereas traditional media operate in a one-way form of communication, from sender to receiver, social media foster two-way communication. Reading an article in a print magazine, for example, offers a qualitatively different experience from reading the same article on a blog where you can post comments and engage in discussion with the author and other readers. As a result, social media are structured in a way that promotes dialogue and interaction rather than solitary passive consumption.

While both traditional and social media are capable of reaching a large global audience, the immediacy and connectivity of social media allow it to reach that audience much faster. This is due not only to the increasingly ubiquitous and instantaneous nature of online communication, but also to the ease with which content can be shared/retweeted/reblogged/repinned among users and across platforms. These qualities are what give social media its “viral” character. Virality

refers the ability of digital content to be circulated rapidly and widely over the internet, typically through transmission over social networks.

Unlike traditional media, which is generally stored on discrete, durable, physical formats, social media is dispersed, ephemeral, and born digital. Analog media like print books and photographic film, once created, are rarely altered. However, social media are living documents that are easily and continuously modified through editing, remixing, deletion, and accumulation (e.g., the addition of comments, tags, or reviews). The permanence of social media is further complicated by the complexity and stability of the platforms on which they reside. Content is deeply integrated with the architecture of the platform and interactions between its users, making it highly volatile and difficult to preserve or reformat. Since both platforms and users come and go with great regularity, vast amounts of content can and do easily disappear.

Web 2.0

Social media have played a prominent role in ushering in what has been described as a new era in the development of the web. “Web 2.0” is a concept popularized by tech publisher Tim O’Reilly (2005) to describe the set of principles, technologies, and practices that characterize the new generation of web services. The principles of Web 2.0 include user-generated content, the wisdom of crowds, architecture of participation, software as a service, network effects, data-driven applications, and flexibility (see Table 2). The technologies on which Web 2.0 are based include social media applications (blogs, wikis, social networks, etc.), dynamic programming languages (JavaScript and PHP), content syndication protocols (RSS and Atom), and web APIs (SOAP and REST). Combined, these principles and technologies support the variety of practices that have come to be associated with the read/write web such as creating,

sharing, curating, remixing, tagging, rating, and reviewing. In short, Web 2.0 marks a shift towards a web that focuses more on the creation of content than its consumption. It describes a new generation of web tools explicitly designed to encourage interaction and participation. The primary means through which this is accomplished is by connecting users with similar interests and placing tools at their disposal that make it easier for them to co-create, share, and critique content.

Table 2: Principles of Web 2.0

User-generated content	The web no longer merely delivers content for users to consume, but provides frameworks for users to create and share their own content
Wisdom of crowds	Knowledge is created collaboratively through the collective input of individual users rather than distributed via a central, authoritative provider
Architecture of participation	Applications are designed to facilitate participation both explicitly by encouraging user contribution and implicitly by leveraging their collective activity to enhance the value of the platform
Software as a service	Software is delivered as a service (rather than a finished product) that is routinely updated and improved based on continuous user feedback
Network effects	The service gets better or becomes more valuable the more people use it
Data-driven applications	Applications are increasingly data-driven whether that data is licensed from a proprietary source or generated by the activities of the users themselves
Flexibility	Applications combine lightweight programming models and open standards that allow system components and data to be reused and remixed to create new custom applications

Some commentators, including World Wide Web inventor Tim Berners Lee, argue that Web 2.0 is not a particularly new phenomenon (Laningham 2006). In fact, many of the ideas and technologies described as “2.0” have been around since the early days of the web, particularly in precursors such as the bulletin board system (BBS) and Usenet. However, while the underlying

technology of the web has not changed significantly over the years, the number of users and extent to which this technology has been integrated into daily life most definitely has. This is largely due to increased global internet access, higher broadband speeds, the proliferation of internet-connected devices, and the design of easier-to-use interfaces. Improved access to the web combined with lower barriers to use have allowed for more widespread participation in digital content creation. This, in turn, has shifted much of the design focus of the web away from mere content delivery and toward applications that support, facilitate, and generate value from user content creation.

“Library 2.0”

The discourse of Web 2.0 has had a notable impact on libraries where it has forced them to rethink their relationship to their users and the way they conduct business. Beginning around 2005, library blogs, listservs, and conferences began articulating a new vision of library services based on Web 2.0 principles that was quickly dubbed “Library 2.0.” At the time, libraries were struggling to find ways to engage a new generation of library users – so-called “digital natives” – who were said to possess a uniquely new set of needs, behaviors, and expectations than traditional libraries seemed equipped to serve (Prensky 2001). For some, Library 2.0 suggested a new paradigm that would position libraries to better meet those needs and maintain their relevance within a changing information landscape.

As critics have noted, the literature on Library 2.0 tends to be ambiguous, inconsistent, and couched more often in the language of marketing than academic analysis. For example, Walt Crawford (2006) compiled an extensive list of different, and sometimes contradictory, statements about Library 2.0, most of which he found to be lacking in both substance and novelty. Michael

Casey, who is often credited with coining the term, offered the following broad characterization: “Any service, physical or virtual, that successfully reaches users, is evaluated frequently, and makes use of customer input is a Library 2.0 service” (Casey and Savastinuk 2006, 42). Jack Maness (2006) defined Library 2.0 more specifically as “the application of interactive, collaborative, and multi-media web-based technologies to web-based library services and collections.” The individual who had perhaps done the most to popularize this new library paradigm was Talis “technology evangelist” Paul Miller. In a series of articles and white papers, Miller (2005a, 2005b, 2006) outlined several core principles of Library 2.0 including user interaction and participation, flexible modular library systems, and ubiquitous user-driven services (see Table 3). Many of these ideas are echoed throughout library blogs and editorials by other 2.0 advocates such as Michael Stephens (2006) and John Blyberg (2006).

Table 3: Characteristics of Library 2.0

Interactive	Rather than simply providing access to knowledge, libraries serve as a platform through which users can connect, interact, and collaborate in order to build new knowledge
Participatory	Users are not merely consumers, but active producers of content and this content adds value to library services and collections
User-driven	Library services are designed and improved at every stage of their lifecycle through continuous user feedback
Flexible	Library data is liberated from closed, proprietary systems where it can be reused and remixed in new applications and contexts
Ubiquitous	Library resources and services are delivered through multiple points of access and available at the point of need

Like Web 2.0, Library 2.0 suggests a shift away from simply providing access to content and toward facilitating the creation of content by users. According to Holmberg et al. (2008), it marks “a change in interaction between users and libraries in a new culture of participation catalysed by social web technologies” (677). Social media play an important role in this new

paradigm because they are perceived as the primary tools for facilitating user participation and interaction. Users can provide recommendations by rating and reviewing resources, improve discovery by tagging items in the catalog, contribute their expertise to subject-based wikis, offer feedback on services by posting comments on the library blog, or use social networks to connect and collaborate with classmates and colleagues. Although concise definitions are hard to come by, Library 2.0 can perhaps best be understood as a model of library service that focuses on the creation, organization, and transfer of knowledge that has been augmented through user interactions facilitated by participatory technologies.

Library Uses of Social Media

It was not that long ago that social media was little more than a buzzword in the library world, exciting some and completely baffling others. Today, however, one is hard pressed to find an academic library that does not have a social media presence. According to one survey, 71 percent of university libraries reportedly use one or more forms of social media (Chu and Du 2013, 66). How exactly are these tools being used? For what purpose? And with what effect? The following sections look at some of the different ways in which libraries are using social media as well as the most commonly reported successes and challenges.

