The current issue and full text archive of this journal is available on Emerald Insight at:
www.emeraldinsight.com/0737-8831.htm

Received 18 May 2015
Revised 26 August 2015
Accepted 16 September 2015

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Social media optimization: making library content shareable and engaging

Doralyn Rossmann and Scott W.H. Young
Montana State University, Bozeman, Montana, USA

Abstract

Purpose – Social Media Optimization (SMO) offers guidelines by which libraries can design content for social shareability through social networking services (SNSs). The purpose of this paper is to introduce SMO and discuss its effects and benefits for libraries.

Design/methodology/approach – Researchers identified and applied five principles of SMO. Web analytics software provides data on web site traffic and user engagement before and after the application of SMO.

Findings – By intentionally applying a program of SMO, the library increased content shareability, increased user engagement, and built community.

Research limitations/implications – Increasing use of SNSs may influence the study results, independent of SMO application. Limitations inherent to web analytics software may affect results. Further study could expand analysis beyond web analytics to include comments on SNS posts, SNS shares from library pages, and a qualitative analysis of user behaviors and attitudes regarding library web content and SNSs.

Practical implications – This research offers an intentional approach for libraries to optimize their online resources sharing through SNSs.

Originality/value – Previous research has examined the role of community building and social connectedness for SNS users, but none have discussed using SMO to encourage user engagement and interactivity through increased SNS traffic into library web pages.

Keywords Digital libraries, Generation and dissemination of information, Communities, Virality, Social media optimization, Social networking services

Paper type Case study

Introduction

> The dream behind the Web is of a common information space in which we communicate by sharing information – Tim Berners-Lee (1999).

The culture of the web now revolves around two central axes: search and social. User behavior with respect to information access is largely defined by web searching through engines such as Google and social sharing through networks such as Facebook. Libraries, in response, have begun to turn attention toward optimizing content for these major media channels. Search Engine Optimization (SEO) and Social Media Optimization (SMO) are two frameworks that offer guidelines by which libraries can design content for search findability and social shareability. While there has been a fair bit of attention given to SEO and its application for libraries, SMO has been largely ignored. This paper introduces the concepts of SMO, presents a practical application of

© Authors. This work is licensed under a Creative Commons Attribution 4.0 license. This work has not been published previously in its current or substantially similar form.

Susan Borda of Montana State University created the data representation in Figure 7. The authors would like to thank the members of the Research and Writing Group for their feedback and support: Ryer Banta, Susan Borda, Sara Mannheimer, Kirsten Ostergaard, and Leila Sterman.

Library Hi Tech
Vol. 33 No. 4, 2015
pp. 526-544
Emerald Group Publishing Limited
0737-8831
DOI 10.1108/LHT-05-2015-0053

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

SMO for an academic library's digital collections, and discusses the effects and benefits of SMO, including the potential for generating virality. Results show that web and social traffic to library web pages increased following the application of SMO.

The central goal of SMO is to increase user engagement with library resources. To achieve this goal, the Montana State University (MSU) Library employed a strategy of building connections with its community through social networking services (SNSs) using SMO principles. The Library anticipated four primary benefits resulting from the application of SMO: members of the community would become more aware of library resources; users would demonstrate active engagement with the library through SNSs; online collections would see increased sharing and potential for virality; and the building of a community in which the library and its users would interact often through SNSs.

Literature review

As the content produced and published by libraries has become increasingly digital, libraries have begun integrating techniques that leverage the powerful network capabilities offered by major commercial search engines and SNSs. A central aspect of this work involves SEO, which focusses primarily on the visibility of library content in search engine results pages of web indexing services such as Google Search, Google Scholar, Yahoo, and Bing. Arlitsch and O'Brien (2012) found that institutional repository metadata can be optimized for visibility and relevance in Google Scholar by following SEO techniques. Onaifo (2013) further found that libraries can follow SEO techniques to increase the findability of digital content through open web search engines such as Google Search. Within a suite of SEO techniques that includes web site design, content, and external linking structures, Onaifo describes SMO as an important method in addition to SEO that libraries can apply to increase the findability of their content on web "by making it easier to link to the content, and by creating means for users to share the content" (p. 105).

SEO addresses the growing number of users who access information through web search. SMO similarly recognizes the growing number of users who access information through SNSs. SEO and SMO help realize the vision of the "inside-out" library, an approach that positions the library "as an actor in the research and learning environments of its users" (Dempsey, 2013). The inside-out concept recognizes that a declining number of library users are entering into physical or online library spaces. Libraries will therefore benefit from proactively refocussing efforts toward the external non-library environments that are popular among library users. Those environments have grown far outside the bounds of the traditional library to now include popular web discovery channels such as Google (Arlitsch and O'Brien, 2012, p. 62), Twitter (Stvilia and Gibradze, 2014, p. 136; Kim *et al.*, 2012, p. 2), and Facebook (Ganster and Schumacher, 2009; Mccorkindale *et al.*, 2013). SEO and SMO together represent a suite of techniques that aim to raise the visibility of library content within the two major external environments where users are active today, search and social.