Marketing and Outreach

By far, the most common library use of social media is marketing and outreach (Young and Rossman 2015). With the abundance of information that can be found online, a large proportion of students rarely visit the library anymore – physically or virtually. According to a 2010 OCLC survey, not a single respondent began a search for information from a library

website (De Rosa et al. 2011, 32). This has forced libraries to face the stark realization that simply making their resources accessible online is not enough to guarantee that users will actually use them. As Meredith Farkas (2007) concluded, “If libraries are not the first place our prospective users go to do research, they will likely miss any marketing we do on our own Web sites. This is why we must start looking beyond these sites and toward putting content where our users actually are” (36). For Chu and Meulemans (2008) this means “going where the students are at, rather than expecting them to come to us” (69). Accordingly, many libraries are trying to reach students in their preferred online environments. As some of the most heavily trafficked destinations on the web, social networking sites are perceived as an ideal place for libraries to connect with their users.

Given their popularity, reach, and ease of use, the most commonly used tools for library outreach are Facebook and Twitter. Blogs are also widely employed, but their use has declined in recent years because they require greater effort to maintain and typically force users to come to it rather than allowing libraries to go to their users. Other social media sites that have gained traction with outreach librarians include Pinterest and Instagram, whose image-sharing capabilities make it easy to disseminate photos of library staff, users, and events and place a “human face” on an otherwise faceless institution (Thornton 2012).

Many libraries use social media to push out information to their users that they might not otherwise receive. According to an international survey of academic libraries, the most reported use of social media was marketing and promotion (Chu and Du 2013, 69). Reinforcing this finding, a content analysis of academic library Facebook pages concluded that the vast majority (97 percent) of library posts consisted of announcements and information about the library (Phillips 2011, 514). This included information about library operations (hours, facilities, and

policies), services (lending, reference, and instruction), collections (new books, databases, and special collections), events (lectures, workshops, and exhibitions), and staff (recent hires, publications, and awards).

However, as Schrier (2011) has pointed out, it is not enough for libraries to simply talk on social media; they must also *listen*. Instead of just broadcasting news or announcements, librarians must be listening and participating in online conversations in order to better understand the needs and interests of their users and determine how their collections could better serve them. This might involve creating alerts for conversations relevant to unique collections, following faculty members and university departments, participating in relevant discussions on blogs and online forums, or contributing to wikis. Schrier advised that librarians use social media to post “pertinent” information about their collections only when it becomes clear (from listening to conversations) that it will be useful to the intended audience. “Participation in conversations through social media not only bolsters awareness of a digital library program, but also provides evidence that the curators of that collection are knowledgeable and capable of providing dependable information to their users” (Schrier 2011). By listening to and interacting with their users, libraries can target promotion of their resources in ways that will have greater impact and build trust with users by demonstrating their value to the community.

More than just a broadcasting platform, social media also function as a channel through which users can voice complaints, compliments, inquiries, and suggestions. As such, they offer a potential window into the user experience. In recent years, a number of libraries have experimented with applications like Yik Yak, an anonymous messaging app popular on college campuses, in order to listen in on student conversations and identify ways to improve library services. Analyzing library-related posts captured over a six-month period, librarians at James

Madison University identified a number of student concerns with library facilities including the need for extended hours, additional computers, improved signage, better noise control, and cleaner bathrooms (Price and Richardson 2017). A similar study at Valparaiso University discovered that students used the app not only to express complaints about library services but also to ask questions, report problems, reprimand disruptive users, and offer feedback about library programs (Robison and Connell 2017). By listening to conversations over social media, librarians can obtain valuable insights into user needs and a better understanding of how their services are being utilized.

Social media also offer libraries an opportunity to build stronger relationships with users and the wider community. In her analysis of library Facebook use, Phillips (2011) noted that libraries often attempt to build a rapport with students by posting friendly, supportive messages throughout the academic year to welcome new students, wish them good luck on exams, and congratulate recent graduates. Other posts communicate information of interest to the wider campus community such as important university news, major events, and significant milestones. By facilitating and participating in scholarly discussion, building friendly relations with students and faculty, celebrating shared values and accomplishments, libraries seek to use social media to do more than simply promote their resources and services; they also strive to build a welcoming and supportive academic community. In this way, librarians aim to achieve with social media what their static (1.0) website never could: a true digital equivalent of the physical library.

Reference and Instruction

Libraries are also using social media to enhance or extend traditional services like reference and instruction. Social media increase opportunities for interaction with library users

and, as any librarian will readily admit, every interaction with a user is a potential reference transaction. However, users do not always bring their questions to the reference desk; they pepper them whenever and wherever the opportunity arises. As a result, librarians have learned to be opportunists and provide as many modalities of reference as they can – telephone, email, IM, text, off-site, etc. Social media offers yet another interface through which users can receive library assistance. In fact, whether your library’s social media presence is a formal part of your support model or not, users will probably still ask questions there. For example, when John Hopkins’ Sheridan Libraries noticed an increasing number of reference questions appearing in their Twitter feed, they posted the following announcement on their blog:

Since @mselibrary has been on Twitter, we've noticed an uptick in reference questions tweeted to us. Our mission is to communicate with our students, faculty, and staff in whatever means they prefer so if you're on Twitter, please tweet us or send us a direct message with your reference question, in fact, send us any question at all that you have about the library (Keith 2009)!

Companies such as Comcast, Nike, JetBlue, and H&R Block offer customer support via Twitter for customers who find this form of communication more efficient than telephone or email. Because Twitter allows for the quick exchange of brief messages between users, some libraries have found it to be a convenient (albeit limited) platform for conducting reference. Although less immediate than instant message, the public nature of conversations (searchable by hashtag) allow users the benefit of viewing responses to questions that have already been answered and to catch a real-time glimpse of the kinds of research going on at their university. According to Mary Hricko (2010), Twitter also offers valuable opportunities for peer-to-peer learning and interaction. For example, users could share their expertise and experience by adding comments to tweeted questions, thereby enriching the reference transaction. They may also form connections with classmates, colleagues, or other users who share similar research interests.

Librarians could also take advantage of Twitter's social networking capabilities to call on the collective expertise of their colleagues in order to answer questions that require domain-specific knowledge (Young 2015).

As far back as the 1990s, researchers such as Mark Ackerman (1994) have pointed out that existing models of library reference fail to account for the importance of social interaction within information seeking. They also overlook the fact that the library is often not the first place researchers go when seeking assistance. They typically seek information informally from peers, professors, and colleagues who help them refine questions, identify appropriate resources, and offer practical tips and advice. Some libraries have begun applying this understanding by developing crowdsourced models of reference service. Purdue University's *CrowdAsk* is an example of a crowdsourced FAQ system in which user questions are answered not only by librarians, but also by other users within the university community (Stonebraker and Zhang 2015). Answers are rated and ranked by the community and participation is incentivized through a gamified system of points and badges. Unlike traditional reference services, premised on the model of one information expert to many information consumers, crowdsourced reference is based on concepts of collective intelligence and aggregate peer authority in which each member of the user community benefits from the combined expertise of the whole.

Libraries are also using social media to enhance instruction services. Most commonly used as a means of disseminating instructional materials, librarians upload video tutorials on YouTube, promote research guides on Twitter, post presentations on SlideShare, and share infographics on Pinterest. But, as we've seen with reference, social media do not just offer new ways of doing the same old thing, they also challenge us to re-conceptualize our services in a changing information economy. Collaborative and participatory models of content creation have

challenged traditional educational paradigms based on the expert model. Contemporary pedagogical theory views students, not as passive receptacles, but as active participants who construct knowledge through interaction with peers. In place of the instructor-centered lecture, these new paradigms call for the development of student-centered learning communities in which “every member contributes to and negotiates a collective understanding of the topic” (Farkas 2012, 87). Within this new collaborative learning environment, the role of instructor shifts from “sage on the stage” to “guide on the side” (King 1993). Mirroring the types of learning environments found in online communities, the instructor acts more like a moderator than an expert. Their role is to facilitate discussion and foster an environment for collaborative problem-solving rather than serve as a divining rod through which knowledge is transmitted.