The application of SMO encourages social media engagement and content sharing through the leading SNSs that constitute users' learning and research environments. This engagement and sharing builds knowledge of, connectedness with, and community around the library. Ultimately, SMO is a means to increase user engagement with library resources. SMO has been understood as an optimization methodology since 2006, when the term and its related guidelines were first introduced by Bhargava (2006). Discussion around SMO was sustained briefly following this

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

initial publication, with Fichter (2007) introducing SMO to the library community: "Library Webmasters need to not only consider their Web site's placement in search engine results, but also to analyze how well it supports and engages with consumer-generated media." This nascent discussion went dormant for several years, however, until another related term to describe an effect of SMO – virality – was coined and circulated widely through academic and public discourse.

The study of viral content is present throughout recent computer science and information science literature, with research focussing on the emotional appeal of viral sharing (Guadagno *et al.*, 2013; Nelson-Field *et al.*, 2013), the predictability of virality (Weeks and Holbert, 2013; Cheng *et al.*, 2014; Tatar *et al.*, 2014), sharing culture and norms (Lee and Ma, 2012; van Dijck and Poell, 2013; Rosengard *et al.*, 2014), the relation of sharing quality to credibility and reputation (Ha and Ahn, 2011; Edwards *et al.*, 2014), and constructivist perspectives on social sharing (Kennedy, 2013). These studies explore the nature of shared content, the networked relationship of users, and the socio-political aspects of sharing. van Dijck calls attention to the logic of the social media platforms such as Facebook and Twitter, described as the "strategies, mechanisms, and economies underpinning these platforms' dynamics" (p. 3). This expansive ecosystem is further comprised of the "processes, principles, and practices through which these platforms process information and, more generally, how they channel social traffic" (p. 5). Additional research more fully explores the mechanical processes and practices of sharing, including share buttons (Gerlitz and Helmond, 2013; Alonso and Kandylas, 2014), the ubiquitous Facebook "Like" (Bunz, 2013), and sharing strategy (Munson, 2011).

The immediate practical outcome of SMO is increased web traffic, as the study results demonstrate (Figure 7). This quantifiable outcome has the added benefit of community building. Previous research has examined the role of community building and social connectedness for SNS users (Ganster and Schumacher, 2009; Phillips, 2011; Mccorkindale *et al.*, 2013; Lee *et al.*, 2014; Oh *et al.*, 2014), including the authors' own recent study (Young and Rossmann, 2015) that advances the practice of social media within a framework of community building. The present SMO study complements this research by introducing mechanisms that encourage user engagement and interactivity, whereby users utilize library resources through SNSs and in turn encourage others in their community to do so as well. Much existing research on social media in libraries has focussed on broadcast-based promotion and marketing of library resources and services, what Li calls "the most notable achievement of many libraries that have adopted social media" (Li and Li, 2013, p. 25). This common approach is well represented in the library literature (Sachs *et al.*, 2011; Dennis, 2012; Luo, 2013; Griffin and Taylor, 2013). A similarly extensive area of discourse investigates the implementation and usage of social media in libraries (Forrestal, 2010; Chen *et al.*, 2012; Palmer, 2014). This study of SMO brings together these lines of conversation by examining the implementation of a social media methodology that promotes library resources, encourages user engagement with online collections, increases web traffic, and helps move library social media from a one-dimensional broadcast platform to a multi-dimensional socially interactive space.

Approach to implementation of SMO

This study defines principles of network shareability which may lead to increased social media web traffic into library web pages resulting in increased user engagement with these collections. It offers a practical approach for sharing that builds on existing

research around the mechanics of shareability, while remaining mindful of the theoretical underpinnings described above. As noted earlier, Bhargava (2006, 2010) established principles of SMO, which were then updated and serve as the basis for this study. The five principles applied include:

(1) create shareable content;

(2) make sharing easy;

(3) reward engagement;

(4) proactively share; and

(5) encourage reuse.

Bhargava's fifth principle is "Encourage the Mashup" which has been modified here to "Encourage Reuse" as the latter recognizes the many forms of possible reuse, beyond mashups. It is useful to define these concepts and then to see how they look when locally applied to a MSU Library digital collection.

Creating shareable content

Applying the principle of creating shareable content requires that libraries take an inventory of their current and potential resources to identify what might be disseminated via social media networks. Such content could include digital collections, blog posts, institutional repository content, e-mail newsletters, videos, and staff directory pages. Content that is interesting and unique will have more likelihood of being shared. A recent update of the library's web site could inspire a blog post talking about the process of that change and providing some screen images of before and after. Library videos of local events such as poetry readings or banned books week presentations could be assembled into one place like YouTube so that it is easily findable and shareable. A library staff directory might include basic information, yet this could be made more interesting with the addition of staff photographs and brief descriptions of areas of work interest or research. A quick inventory of existing library resources and services offers a myriad of possibilities for surfacing existing content and creating new content for sharing via SNSs.

Make sharing easy

The principle of make sharing easy means putting tools in place to encourage sharing content at the point of use. Implementing this principle includes providing branded social share buttons on web sites which can be used for quick sharing on SNSs. These buttons can include whatever relevant content the provider chooses such as a clear description, a simple URL, and a link back to the library as provider. These share buttons might also provide share counts, but web site managers should consider the potentially negative signals given by items with few or no shares. Encouraging the use of hashtags around topics can also help with promotion. MSU uses #MontanaState on its tagging. Similarly, the MSU Library has used #AcousticAtlas to tie together items shared around its Acoustic Atlas digital collection. An example of this type of sharing can be seen through Figure 1.