Librarians are not only rethinking *how* we teach users, but also *what* we teach them. Library instruction has traditionally focused on teaching users how to consume (locate, evaluate, and use) information. However, according to theorists like Henry Jenkins, today’s educators should also be equipping students with the skills to create content and collaborate in online communities (Jenkins et al. 2009). Similarly, Mackey and Jacobson (2011) introduced the concept of metaliteracy as a way of expanding the scope of traditional information literacy skills to include content creation and sharing in participatory online environments. The concept of metaliteracy is also at the core of Association of College & Research Libraries’ recently adopted *Framework for Information Literacy for Higher Education* (2015), which emphasizes the role of students as creators as well as consumers of knowledge.

Incorporating social media into library instruction offers ways of teaching users participatory competencies such as peer collaboration, critical thinking, meaning negotiation, and intellectual independence. Bobish (2011) provided several useful examples of how social media

could be used to achieve different learning outcomes. For example, students can post research topics and drafts on blogs where they can be refined with ongoing feedback from classmates. They can recommend or evaluate each other's sources on social bookmarking sites. They can collaborate on group projects by building a wiki. They can share their research findings on a variety of social media platforms and compare the advantages and disadvantages of communicating in different formats. By using social media tools to openly and collaboratively organize, describe, and analyze information, Bobish suggested that students may come to a clearer understanding of how knowledge is constructed "both by constructing knowledge themselves, and by examining the processes by which others have constructed knowledge" (63).

Search and Retrieval

Libraries are also integrating social functions into information retrieval systems such as online catalogs and databases. Modern library OPACs, for example, allow users to tag, rate, review, and share items from the library's collection. Tagging allows users to describe and search for items in their own words while providing a diverse and flexible set of additional access points for library collections. Ratings and reviews offer users a means of evaluating the quality and usefulness of the library's collection while serving as a guide to help users select the best resources to meet their needs. The ability of users to share the library's resources via social networking and bookmarking sites helps promote the value of its collections while increasing opportunities for serendipitous discovery. Taken together, these social enhancements serve to make the process of discovering the library's resources more interactive while leveraging the power of user-generated content to improve the search and retrieval of its collections.

Crowdsourcing is another way libraries are using user-generated content to enhance the discovery of their collections. Crowdsourcing refers to the practice of organizing online communities to work collaboratively toward achieving a shared goal. It seeks to apply the accumulated activity of individual users toward tasks that would be difficult or impossible to achieve on a small scale. Crowdsourcing differs from lighter forms of participation such as tagging in that it typically requires a greater commitment of user time, skill, and effort. Rose Holley (2010) suggested a number of ways that libraries could use crowdsourcing to transcribe documents, describe photographs, add metadata, or correct errors in digitized collections. Mia Ridge's *Crowdsourcing our Cultural Heritage* (2014), compiles a series of instructive case studies demonstrating how various institutions have implemented crowdsourcing to enrich and increase the accessibility of their digital collections. For example, University of Texas at Austin invites scholars and rare book enthusiasts to transcribe fragments of medieval manuscripts from images posted on Flickr (Hartman 2014). The manuscripts span multiple centuries and languages and attract participants from all over the world. University College London created a wiki where over 20,000 contributors are helping to transcribe 60,000 folios of manuscripts from philosopher Jeremy Bentham to be used in a publication of his collected works (Moyle, Tonra, and Wallace 2011). Contributors can create profiles, collaborate, and exchange ideas in the wiki's discussion forum.

Some institutions are even building their own homegrown platforms for capturing and managing user-generated content. In 2011, the University of Iowa piloted a crowdsourcing initiative to transcribe their collection of Civil War diaries. The success of the project (demonstrated by the transcription of over 15,000 pages in less than a year) led to the creation of *DIY History*, a crowdsourcing platform where registered users work together to transcribe a

variety of digitized artifacts related to local and national history, including diaries from World Wars I and II, correspondence documenting the construction of the transcontinental railroad, letters of pioneering Iowa families, and recipes from handwritten cookbooks (Saylor and Wolfe 2011). Similar experiments have found fertile ground at the New York Public Library (NYPL), which has garnered widespread attention with a number of innovative crowdsourcing projects that include: *Map Warper*, which allows users to align historical maps with their present-day locations; *What's on the Menu?*, where users are transcribing and making searchable a collection of historical restaurant menus; and *Stereogramimator*, which invites users to create and share their own 3D images generated from the library's collection of old stereographs. NYPL plans to weave these and future crowdsourcing projects into a single integrated platform combined with a suite of open APIs that researchers and external developers can use to repurpose this content for new and unanticipated uses. Improving access to collections in this way ensures not merely their use, but also their preservation. According to NYPL Labs director, Ben Vershbow (2013), “the more that digital collections are used – the more data they accrue, the more they are copied, linked, repurposed, remixed and remediated – the better their chances of survival in the volatile digital medium” (95).

Through crowdsourcing, libraries are utilizing the knowledge, expertise, and interest of users to make collections more accessible, accurate, and engaging. By harnessing the power of the participatory web, libraries are able to accomplish goals that they might not otherwise have the staff or resources to achieve on their own. However, crowdsourcing is not merely a means of free labor; it is also about discovering new ways for users to engage with library collections and each other while fostering a shared sense of ownership in the preservation of our cultural heritage.

Scholarly Communication

Although conferences, journals, and monographs remain the primary channels for academic discourse, social media have quickly come to play an important role in the scholarly communication process. According to a survey conducted by Pearson Learning, over 90 percent of higher education faculty use social media in support of their professional careers (Moran, Seaman, and Tinti-Kane 2011). Another survey by CIBER Research found that academics use social media during all phases of the research process, from identifying research opportunities to disseminating findings (Rowlands et al. 2011). Commonly cited reasons for use include connecting and collaborating with researchers who share their interests, promoting and distributing their work to a wide audience, and keeping abreast of news and developments in their field.

Although many researchers use mainstream services like Facebook and LinkedIn, others prefer tools tailored specifically to academics. Scholarly networking sites like Academia.edu and ResearchGate allow researchers to create public profiles, upload and share their publications, and connect with colleagues in their field. The importance of scholarly networking in an increasingly global research environment has prompted some universities to develop their own platforms. In 2003, Cornell University Library launched VIVO, a semantic web platform for connecting researchers, institutions, and their scholarly output through open linked data (Devare et al. 2007). The project began as a way of facilitating interdisciplinary research and collaboration at the university. With the help of a federal stimulus grant, the project has expanded to include several other universities with the aim of building a national network of scholarly information. By making it easier to uncover the relationships between people, departments, grants, and

publications, VIVO helps facilitate the discovery of research and scholarship across disciplinary and institutional boundaries.

In addition to making it easier for academics to interact and collaborate with one another, social media also afford them the opportunity to directly share their work with the world. Each year, an increasing number of authors upload their papers to sites like ResearchGate and Academia.edu. It was therefore not surprising when publishing giant Elsevier served these sites and their users with takedown notices for copyright infringement in late 2013. The move sparked an online petition protesting Elsevier's business practices as well as debates about author rights, the economics of publishing, and open access (Howard 2013).

In addition to disrupting the publishing industry, the social web has also challenged traditional notions of scholarship, peer review, and research impact. Insofar as they provide a vehicle for the rapid introduction, vetting, and dissemination of ideas, social media form a vital part of scholarly discourse. In a study examining the role of blogging in academia, Hank (2013) found that blogging served as an incubator for new research; a means of testing and refining ideas prior to publication leading to improvements in overall quality. According to a survey conducted by the author, most academic bloggers (80 percent) consider their blogs a component of their cumulative and persistent scholarly record, with a majority (66 percent) agreeing that their blog satisfies the criteria for scholarship for unpublished communications. Sixty-eight percent of respondents also agreed that their blog is subject to critical review in the form of comments and interactions with readers.