Make sharing easy also means optimizing content for sharing through the major SNSs Facebook and Twitter. The MSU Library provides historical photos of MSU through a digital collection. Applying the make sharing easy principle, these photos have been optimized for sharing on SNSs through coding of the digital objects with

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Figure 1.
Example of making sharing easy through establishing hashtags

Twitter Cards (Twitter, 2015) and Facebook Open Graph tags (Facebook, 2015). Figure 2 illustrates a before and after example of how digital objects appear with Twitter Cards applied.

The meta tags on the web page for this item, as shown in Figure 3, provide information as requested by these two SNSs and which can be checked for output against the Twitter Card Validator (https://cards-dev.twitter.com/validator) and the Facebook Open Graph Debugger (https://developers.facebook.com/tools/debug/). Tags can include calls to variables in your database so that data are retrieved for Twitter Cards and Facebook Open Graph across entire collections, as is seen in Figure 4.

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Figure 2.
Example of sharing from a digital photographs collection before (left) and after (right) Twitter Card implementation

```
<!-- Social Media Tags →

<meta name="twitter:title" content="Katmai National Park and Preserve
Brooks Falls">

<meta name="twitter:description" content="Image from National Park
Service Webcams - Montana State University (MSU) Library">

<meta name="twitter:image:src"
content="http://arc.lib.montana.edu/national-park-service-
webcams/objects/katmai_bears.jpg">

<meta name="twitter:url" content="http://arc.lib.montana.edu/national-
park-service-webcams/item/152"> <meta name="twitter:card"
content="summary_large_image">

<meta name="twitter:site" content="@msulibrary"> <meta
name="twitter:creator" content="@msulibrary">

<meta property="og:title" content="Katmai National Park and Preserve
Brooks Falls, Image from National Park Service Webcams">

<meta property="og:description" content="Image from National Park
Service Webcams - Montana State University (MSU) Library">

<meta property="og:image" content="http://arc.lib.montana.edu/national-
park-service-webcams/objects/katmai_bears.jpg">

<meta property="og:url" content="http://arc.lib.montana.edu/national-
park-service-webcams/item/152">
<meta property="og:type" content="website" />

<meta property="og:site_name" content="Image from National Park Service
Webcams - Montana State University (MSU) Library"/>

<!-- End Social Media Tags →
```

Figure 3.
HTML for Twitter Cards and Facebook Open Graph Tags

The Yoast plugin for WordPress (https://wordpress.org/plugins/wordpress-seo/) and the social media module for Drupal (www.drupal.org/project/socialmedia) facilitate the implementation of social media buttons and meta tags.

Rewarding engagement

The principle of rewarding engagement involves actively monitoring user interaction with library content and giving recognition for such behavior. Google Analytics, Twitter Analytics, and Facebook Developer provide insights into library web site traffic sources and pageviews. For example, Twitter Analytics provides a list of Twitter users who share Twitter Card-enabled library content.

Libraries can also search for hashtags or words associated with the library to identify conversation around library resources and services. A search for #MontanaState might find a Tweet by a student who says "Studying at the library. Or, as I call it, staring at the printers. #MontanaState." Using this principle, a library can then interact with users who have engaged with the library to address concerns, express appreciation, provide encouragement, or introduce resources and services. Perhaps a user shared a photograph from a library's digital collection. This share can be discovered through Twitter Analytics through its reported sharing of pages with Twitter Cards installed. With this

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Figure 4.
Example of interacting with a user who shared a library-provided image

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

information in hand, the library might respond with a nod of thanks and a reminder that the collection is still growing, as demonstrated in Figure 4.

These proactive efforts by the library through SNSs can connect users to otherwise unknown resources and services and can remind users of the human element of libraries.

Proactive sharing

Libraries can be some of the best promoters of their own material by proactively sharing their resources and services through SNSs. Sharing content allows the library to surface information which might be otherwise unrealized and may encourage others to engage with and re-share those materials. Applying this principle could take many forms. For example, an aerial photograph shared by the library of a university football field from 100 years ago might get re-shared by that university's athletic services SNS accounts which reaches thousands of prospective students, current students and employees, and alumni. A new study on dinosaurs deposited in the library's institutional repository may be of broad interest and can draw attention to university research. Tagging others when sharing content can further engage the community. When the library is offers a writing drop-in session with the university's writing center, it could tag the writing center's social media accounts as well as tagging images of people who attend the event.

Encouraging reuse

Encouraging reuse recognizes that people want to share, repost, and embed resources into multiple SNSs. In doing so, there is greater opportunity for engagement around the resources provided. To optimize for reuse, consider making your library's digital images easily shared on SNSs and providing low-resolution equivalents available alongside of high-resolution images should users want to send smaller files to friends. Likewise, reuse can be made easier by providing tools for users to take library-hosted sound files and recombine them into new sound files consisting of multiple streams. The Library of Congress encourages reuse in their Chronicling America project (http://chroniclingamerica.loc.gov/). This database contains hundreds of images of historic newspapers and has tools embedded into the viewing interface which provide a persistent link and options to download the full-sized image or a smaller portion of the page being viewed. Smaller images can then be included in SNSs and referred back to the original source via the provided link. The Library of Congress recognizes how users engage with content in varied ways and provides tools that encourage reuse.

Results – digital collections case study

Local application of SMO principles

To test the effects and benefits of all five principles of SMO, the MSU Library turned toward its Digital Historical Photographs Collection (found at http://arc.lib.montana.edu/msu-photos/). This collection meets the SMO principle of creating shareable content with high potential interest from the library's community. This collection features images from throughout the history of the State of Montana and MSU. For this study, the SMO analysis is divided into two time periods. Prior to the implementation of SMO, the "pre-SMO" period covers February 7, 2013-February 6, 2014. Following the programmatic implementation of SMO beginning on February 7, 2014, the "post-SMO" period covers February 7, 2014-February 6, 2015.

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Prior to the SMO implementation in February 2014, some SMO principles were, in fact, already being employed by the library, such as providing shareable content through provision of Digital Historical Photographs. Also, the library regularly proactively shared links to its content and included relevant hashtags in its posts. The digital photographs collection also encouraged reuse through provision of low- and high-resolution versions of images. The library had not actively applied the remaining principles of making sharing easy or rewarding engagement during this time, nor had it approached content sharing in a systematic manner.

The library applied the SMO principle of making sharing easy by including Twitter Cards and Facebook Open Graph tags in the Digital Historical Photographs Collection using the same approaches as shown in Figures 3 and 4. It further encouraged sharing by including social share buttons to SNSs Twitter, Facebook, and Pinterest, as seen in Figure 5.

With the principles of creating shareable content and make sharing easy applied, the library put into practice the concept of proactively sharing content from this collection, particularly with the idea of raising awareness through its optimized appearance (including images, descriptions, etc.) when posted to SNSs. Figure 2 offers an example of items from this collection which were shared before and after Twitter Cards were enabled. The #MontanaState hashtag is used in these postings, as well, given that the content is specifically around the history of MSU and will be picked up by those following that tag.

Efforts to reward engagement emerged through Twitter Analytics' identification of pages shared with activated Twitter Cards. In one case, a local brewery posted a link to a photograph that shows where the brewery is located now and what it the same spot looked like in 1906, as seen in Figure 6. Data available from Twitter Analytics allowed the library to see the sharing of this image and to engage with the follower in a way that potentially builds community and shows others following the brewery or the library that a connection has been made. The library's response rewarded the engagement by the brewery with library content by surfacing that engagement to a wider audience and by thanking them for posting.

Encouraging reuse is the least prescriptive of the SMO principles of how to implement and, consequently, can be challenging to accomplish. The MSU Historical Photographs offer low-resolution versions for initial viewing and links to high-resolution images for greater detail. The collection's copyright statement clearly outlines how these

Figure 5.
Example of social sharing options pre- SMO (left) and post-SMO (right)

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Figure 6.
Example of Twitter engagement with local brewery sharing MSU photograph

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

photographs may be used and when additional permissions are required. The next step in this case study involves an analysis of the data before and after the implementation of all five SMO principles.

SMO results

During the post-SMO period, the library followed the five principles of SMO in the programmatic pursuit of shareability resulting in increased awareness of and engagement with library resources. While the library followed some of the concepts around optimizing social media prior to this study, the joint application of all five principles of SMO provided a framework for increasing content shareability and user engagement. For this study, there is a focus the results on how many users visit the library web site from SNS posts. This is a key measure of user engagement with social media posts that provide links to web site content. The library's interest lies in understanding how a comprehensive application of the five SMO principles influences content shareability and user engagement and if this results in increase engagement with online collections.

When comparing pre-SMO and post-SMO time periods in Figure 7, total web traffic from social networks to the Digital Historical Photographs Collection increased significantly. Sessions originating from Facebook increased from 114 to 5,704, an increase of 5,003 percent. Sessions originating from Twitter increased from 142 to 388, an increase of 273 percent. By measuring sessions and pageviews in Tables I and II, results show that overall traffic increased after implementing SMO.

The extreme increase in web visitors from Facebook can be attributed to two individual posts that attracted viral attention. These two posts are categorized as "viral" since related web traffic was relatively high within a relatively brief duration of time. For instance, referral web traffic from a post on the The MSU Facebook site, which itself has over 80,000 followers, to a single page in the Digital Historical Photographs Collection generated 3,767 sessions and 6,609 pageviews over a seven-day period from October 23-30, 2014 alone. This single page represented 68 percent of

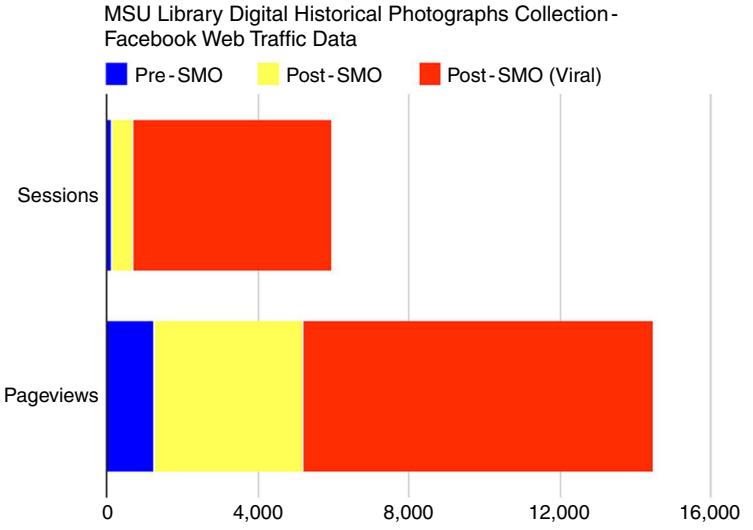

Figure 7.
Web traffic from Facebook to the Digital Historical Photographs Collection

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

all Facebook sessions and 52 percent of all Facebook pageviews during the post-SMO period. Facebook referral traffic, including traffic from two viral posts, to the Digital Historical Photographs Collection is represented in Figure 6.