The open and interactive nature of social media has created space for new models of peer review. Sites like PubPeer, for example, allow scholars to participate in post-publication peer review by submitting comments or reviews of newly published scientific studies. Founded in late

2012, the site has already played a prominent role in debunking several high-profile articles, leading to some retractions (Normile 2014). However, the site's practice of allowing anonymous postings (to protect reviewers from potential retaliation) has sparked some controversy and at least one defamation lawsuit. ResearchGate's Open Review feature offers a refinement of the post-publication peer review model. Like PubPeer, Open Review allows users to post reviews of articles and evaluate the reproducibility of results. However, reviewer credentials are verified for quality control and the structured format encourages the submission of more organized critiques with supporting evidence. Proponents of post-publication review argue that scrutiny by the whole community (as opposed to two or three reviewers) increases the speed and likelihood of discovering errors. Furthermore, discussions among scholars can take place in real time within the context of the original work rather than detached and drawn out in successive letters to the editor.

As the nature of scholarly communication continues to change, so too do the tools used to measure impact. The transition from print to digital media requires new methods for tracking the spread and influence of ideas. Altmetrics refer to means of measuring scholarly impact in the online environment (Alperin 2013, 18). Unlike traditional measures such as citation count and journal ranking, altmetrics capture data related to the number of times an item has been downloaded, bookmarked, or mentioned in blogs and social media. Proponents like Galligan and Dyas-Correia (2013) argue that altmetrics provide a richer, more complete picture of impact. Journal rankings do not provide an accurate assessment of individual articles, and citations do not always indicate value. Altmetrics offer additional data points that capture what people are reading, sharing, and discussing online, not just within the academic community but the world at large. Furthermore, journal-centric metrics capture only part of the world's scholarly activity, but

altmetrics can be applied to a variety of research products including papers, dissertations, presentations, datasets, and multimedia. Finally, citations often take years to accumulate, but downloads, tweets, and blog mentions appear within weeks and demonstrate the immediate impact of an author's work. As a result, altmetrics offer a more timely reading of scholarly activity.

Whether posting their latest findings on a blog, using a wiki to collaborate with co-authors, or live tweeting at conferences, academics have integrated social media into all aspects of scholarly communication. These new modes of communication have, in turn, forced us to rethink traditional notions of scholarship, publishing, peer review, and research impact. Libraries are uniquely positioned to help researchers navigate the increasingly complex landscape of 21st century scholarly communication. No longer content to simply store and organize knowledge, libraries have begun embracing their role in knowledge creation. By developing platforms for user interaction and collaboration, providing tools for publishing, curating, and sharing scholarly works, and offering guidance on important issues such as author's rights, copyright, open access, and scholarly metrics, libraries are leveraging traditional strengths to carve out new roles for themselves in a rapidly evolving environment.

Preservation

Surprisingly, the one aspect of social media that is perhaps closest to the mission of the library seems to get the least amount of discussion in the literature: preservation. Aside from being a medium best known for frivolity (in the form of selfies, memes, and viral videos), social media also provide a raw primary source of information about contemporary culture. Expressions of public opinion, correspondence with friends, personal memoirs, family photos,

and home movies once documented in physical artifacts such as letters, diaries, photo albums, and film are now transmitted through the digital ether in blog posts, status updates, tweets, Instagram pics, and YouTube clips. Indeed, at no other time in history have the milestones and minutia of human existence been so meticulously documented.

However, social media use is not limited to personal communication; it is also widely used by governments, corporations, non-profits, and universities. According to a 2014 report from the University of Massachusetts Dartmouth, 83 percent of Fortune 500 companies have a presence on social media (Barnes and Lescault 2014). Furthermore, federal law requires organizations to maintain records of electronic communications for legal purposes. And, as far as the courts are concerned, “there is no difference between social media and electronic or even paper artifacts” (Gartner 2011). While most institutions have processes in place for archiving email and other forms of electronic information, few have a strategy for capturing social media. What role do libraries and archives have in preserving the extremely rich and voluminous record of human history being inscribed in one of the most ephemeral and unstable mediums yet encountered?

Perhaps one reason libraries have been slow to tackle the issue of social media preservation is its sheer technical and logistical complexity. According to Madhava (2011), an archival solution for preserving social media would need to be capable of capturing content in various formats (text, graphics, audio, and video). It would also need to capture that content in real-time to keep up with the steady stream of new posts and minimize chances of data loss by deletion. Moreover, the system must be able to capture not only the original post, but its relationships to users, comments, and related content (links, embedded media, etc.) that give it its

context. Finally, the system must have rules for organizing and indexing all this content in order to facilitate search and retrieval.

The first institution to take up the challenge of preserving social media was the Library of Congress (LC). In 2010, LC announced plans to create a permanent archive of all public tweets on Twitter. The rationale was explained in a white paper outlining the details of the plan:

As society turns to social media as a primary method of communication and creative expression, social media is supplementing and in some cases supplanting letters, journals, serial publications and other sources routinely collected by research libraries. Archiving and preserving outlets such as Twitter will enable future researchers' access to a fuller picture of today's cultural norms, dialogue, trends and events to inform scholarship, the legislative process, new works of authorship, education and other purposes (Library of Congress 2013).

The paper also discussed some of the unique challenges of the project, including developing a technical infrastructure and workflow for ingesting the data, creating a file storage and backup system, and organizing and indexing the data for search and retrieval. "It is clear," the authors noted, "that [the] technology to allow for scholarship access to large data sets is not nearly as advanced as the technology for creating and distributing that data" (Library of Congress 2013). Executing a single search of LC's initial fixed archive containing just four years of tweets (2006-2010) was said to take a staggering 24 hours. And the volume of tweets has only grown since then, rising from 50 million to 500 million per day. Managing this vast and quickly growing stream of data would require "an extensive infrastructure of hundreds if not thousands of servers," a feat that LC noted would be "cost-prohibitive and impractical for a public institution" (Library of Congress 2013). It is perhaps not surprising that, after more than six years, LC's Twitter archive project remains in limbo with no official launch date in sight (Zimmer 2015).

If the prospect of preserving the entirety of the world's tweets seems daunting, what about the more modest goal of capturing conversations about a particular topic? This is precisely what Arnold and Sampson (2014) did to create subject-specific collections of tweets from the Arab Spring. In their article, they described how they used Twitter's API to harvest tweets exchanged during the 2011 Egyptian Revolution. The goal of the project was not only to preserve a valuable record of a major historical event, but also to help future historians better understand the role social media played within it. Using this pilot as a case study, they outline some of the issues librarians and archivists ought to consider when creating a Twitter collection. These include determining the scope of the collection, deciding what terms, hashtags, or users to track, figuring out what API commands to use, and developing a method for capturing linked content. The authors also highlight key challenges such as the volatility of the platform and the provider's terms of service, the importance of documenting methodology, and the ethics of collecting user-generated content without informed consent.

As the preceding examples demonstrate, social media preservation is a complex undertaking and there are currently no professional standards or best practices in this area. In 2014, North Carolina State University (NCSU) Libraries were awarded a grant to develop a free toolkit to assist cultural heritage institutions interested in developing a social media archival program. The toolkit offers guidance on collecting strategies, data harvesting techniques, and the legal and ethical implications of archiving social media for research use. It is offered in conjunction with NCSU's Social Media Combine, a pre-configured set of open source tools for harvesting data from Twitter and Instagram and building social media archives. By making these resources widely available, NCSU Libraries is helping to equip cultural heritage institutions with

the tools needed to collect important fragments of the historical record that might otherwise be lost.

Benefits

Clearly, academic libraries are using and interacting with social media in a variety of ways. But what are the perceived benefits of these efforts? In what ways have these tools facilitated or enhanced the ability of libraries to serve their users? The following section attempts to summarize some of the most commonly cited benefits of social media including greater visibility, improved user relations, and increased user feedback.

Greater Visibility

The sheer ubiquity of social media makes them effective for reaching large, geographically dispersed audiences. With millions of monthly active users, sites like Facebook, Twitter, and Instagram consistently rank among the most visited destinations on the web. Moreover, social media usage tends to be highest among academic libraries' core demographic: young adults aged 18-29 (Perrin 2015). The popularity of these platforms among college students led to calls within academic libraries to "be where our users are" and engage them using their preferred modes of communication (Dickson and Holley 2010, 470). When social media was first being introduced into widespread use, early adopters like Mathews (2006) argued that establishing a presence in this space gave libraries an opportunity to "interact with students in their natural environment" (306). The ability to reach users wherever they are also offered the potential to attract new users, especially those unable or uncomfortable visiting the physical library. Accordingly, many librarians came to view social media as a "virtual extension of the

campus” filling a void where face-to-face interaction is not possible and providing remote users with an easy, convenient, and familiar means of connecting with their library (Charnigo and Barnett-Ellis 2007, 30).

Improved User Relations

Social media are not just useful for reaching users, they also offer opportunities to build stronger relationships with them. Earlier studies (Mellon 1986) have suggested that users’ initial experience of the library is often one of fear and anxiety. The intimidating size and complexity of libraries have been said to provoke feelings of confusion, inadequacy, and frustration. To make matters worse, many users are often afraid to ask library staff for assistance (Swope and Katzer 1972). However, as Mathews (2006) has pointed out, the casual and informal style of interaction on social media allows libraries to cultivate an online persona that is more “friendly and approachable” (307). Some studies (Mazer, Murphy, and Simonds 2007) have suggested that professors who connect with students through social media are perceived as being more accessible and tend to have better communication in the classroom. The importance of making personal connections was also highlighted in Phillips’ (2011) study of academic libraries on Facebook, which noted the “social and emotive” nature of library communication with students. Messages exhibiting humor, compassion, and empathy, suggested Phillips, serve to humanize the library and promote a more welcoming environment (520). Taking this idea one step further, Stone (2014) argued that interactions with users on social media could actually help alleviate library anxiety and lead to increased usage. To test this theory, he conducted an analysis of reference transaction data and found that students and faculty who were Facebook friends with their librarian were more likely to engage in reference transactions than those who were not.

Moreover, the majority of these transactions took place within the physical library. These findings suggest that by developing a rapport with users online, libraries can build relationships that could ultimately facilitate the delivery of service IRL (“in real life”).

Increased User Feedback

While most libraries use social media to talk to their users, users can and sometimes do talk back. As Hagman (2012) warned, libraries who use social media exclusively as a broadcast tool lose a valuable opportunity to “engage with community members and gather information about their needs and opinions” (84). The two-way flow of communication on the social web offers libraries a valuable opportunity to collect feedback that can be used to improve services. Meanwhile, the ability of patrons to voice their opinions and help shape offerings gives them a stronger sense of ownership in their library. Facebook and Twitter provide an important channel through which users can share their thoughts on library services, collections, and policies. According to Del Bosque, Leif, and Skarl (2012), “by monitoring and listening to what followers are saying, libraries have the opportunity to fix problems quickly, get user opinions, and essentially listen in on mini-focus groups without having to formally gather users” (202).

Although libraries have long provided opportunities for user feedback, the convenience and accessibility of social media make it easier for users to contribute. As one librarian noted, “There are customers who are quite happy to walk into the library and tell us what they do and don’t like. But there are lots of others who don’t feel comfortable doing that in person. The participatory software gives them an option to participate online, anonymously if they choose, and be heard” (Rutherford 2008, 419). According to Robison and Connell (2017), the anonymity of apps like Yik Yak “give students the freedom to post comments that they would not normally

share face-to-face” (37). The ability to contribute feedback anonymously encourages patrons to be more open and honest than they might be otherwise and eliminates the Hawthorne effect associated with more observational methods of user research.

Furthermore, unlike surveys and focus groups, which often occur outside the context of the activities or services they are intended to evaluate, feedback offered via social media typically occurs in real-time within the context of users’ engagement with the library (Emmelhainz and Rigby 2017). These social-media based communications are authentic expressions of confusion, frustration, joy, or elation that occur while users wander the library’s stacks, navigate its website, discover new information, and interact with patrons and staff. And because these exchanges are publicly visible, they are more likely to elicit a response from the library. In fact, it could be argued that the increased visibility and interaction with users facilitated by the social web has helped drive the recent movement within libraries toward more user-centered models of service design.

Challenges

While library ventures with the social web have yielded some notable successes, the experience has not been without challenges. Low user participation, lack of interaction, and inadequate assessment are just some of the most commonly cited difficulties. The following section takes a closer look at these challenges in order to get a better understanding of where library social media efforts have fallen short.

Low User Participation

Clearly, many libraries see value in connecting with their users via social media. But is the feeling mutual? In order to have an effective social media presence, one must have an audience. However, multiple studies have suggested that students are at best ambivalent about following their library on social networks. For example, when Mathews (2006) reached out to over 1,500 Georgia Tech students over Facebook, he received a total of 48 responses – a response rate of approximately three percent (307). In a survey of first-year students at Valparaiso University, only 17 percent of respondents said they would add the library as a friend on a social networking site. Fifty-eight percent said they would accept a friend invitation from the library but not be proactive about it. Twenty-five percent said they would not have the library as a friend (Connell 2009, 31). Commentators have offered a number of explanations for students' reluctance in befriending the library. Some studies (Sekyere 2009) question whether a library presence is even appropriate arguing that the majority of social media activity is unrelated to research and academic study (26). Others (Dickson and Holley 2010) have suggested that students may be resistant to the idea of sharing their personal information with faculty or university officials (474). And still others (Chu and Meulemans 2008) found that students tend to prefer more formal means of communicating with instructors such as email (77). Whatever the reason, it seems that libraries only reach a fraction of their target audience through social media, many of whom are already fans or active users.

Despite widespread efforts to integrate Web 2.0 technologies into library services, user engagement with these services has remained low. As we have seen, most modern library catalogs and discovery platforms incorporate social features such as tagging, ratings, and reviews designed to tap into and harness the collective knowledge of library users. However, according to most accounts, these features tend to be woefully underused (Spiteri 2011). In order to make any

social computing function useful, a critical mass of participation is required. If the pillars of Web 2.0 have taught us anything, it is that a product or service becomes more valuable the more people use it. Of course, a library catalog is unlikely to attract traffic on the scale of sites like Amazon, YouTube, or Yelp. Furthermore, users of these sites have different needs and goals than library users. Most successful models of user-generated content come from entertainment and consumer culture. It remains to be seen whether such models are transferrable to the academic environment. Ultimately, users' willingness to participate and the form that participation takes depends upon the specific needs, objectives, and goals of the community. Further research is required to understand what motivations and perceived benefits might inspire library users to create content that could add value to collections and enrich research.

Lack of Interaction

One of the defining features of the social web is interaction. Yet, most studies suggest that interaction with library users on social media tends to be quite low. For example, Phillips' (2011) content analysis of library Facebook pages discovered that as few as two percent of posts were initiated by someone other than the library (520). A similar study by Gerolimos (2011) found that 90 percent of library posts received no comments. Of the posts that did attract comment, 96 percent had fewer than three suggesting that users tend not to engage in sustained conversation. Gerilimos further noted that over 70 percent of comments on library posts came from librarians themselves. Looking at Twitter use among the top ten university libraries, Al-Daihani and Abrahams (2016) concluded that the low ratio of retweets to followers indicated poor engagement and interaction with users via Twitter (140).