In comparison, two of MSU Library's other digital collections – which had not been optimized – showed relatively minor change in social media activity in the same timeframe. The Brook Photographs Collection (found at http://arc.lib.montana.edu/brook-0771) recorded four sessions from Facebook and ten sessions from Twitter before SMO was applied to the Digital Historical Photographs Collection. After SMO was applied to the Digital Historical Photographs Collection, the Brook collection recorded seven sessions from Facebook and zero sessions from Twitter, resulting in 75 percent more activity through Facebook and 100 percent less activity through Twitter. Similarly, the Schultz Photographs Collection (found at http://arc.lib.montana.edu/schultz-0010/) recorded two sessions from Facebook and zero sessions from Twitter before SMO was applied to the Digital Historical Photographs Collection. After SMO was applied to the Digital Historical Photographs Collection, the Schultz collection recorded five sessions from Facebook and zero sessions from Twitter, resulting in a 150 percent more activity through Facebook and no change through Twitter. The lower rate of social web traffic for these non-optimized collections in comparison to the Digital Historical Photographs Collection – which had been optimized – further suggests that the application of SMO can help make digital collections more shareable and engaging on SNSs.

Share button traffic is also trackable via web analytics software. Click-through rates are a prime measure of engagement, showing the degree to which social share buttons were activated from the Digital Historical Photographs Collection item page. During a test period between July 5-August 8, 2013, the Pre-SMO "Bookmark and Share" button (Figure 5) received 0 percent of user clicks. During a subsequent test period following the implementation of SMO, between April 4-June 4, 2014, the network-specific share buttons attracted 2.2 percent of user clicks (15 clicks out of 681).

Discussion

Connectedness

By applying SMO, libraries can increase the shareability of library content with the benefit of increasing library web site traffic and user engagement through SNSs.

Table I.
Web traffic from Facebook to the Digital Historical Photographs Collection

	MSU Library web pages shared on Facebook	Sessions on the MSU Library web site from Facebook	Pageviews of the MSU Library web site from Facebook
Pre-SMO	19	114	1,253
Post-SMO	42	5,704 (5,263 viral)	12,911 (9,326 viral)

Table II.
Web traffic from Twitter to the Digital Historical Photographs Collection

	MSU Library web pages shared on Twitter	Sessions on the MSU Library web site from Twitter	Pageviews of the MSU Library web site from Twitter
Pre-SMO	22	142	207
Post-SMO	36	388	485

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

The central goal of SMO is to increase user engagement with library resources. By producing content that is of interest to one's community, proactively sharing it via SNSs, and engaging with users who interact with one's content, one creates conversation with community and can make the library's resources more approachable and inviting to its user community. Conversation that occurs through SNS channels is associated with social trust and connectedness (Valenzuela *et al.*, 2009). Moreover, building mutual vision and trust through SNS information sharing can lead to user-perceived informational and experiential value (Lee *et al.*, 2014), and SNS connectedness has been shown to relate to positive mental health and well-being (Grieve *et al.*, 2013). With SMO helping to drive information sharing and interaction through SNSs, the library can play a role in building social connectedness with and among users and increasing the library's usefulness within its community.

Virality

A related effect experienced during this study was the phenomenon of content virality. As demonstrated in the results, two individual posts accounted for the majority of web traffic following the application of SMO, with one in particular accounting for the majority of Facebook traffic during the post-SMO period. This single post fully realizes the potential of SMO. First, this image, as seen the Facebook Analytics for this post in Figure 8, presents a striking historical view of MSU's local campus, therefore the MSU Library has created shareable content. From there, the library made sharing easy by providing social share buttons with pre-populated text and links. The library rewarded engagement by liking and proactively re-shared MSU's post of this content to Facebook, thereby increasing the post's organic reach and by recognizing that they engaged with the library's content through this share. The library encouraged reuse through Creative Commons sharing options. This situation reflects a broader connection than is reflected solely through the content that was posted. The library actively communicates with its MSU Communications office, as well as other campus entities, through a variety of channels including in-person meetings, through internal e-mail, and by mutually engaging through its SNS accounts. MSU Communications recognizes that the MSU Library provides quality content, engages with its community, and is a valuable part of the broader MSU community. In sum, community is built cumulatively across offline and online connections and can lead to greater engagement with library resources.

Figure 8 also demonstrates the high potential for reach provided by virality. This post resonated strongly with the MSU community, as measured by Facebook engagement metrics of likes, comments, and shares. Virality offers the opportunity to reach a wide audience within a brief period of time, and in this example, the potential of the viral post is realized through an extremely high number of visitors from Facebook to the library's web site. In total, 3,284 people liked the post which suggests a connection with the post itself. In all, 249 people commented on the post reflecting conversation in MSU's community on Facebook. In total, 377 people then shared the post on their own Facebook wall which then led to 862 likes, 182 comments, and 12 more shares from those shares which indicates an even deeper connection with the content. This post reached MSU's Facebook followers, and its reach expanded organically and virally through members of its community sharing the material with their extended community. The virality was partially activated through the application of SMO, as described previously.