If the function of social media is to interact and engage with others, why do so many libraries seem to talk only to themselves? Are users truly uninterested or could it be that libraries often use social media in a fundamentally anti-social way? As mentioned earlier, the single most frequently reported use of social media is marketing and promotion. Most libraries use blogs and social networks as vehicles to advertise their resources and services. Phillips' (2011) Facebook study found that the vast majority of library posts were about the library itself (514). A similar study by Jacobson (2011) found little evidence of interaction with or among library users (87). In their analysis of library Twitter use, Del Bosque, Lief, and Skarl (2012) noted that "very few were using the resource to carry on a two-way conversation" (210). Taken as a whole, library enclaves on the social web tend to be spaces of self-promotion rather than interaction.

Although social media have the potential to facilitate user participation and interaction, most libraries use them as little more than extensions of their website. Indeed, some do not even allow users to post content on their wall or blog. Other libraries filter user posts out of fear that they might make negative or inappropriate comments. As Bodnar and Doshi (2011) have pointed out, these practices go against the design assumptions of the platform and make it less likely that users will interact or view the library as a place where their participation is welcome (105). In other words, many libraries choose to implement social media in ways that limit rather than extend user participation.

Of course, it is debatable whether comments and likes even constitute meaningful forms of participation. And, despite a few notable examples, few libraries engage with more substantial forms of user participation and content creation. As Kim and Abbas (2010) have noted, not all social media offer the same degree of user involvement. Web 2.0 functionalities exist along a continuum that range from provider- to user-initiated. Looking at Web 2.0 adoption trends

among 230 academic libraries, Kim and Abbas found that libraries tend to favor provider-controlled forms of information sharing such as blogs and social networks over more user-initiated forms such as wikis and crowdsourcing platforms (215). For most academic libraries, becoming “2.0” often involves little more than asking users to follow their newsfeed on Facebook or Twitter.

Despite paying lip service to Web 2.0 ideals like collaboration, participation, and the wisdom of crowds, librarians do not seem eager to share stewardship of information with their users. For some, the prospect of opening libraries to user-generated content is fraught with legal and ethical concerns regarding quality, propriety, privacy, and copyright. To open the library Facebook page to comments, allow patrons to tag or review items in the library catalog, or invite users to contribute descriptions of local digital collections, requires a certain degree of trust. The way in which many libraries use social media and the types of platforms they choose to adopt suggest that they either do not trust patrons with this responsibility or consider this role inappropriate. In a survey of librarian attitudes towards social media, one respondent noted that the identity of librarians is still very much tied to their “status as controller and gatekeeper of information” and some librarians may be “unwilling to change their role as the sole mediators of information content” (Rutherford 2008, 421). So, although the social web has made it possible for users to create or add value to library content, this is not generally happening in practice. Despite a few notable examples of participatory knowledge organization, librarians’ desire to maintain control over the flow of information is still widespread.

Inadequate Assessment

Back in 2006, the majority of academic librarians considered social media to be outside the purview of professional librarianship (Charnigo and Barnett-Ellis 2007). Today, few question the importance of developing a strong social media presence, but many have a difficult time articulating why. According to Cowell (2017), most libraries start from the assumption that they should use social media and “then work backwards to the how and why.” Applying insights from institutional theory, Harrison et al. (2017) suggest that library adoption of social media is driven largely by mimetic and normative forces. Libraries believe they must use social media in order to stay relevant to their users, but few have a clear concept of how it furthers their organizational mission. It is therefore perhaps not surprising that many libraries have difficulty measuring the impact or effectiveness of their social media efforts.

While theorists have made a great number of claims regarding the revolutionary potential of the social web to transform library services, evidence to support these claims remains lacking. The bulk of the literature consists largely of “how-to” articles and case studies discussing individual implementation experiences. There have been few quantitative studies documenting the impact of these technologies on library users or services. Even in cases where some form of assessment has taken place, methodologies and assessed outcomes tend to vary widely, even for the same type of service (Gardios et al. 2012, 102). Other times, assessment is presented as a simple tally of followers, views, shares, or comments, often without any context or analysis. For example, to better understand the impact of social media efforts on users of the University of Alabama’s Lister Hill Library, Vucovich, Gordon, Mitchell, and Ennis (2013) presented a variety of usage statistics retrieved from Facebook, WordPress, and YouTube. The authors conclude that these tools have “proven effective” but ultimately do not provide any interpretation of the data, discuss its implications for users, or explain how it could be used to improve services (24).

One possible reason for the inadequacy of these assessment attempts stems from a lack of clearly defined goals and objectives. Although the literature is full of tips and advice on how to build a successful social media presence, much of it tends to be somewhat superficial. Librarians are advised to post frequently, create engaging content, encourage interaction, invite participation, etc. However, as Bodnar and Doshi (2011) noted, many of these platitudes are offered without clear explanation or guidance (108). For example, what does it mean to post authentic, engaging content? What types of interaction should libraries seek to have with their users? What kinds of participation are useful or desirable? Without clearly articulated goals, assessment of library social media efforts rarely extends beyond the collection of mere usage statistics.

Conclusion

Although academic libraries have eagerly adopted social media, few seem to have fully embraced the principles on which it is based: interaction, participation, collective intelligence, collaboration, and trust. With a few notable exceptions, the preceding literature review suggests that most libraries have used these tools to achieve limited, mostly traditional ends rather than to deliver new services or radically transform library practice. Furthermore, libraries tend to implement social media in ways that circumscribe rather than expand the participation of users. The reluctance of librarians to use the social web to its fullest extent may be due to the fact that many of its founding principles directly conflict with longstanding library concepts of control, authority, expertise, intellectual property, and privacy. However, this review has also pointed to several transformative examples of library social media use. In particular, it highlights a variety of ways in which social media has been used to enrich the way we provide reference and

instruction, aid information retrieval, facilitate scholarly communication, and preserve cultural heritage. Projects like Purdue University's *CrowdAsk*, University of Iowa's *DIY History*, or NYPL's *Stereogramimator* use Web 2.0 technologies in ways that innovate services and encourage us to rethink traditional conceptions of the library. Further study of examples like these may provide additional insights as to how libraries might better leverage the power of the social web to enhance, rather than simply promote, their resources and services.

References

- Ackerman, Mark. 1994. "Providing Social Interaction in the Digital Library." In *Proceedings of the Digital Libraries '94: First Annual Conference on the Theory and Practice of Digital Libraries*, edited by J. L. Schnase, 198-200. College Station, TX: Texas A&M University.
- Al-Daihani, Sultan and Alan Abrahams. 2016. "A Text Mining Analysis of Academic Libraries' Tweets." *Journal of Academic Librarianship* 42 (2): 135-143.
<http://doi.org/10.1016/j.acalib.2015.12.014>
- Alperin, Juan Pablo. 2013. "Ask Not What Altmetrics Can Do for You, But What Altmetrics Can Do for Developing Countries." *Bulletin of the Association for Information Science and Technology* 39 (4): 18-21. <http://doi.org/10.1002/bult.2013.1720390407>
- Arnold, Timothy, and Walker Sampson. 2014. "Preserving the Voices of Revolution: Examining the Creation and Preservation of a Subject-centered Collection of Tweets from the Eighteen Days in Egypt." *American Archivist* 77 (2): 510-533.
<http://doi.org/10.17723/aarc.77.2.794404552m67024n>
- Association of College & Research Libraries. 2015. *Framework for Information Literacy for Higher Education*. Chicago, IL: American Library Association.
<http://www.ala.org/acrl/standards/ilframework>
- Barnes, Nora Ganim, and Ava M. Lescault. 2014. "The Fortune 500 and Social Media." University of Massachusetts Dartmouth.
<http://www.umassd.edu/cmr/socialmediaresearch/2014fortune500andsocialmedia/>
- Blyberg, John. 2006. "11 Reasons Why Library 2.0 Exists and Matters." blyberg.net.
<http://www.blyberg.net/2006/01/09/11-reasons-why-library-20-exists-and-matters/>

- Bobish, Greg. 2011. "Participation and Pedagogy: Connecting the Social Web to ACRL Learning Outcomes." *Journal of Academic Librarianship* 37 (1): 54-63. <http://doi.org/10.1016/j.acalib.2010.10.007>
- Bodnar, Jonathan, and Ameet Doshi. 2011. "Asking the Right Questions: A Critique of Facebook, Social Media, and Libraries." *Public Services Quarterly* 7 (3): 102-110. <http://doi.org/10.1080/15228959.2011.623594>
- Casey, Michael, and Laura C. Savastinuk. 2006. "Library 2.0: Service for the Next-Generation Library." *Library Journal*, 131 (14): 40-42.
- Charnigo, Laurie, and Paula Barnett-Ellis. 2007. "Checking Out Facebook.com: The Impact of a Digital Trend on Academic Libraries." *Information Technology & Libraries* 26 (1): 23-34. <http://doi.org/10.6017/ital.v26i1.3286>
- Chu, Melanie, and Yvonne Nalani Meulemans. 2008. "The Problems and Potential of MySpace and Facebook Usage in Academic Libraries." *Internet Reference Services Quarterly* 13 (1): 69-85. http://doi.org/10.1300/J136v13n01_04
- Chu, Samuel K., and Helen S. Du. 2013. "Social Networking Tools for Academic Libraries." *Journal of Librarianship & Information Science* 45 (1): 64-75. <http://doi.org/10.1177/0961000611434361>
- Connell, Ruth S. 2009. "Academic Libraries, Facebook and MySpace, and Student Outreach: A Survey of Student Opinion." *Portal: Libraries & the Academy* 9 (1): 25-36. <http://dx.doi.org/10.1353/pla.0.0036>
- Cowell, Amanda E. 2017. "Social Media at the College of New Jersey Library." *In the Library with the Lead Pipe*, January. <http://www.inthelibrarywiththeleadpipe.org/2017/social-media-tcnj/>
- Crawford, Walt. 2006. "Library 2.0 and 'Library 2.0.'" *Cites & Insights* 6 (2): 1-32. <http://citesandinsights.info/l2a.pdf>
- Del Bosque, Darcy, Sam A. Leif, and Susie Skarl. 2012. "Libraries Atwitter: Trends in Academic Library Tweeting." *Reference Services Review* 40 (2): 199-213. <http://doi.org/10.1108/00907321211228246>
- De Rosa, Cathy, Joanne Cantrell, Matthew Carlson, Peggy Gallagher, Janet Hawk, and Charlotte Sturtz. 2011. "Perceptions of Libraries 2010: Context and Community." OCLC. https://www.oclc.org/content/dam/oclc/reports/2010perceptions/2010perceptions_all.pdf
- Devare, Medha, Jon Corson-Rikert, Brian Caruso, Brian Lowe, Kathy Chiang, and Janet McCue. 2007. "VIVO: Connecting People, Creating a Virtual Life Sciences Community." *D-Lib Magazine* 13 (7/8). <http://doi.org/10.1045/july2007-devare>

- Dickson, Andrea, and Robert P. Holley. 2010. "Social Networking in Academic Libraries: The Possibilities and the Concerns." *New Library World* 111 (11/12): 468-479. <http://doi.org/10.1108/03074801011094840>
- Emmelhainz, Celia and Miriam Rigby. 2017. "Following the Yik Yak: Using Social Media Observations to Understand Student Needs on College Campuses." *In the Library with the Lead Pipe*, July. <http://www.inthelibrarywiththeleadpipe.org/2017/yik-yak/>
- Farkas, Meredith. 2007. "Your Stuff, Their Space." *American Libraries* 38 (11): 36.
- Farkas, Meredith. 2012. "Participatory Technologies, Pedagogy 2.0 and Information Literacy." *Library Hi Tech* 30 (1): 82-94. <http://doi.org/10.1108/07378831211213229>
- Galligan, Finar, and Sharon Dyas-Correia. 2013. "Altmetrics: Rethinking the Way We Measure." *Serials Review* 39 (1): 55-61. <http://doi.org/10.1016/j.serrev.2013.01.003>
- Gerolimos, Michalis. 2011. "Academic Libraries on Facebook: An Analysis of Users' Comments." *D-Lib Magazine* 17 (11). <http://doi.org/10.1045/november2011-gerolimos>
- Hank, Carolyn. 2013. "Communications in Blogademia: An Assessment of Scholar Blogs' Attributes and Functions." *New Review of Information Networking* 18 (2): 51-69. <http://doi.org/10.1080/13614576.2013.802179>
- Harrison, Amanda, Rene Burrell, Sarah Velasquez, and Lynnette Schreiner. 2017. "Social Media Use in Academic Libraries: A Phenomenological Study." *Journal of Academic Librarianship* 43 (3): 248-256. <http://doi.org/10.1016/j.acalib.2017.02.014>
- Hartman, Anne. 2014. "Fragments of History: Identifying Medieval Manuscript Fragments through Crowdsourcing." *Archival Outlook* March/April: 8-9.
- Holley, Rose. 2010. "Crowdsourcing: How and Why Should Libraries Do It?" *D-Lib Magazine* 16 (3/4). <http://doi.org/10.1045/march2010-holley>
- Holmberg, Kim, Isto Huvila, Maria Kronqvist-Berg, and Gunilla Widen-Wulff. 2008. "What Is Library 2.0?" *Journal of Documentation* 66 (4): 668-681. <http://doi.org/10.1108/00220410910970294>
- Howard, Jennifer. 2013. "Posting Your Latest Article? You Might Have to Take It Down." *Wired Campus*. <http://chronicle.com/blogs/wiredcampus/posting-your-latest-article-you-might-have-to-take-it-down/48865>
- Hricko, Mary. 2010. "Using Microblogging Tools for Library Services." *Journal of Library Administration* 50 (5): 684-692. <http://doi.org/10.1080/01930826.2010.488951>
- Jacobson, Terra B. 2011. "Facebook As a Library Tool: Perceived vs. Actual Use." *College & Research Libraries* 72 (1): 79-90. <http://doi.org/10.5860/crl-88r1>

- Jenkins, Henry, Katie Clinton, Ravi Purushotma, Alice J. Robison, and Margaret Weigel. 2009. *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*. Cambridge, MA: MIT Press.
- Keith, Ellen. 2009. "Tweet Your Librarian." The Sheridan Libraries Blog. <http://blogs.library.jhu.edu/wordpress/2009/08/tweet-your-librarian/>
- King, Alison. 1993. "From Sage on the Stage to Guide on the Side." *College Teaching* 41 (1): 30-35. <http://doi.org/10.1080/87567555.1993.9926781>
- Kim, Yong-Mi, and June Abbas. 2010. "Adoption of Library 2.0 Functionalities by Academic Libraries and Users: A Knowledge Management Perspective." *Journal of Academic Librarianship* 36 (3): 211-218. <http://doi.org/10.1016/j.acalib.2010.03.003>
- Laningham, Scott. 2006. "Interview with Tim Berners-Lee." IBM developerWorks. <http://www.ibm.com/developerworks/podcast/dwi/cm-int082206txt.html>
- Library of Congress. 2013. "Update on the Twitter Archive at the Library of Congress." Library of Congress Blog. https://www.loc.gov/static/managed-content/uploads/sites/6/2017/02/twitter_report_2013jan.pdf
- Gardios, Paolo, Nicoletta Colombi, Gaetano Grillo, and Maria C. Villanacci. 2012. "Implementation of Web 2.0 Services in Academic, Medical, and Research Libraries: A Scoping Review." *Health Information and Libraries Journal* 29 (2): 90-109. <http://doi.org/10.1111/j.1471-1842.2012.00984.x>
- Gartner. (2011). Gartner Says by Year-End 2013, Half of All Companies Will Have Been Asked to Produce Material from Social Media Website for E-Discovery [Press release]. <http://www.gartner.com/newsroom/id/1550715>
- Hagman, Jessica. (2012). "Joining the Twitter Conversation." *Public Services Quarterly* 8 (1): 78-85. <http://doi.org/10.1080/15228959.2012.650564>
- Mackey, Thomas P., and Trudi E. Jacobson. 2011. "Reframing Information Literacy as a Metaliteracy." *College & Research Libraries* 72 (1): 62-78. <http://doi.org/10.5860/crl-76r1>
- Madhava, Rakesh. 2011. "10 Things to Know About Preserving Social Media." *Information Management* 45 (5): 33-37.
- Maness, Jack M. 2006. "Library 2.0 Theory: Web 2.0 and Its Implications for Libraries." *Webology* 3 (2). <http://www.webology.org/2006/v3n2/a25.html>
- Mathews, Brian S. 2006. "Do You Facebook? Networking with Students Online." *College & Research Libraries News* 67 (5): 306-307. <http://doi.org/10.5860/crln.67.5.7622>