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

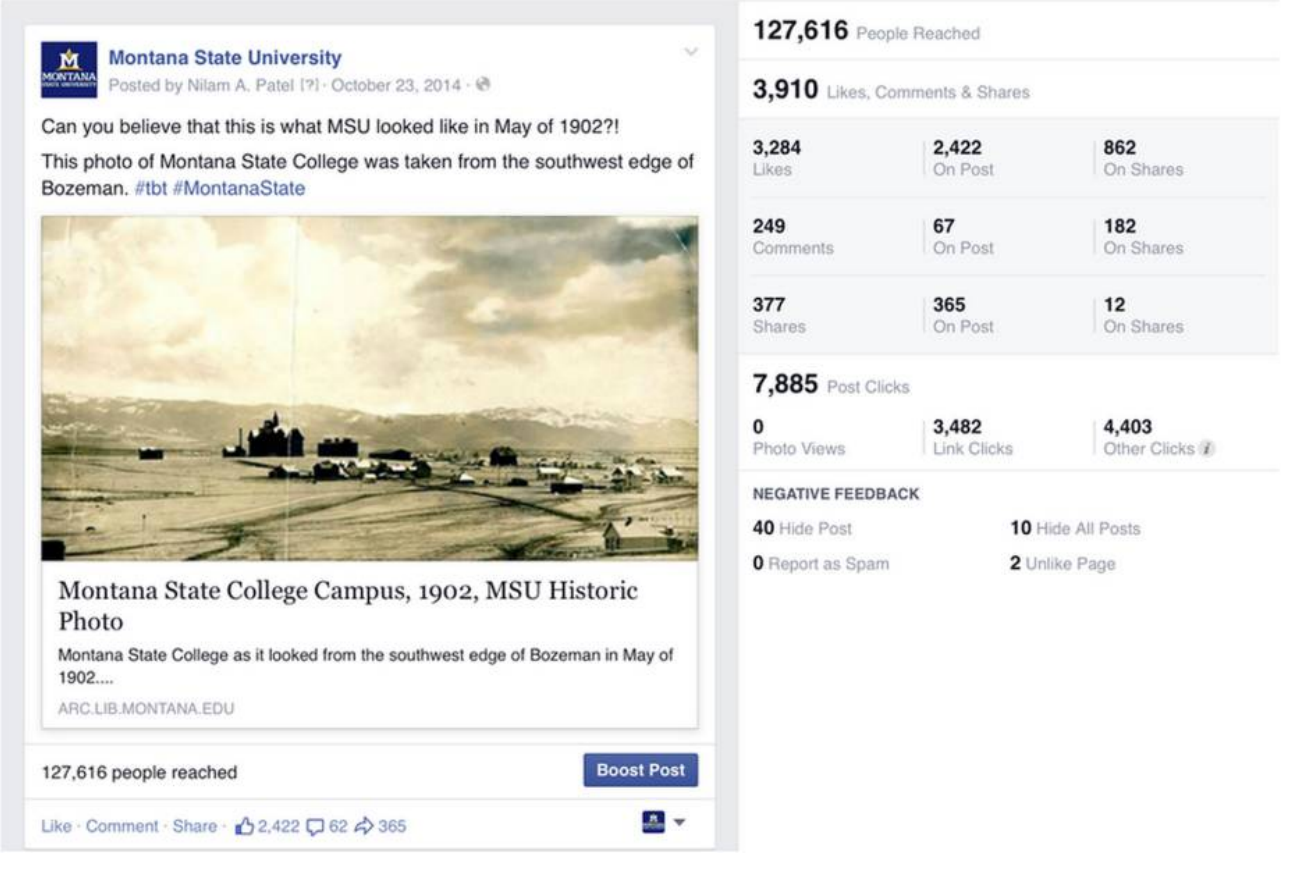

Figure 8.
Example of Facebook statistics from viral post

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Inside-out library

In a wider context, SMO represents an opportunity to achieve the "inside-out library." This conceptual approach seeks to expand the library beyond its walls and web sites in a way that brings the world of the library out into the world of users. SNSs offer the opportunity to listen to users, to engage at point-of-need, and to build community. SMO recognizes that SNSs are an important and thriving domain within which users are increasingly operating (Duggan *et al.*, 2014) and that users may want to share relevant library content through those SNSs to the benefit of the user and the library. The pursuit of SMO recognizes that users appreciate relevant content and that the library can identify, create, and share this content. SMO furthermore applies the benefits of visual and descriptive elements for human understanding and machine-readability through the use of Twitter Cards and Facebook Open Graph tags. It provides the opportunity for library content and services to be embedded in conversations in SNSs in a meaningful way that avoids the marketer-driven unpleasantries of pushing library resources upon deaf ears. In sum, SMO can help broaden awareness of and access to library content through SNSs.

Limitations

While this study provides evidence for the positive impact of SMO, it is not without its limitations, which are threefold. First, an overall increase over time in SNS usage may influence the study results (Duggan *et al.*, 2014). The growing user communities of Facebook and Twitter in particular may account partly for the growth of web traffic from those SNSs, independent of the application of SMO. Second, web traffic data for this study was generated primarily through Google Analytics. Web analytics software can be reliable when compared against itself over time, as is done in this study, though reporting inaccuracies have been documented and must be considered (Arlitsch *et al.*, 2013). Third, web analytics provides only a snapshot of user activity, and can offer only a narrow view of user engagement. Further study could include data points such commenting on a post, sharing from library pages, return visits to the library's web site, and qualitative user studies exploring user behaviors and attitudes regarding library web content and SNSs.