- Mazer, Joseph P., Richard E. Murphy, and Cheri J. Simonds. 2007. "I'll See You On 'Facebook': The Effects of Computer-Mediated Teacher Self-Disclosure on Student Motivation, Affective Learning, and Classroom Climate." *Communication Education* 56 (1): 1-17. <http://doi.org/10.1080/03634520601009710>
- Mellon, Constance A. 1986. "Library Anxiety: A Grounded Theory and Its Development." *College & Research Libraries* 47 (2): 160-165. http://doi.org/10.5860/crl_47_02_160
- Miller, Paul. 2005a. "Web 2.0: Building the New Library." *Ariadne* 45. <http://www.ariadne.ac.uk/issue45/miller>
- Miller, Paul. 2005b. "Do Libraries Matter? The Rise of Library 2.0." Talis. http://www.talis.com/downloads/white_papers/DoLibrariesMatter.pdf
- Miller, Paul. 2006. "Library 2.0: The Challenge of Disruptive Innovation." Talis. http://www.talis.com/resources/documents/447_Library_2_prf1.pdf
- Moran, Mike, Jeff Seaman, and Hester Tinti-Kane. 2011. "Teaching, Learning, and Sharing: How Today's Higher Education Faculty Use Social Media." Pearson Learning Solutions. <http://www.pearsonlearningsolutions.com/educators/pearson-social-media-survey-2011-bw.pdf>
- Moyle, Martin, Justin Tonra, and Valerie Wallace. 2011. "Manuscript Transcription by Crowdsourcing: Transcribe Bentham." *Liber Quarterly* 20 (3/4): 347-356. <http://doi.org/10.18352/lq.7999>
- Normile, Dennis. 2014. "High-Profile Stem Cell Papers Under Fire." ScienceInsider. <http://news.sciencemag.org/health/2014/02/high-profile-stem-cell-papers-under-fire>
- O'Reilly, Tim. 2005. "What is Web 2.0? Design Patterns and Business Models for the Next Generation of Software." O'Reilly Media. <http://oreilly.com/web2/archive/what-is-web-20.html>
- Perrin, Andrew. 2015. "Social Media Usage: 2005-2015." Pew Research Center. <http://www.pewinternet.org/2015/10/08/social-networking-usage-2005-2015/>
- Phillips, Nancy K. 2011. "Academic Library Use of Facebook: Building Relationships with Students." *Journal of Academic Librarianship* 37 (6): 512-522. <http://doi.org/10.1016/j.acalib.2011.07.008>
- Prensky, Marc. 2001. "Digital Natives, Digital Immigrants Part 1." *On the Horizon* 9 (5): 1-6. <http://doi.org/10.1108/10748120110424816>
- Price, Elizabeth and Rebecca Richardson. 2017. "Eavesdropping on the User Experience." *College & Research Libraries News* 78(1): 16-19.

- Ridge, Mia. 2014. *Crowdsourcing our Cultural Heritage*. Burlington, VT: Ashgate Publishing.
- Robison, Mark and Ruth Sara Connell. 2017. "Harnessing Yik Yak for Good: A Study of Students' Anonymous Library Feedback." *Journal of Web Librarianship* 11 (1): 35-55. <http://doi.org/10.1080/19322909.2016.1236001>
- Rowlands, Ian, David Nicholas, Bill Russell, Nicholas Canty, and Anthony Watkinson. 2011. "Social Media Use in the Research Workflow." *Learned Publishing* 24 (3): 183-195. <http://doi.org/10.1087/20110306>
- Rutherford, Louise L. 2008. "Building Participative Library Services: The Impact of Social Software Use in Public Libraries." *Library Hi Tech* 26 (3): 411-423. <http://doi.org/10.1108/07378830810903337>
- Saylor, Nicole, and Jen Wolfe. 2011. "Experimenting with Strategies for Crowdsourcing Manuscript Transcription." *Research Library Issues* 277: 9-14. <http://publications.arl.org/rli277/>
- Sekyere, Kwabena. 2009. "Too Much Hullabaloo About Facebook in Libraries! Is It Really Helping Libraries?" *Nebraska Library Association Quarterly* 40 (2): 25-27.
- Schrier, Robert A. 2011. "Digital Librarianship & Social Media: The Digital Library as Conversation Facilitator." *D-Lib Magazine* 17 (7). <http://doi.org/10.1045/july2011-schrier>
- Spiteri, Louise F. 2011. "Using Social Discovery Systems to Leverage User-Generated Metadata." *Bulletin of the American Society for Information Science and Technology* 37 (4): 27-29. <http://doi.org/10.1002/bult.2011.1720370408>
- Stephens, Michael. 2006. "Exploring Web 2.0 and Libraries." *Library Technology Reports* 42 (4): 8-14.
- Stone, Scott. 2014. "Breaking the Ice: Facebook Friending and Reference Interactions." *Reference & User Services Quarterly* 54 (1): 44-49. <http://doi.org/10.5860/rusq.54n1.44>
- Stonebraker, Ilana, and Tao Zhang. 2015. "CrowdAsk: Crowdsourcing Reference and Library Help." In *Reimagining Reference in the 21st Century*, edited by D. A. Tyckoson and J. G. Dove, 285-294. West Lafayette, IN: Purdue University Press.
- Swope, Mary Jane, and Jeffrey. Katzer. 1972. "The Silent Majority: Why Don't They Ask Questions?" *Reference Quarterly* 12 (2): 161-166.
- Thornton, Elaine. 2012. "Is Your Academic Library Pinning? Academic Libraries and Pinterest." *Journal of Web Librarianship* 6 (3): 164-175. <http://doi.org/10.1080/19322909.2012.702006>

- Vershbow, Ben. 2013. "NYPL Labs: Hacking the Library." *Journal of Library Administration* 53 (1): 79-96. <http://doi.org/10.1080/01930826.2013.756701>
- Vucovich, Lee A., Valerie S. Gordon, Nicole Mitchell, and Lisa A. Ennis. 2013. "Is the Time and Effort Worth It? One Library's Evaluation of Using Social Networking Tools for Outreach." *Medical Reference Services Quarterly* 32(1): 12-25. <http://doi.org/10.1080/02763869.2013.749107>
- Young, Courtney L. 2014. "Crowdsourcing the Virtual Reference Interview with Twitter." *Reference Librarian* 55 (2): 172-174. <http://doi.org/10.1080/02763877.2014.879030>
- Young, Scott W. H. and Doralyn Rossmann. 2015. "Building Library Community Through Social Media." *Information Technology and Libraries* 34 (1): 20-37. <http://doi.org/10.6017/ital.v34i1.5625>
- Zimmer, Michael. 2015. "The Twitter Archive at the Library of Congress: Challenges for Information Practice and Information Policy." *First Monday* 20 (7). <http://doi.org/10.5210/fm.v20i7.5619>