Conclusion

By intentionally applying a program of SMO to its digital collections and use of SNSs, the MSU Library increased content shareability, increased user engagement with this content, and built community around this content, the library, and the university. From Facebook alone, sessions to the library's digital collection increased 5,000 percent, due in large part to content virality that was engineered through the application of SMO. These practices can be easily replicated and applied by other libraries. In sum, SMO offers a framework for optimizing the machine-readability and human-shareability of library content through SNSs, with the central goal of increasing user engagement with library resources.

References

Alonso, O. and Kandylas, V. (2014), "A study on placement of social buttons in web pages", Arxiv, available at: http://arxiv.org/abs/1410.2828 (accessed September 25, 2015).

Arlitsch, K. and O'Brien, P.S. (2012), "Invisible institutional repositories: addressing the low indexing ratios of IRs in Google Scholar", *Library Hi Tech*, Vol. 30 No. 1, pp. 60-81.

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Arlitsch, K., OBrien, P.S., Kyrillidou, M. and Erway, R. (2013), "Accuracy in web analytics reporting on digital libraries", CNI: Coalition for Networked Information, Washington, DC, available at: www.cni.org/f13-arlitsch-accuracy/ (accessed October 17, 2015).

Berners-Lee, T. (1999), *Weaving the Web: The Original Design and Ultimate Destiny of the World Wide Web*, HarperBusiness, San Francisco, CA.

Bhargava, R. (2006), "5 rules of social media optimization (SMO)", Influential Marketing Blog, available at: www.rohitbhargava.com/2006/08/5_rules_of_soci.html (accessed May 17, 2015).

Bhargava, R. (2010), "The 5 new rules of social media optimization (SMO)", Influential Marketing Blog, available at: www.rohitbhargava.com/2010/08/the-5-new-rules-of-social-media-optimization-smo.html (accessed May 17, 2015).

Bunz, M. (2013), "As you like it: critique in the era of an affirmative discourse", in Lovink, G. and Rasch, M. (Eds), *Unlike us Reader: Social Media Monopolies and their Alternative*, Institute of Network Cultures, Amsterdam, pp. 137-145.

Chen, D.Y.-T., Chu, S.K.-W. and Xu, S.-Q. (2012), "How do libraries use social networking sites to interact with users", *Proceedings of the American Society for Information Science and Technology*, Vol. 49 No. 1, pp. 1-10.

Cheng, J., Adamic, L., Dow, P.A., Kleinberg, J.M. and Leskovec, J. (2014), "Can cascades be predicted?", *International World Wide Web Conference, ACM Press, New York, NY*, pp. 925-936.

Dempsey, L. (2013), "The inside out library: scale, learning, engagement", available at: www.slideshare.net/lisld/the-inside-out-library (accessed May 17, 2015).

Dennis, M. (2012), "Outreach initiatives in academic libraries, 2009-2011", *Reference Services Review*, Vol. 40 No. 3, pp. 368-383.

Duggan, M., Ellison, N.B., Lampe, C., Lenhart, A. and Madden, M. (2014), "Social media update 2014", Pew Research Center's Internet & American Life Project, available at: www.pewinternet.org/2015/01/09/social-media-update-2014/ (accessed May 17, 2015).

Edwards, C., Edwards, A., Spence, P.R. and Shelton, A.K. (2014), "Is that a bot running the social media feed? Testing the differences in perceptions of communication quality for a human agent and a bot agent on twitter", *Computers in Human Behavior*, Vol. 33, pp. 372-376.

Facebook (2015), "Using objects", available at: https://developers.facebook.com/docs/opengraph/using-objects (accessed January 21, 2015).

Fichter, D. (2007), "How social is your web site? Top five tips for social media optimization", *Online*, Vol. 31 No. 3, pp. 57-60.

Forrestal, V. (2010), "Making Twitter work: a guide for the uninitiated, the skeptical, and the pragmatic", *The Reference Librarian*, Vol. 52 Nos 1-2, pp. 146-151.

Ganster, L. and Schumacher, B. (2009), "Expanding beyond our library walls: building an active online community through Facebook", *Journal of Web Librarianship*, Vol. 3 No. 2, pp. 111-128.

Gerlitz, C. and Helmond, A. (2013), "The like economy: social buttons and the data-intensive web", *New Media & Society*, Vol. 15 No. 8, pp. 1348-1365.

Grieve, R., Indian, M., Witteveen, K., Tolan, G.A. and Marrington, J. (2013), "Face-to-face or Facebook: can social connectedness be derived online?", *Computers in Human Behavior*, Vol. 29 No. 3, pp. 604-609.

Griffin, M. and Taylor, T.I. (2013), "Of fans, friends, and followers: methods for assessing social media outreach in special collections repositories", *Journal of Web Librarianship*, Vol. 7 No. 3, pp. 255-271.

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)

Guadagno, R.E., Rempala, D.M., Murphy, S. and Okdie, B.M. (2013), "What makes a video go viral? An analysis of emotional contagion and internet memes", *Computers in Human Behavior*, Vol. 29 No. 6, pp. 2312-2319.

Ha, S. and Ahn, J. (2011), "Why are you sharing others' tweets? The impact of argument quality and source credibility on information sharing behavior", *ICIS 2011 Proceedings, Shanghai, December 4-7*, available at: http://aisel.aisnet.org/icis2011/proceedings/humanbehavior/4 (accessed September 25, 2015).

Kennedy, J. (2013), "Rhetorics of sharing: data, imagination, and desire", in Lovink, G. and Rasch, M. (Eds), *Unlike us Reader: Social Media Monopolies and their Alternative*, Institute of Network Cultures, Amsterdam, pp. 127-136.

Kim, H.M., Abels, E.G. and Yang, C.C. (2012), "Who disseminates academic library information on Twitter?", *Proceedings of the American Society for Information Science and Technology*, Vol. 49 No. 1, pp. 1-4.

Lee, C.S. and Ma, L. (2012), "News sharing in social media: the effect of gratifications and prior experience", *Computers in Human Behavior*, Vol. 28 No. 2, pp. 331-339.

Lee, M.R., Yen, D.C. and Hsiao, C.Y. (2014), "Understanding the perceived community value of Facebook users", *Computers in Human Behavior*, Vol. 35, pp. 350-358, available at: www.sciencedirect.com/science/article/pii/S074756321400140X

Li, X. and Li, T. (2013), "Integrating social media into east asia library services: case studies at University of Colorado and Yale University", *Journal of East Asian Libraries*, Vol. 157 No. 1, pp. 23-36.

Luo, L. (2013), "Marketing via social media: a case study", *Library Hi Tech*, Vol. 31 No. 3, pp. 455-466.

Mccorkindale, T., Distaso, M.W. and Sisco, H.F. (2013), "How millennials are engaging and building relationships with organizations on Facebook", *The Journal of Social Media in Society*, Vol. 2 No. 1, pp. 66-87.

Munson, S. (2011), "Beyond the share button: making social network sites work for health and wellness", *Potentials, IEEE*, Vol. 30 No. 5, pp. 42-47.

Nelson-Field, K., Riebe, E. and Newstead, K. (2013), "The emotions that drive viral video", *Australasian Marketing Journal (AMJ)*, Vol. 21 No. 4, pp. 205-211.

Oh, H.J., Ozkaya, E. and LaRose, R. (2014), "How does online social networking enhance life satisfaction? The relationships among online supportive interaction, affect, perceived social support, sense of community, and life satisfaction", *Computers in Human Behavior*, Vol. 30, pp. 69-78.

Onaifo, D. (2013), "Increasing libraries' content findability on the web with search engine optimization", *Library Hi Tech*, Vol. 31 No. 1, pp. 87-108.

Palmer, S. (2014), "Characterizing university library use of social media: a case study of Twitter and Facebook from Australia", *The Journal of Academic Librarianship*, Vol. 40 No. 6, pp. 611-619.

Phillips, N.K. (2011), "Academic library use of facebook: building relationships with students", *The Journal of Academic Librarianship*, Vol. 37 No. 6, pp. 512-522.

Rosengard, D., Tucker-mclaughlin, M. and Brown, T. (2014), "Students and social news: how college students share news through social media", *Electronic News*, Vol. 8 No. 2, pp. 120-137.

Sachs, D.E., Eckel, E.J. and Langan, K.A. (2011), "Striking a balance: effective use of Facebook in an academic library", *Internet Reference Services Quarterly*, Vol. 16 Nos 1-2, pp. 35-54.

Stvilia, B. and Gibradze, L. (2014), "What do academic libraries tweet about, and what makes a library tweet useful?", *Library & Information Science Research*, Vol. 36 Nos 3-4, pp. 136-141.

Tatar, A., Dias de Amorim, M., Fdida, S. and Antoniadis, P. (2014), "A survey on predicting the popularity of web content", *Journal of Internet Services and Applications*, Vol. 5 No. 8, pp. 1-20.

Twitter (2015), "Twitter cards", available at: https://dev.twitter.com/cards/overview (accessed January 21, 2015).

Valenzuela, S., Park, N. and Kee, K.F. (2009), "Is there social capital in a social network site? Facebook use and college students' life satisfaction, trust, and participation", *Journal of Computer-Mediated Communication*, Vol. 14 No. 4, pp. 875-901.

van Dijck, J. and Poell, T. (2013), "Understanding social media logic", *Media and Communication*, Vol. 1 No. 1, pp. 2-14.

Weeks, B.E. and Holbert, R.L. (2013), "Predicting dissemination of news content in social media: a focus on reception, friending, and partisanship", *Journalism & Mass Communication Quarterly*, Vol. 90 No. 2, pp. 212-232, available at: http://jmq.sagepub.com/Predicting (accessed September 25, 2015).

Young, S.W.H. and Rossmann, D. (2015), "Building library community through social media", *Information Technology and Libraries*, Vol. 34 No. 1, pp. 20-37.

Further reading

Saw, G., Abbott, W., Donaghey, J. and McDonald, C. (2013), "Social media for international students – it's not all about Facebook", *Library Management*, Vol. 34 No. 3, pp. 156-174.

Zickuhr, K., Purcell, K. and Rainie, L (2014), "From distant admirers to library lovers – and beyond", Pew Research Center's Internet & American Life Project, available at: www.pewinternet.org/2014/03/13/library-engagement-typology/ (accessed May 17, 2015).

Corresponding author

Doralyn Rossmann can be contacted at: doralyn@montana.edu

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: **permissions@emeraldinsight.com**

Downloaded by Montana State University Bozeman At 13:52 23 March 2016 (PT)