



Social media application in digital libraries

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Abstract

Purpose – The purpose of this paper is to investigate the applications of social media in digital libraries and identify related problems.

Design/methodology/approach – A total of ten institutions were selected from the following cultural institution types – public libraries, academic libraries, museums, government, and international organisations – to represent a variety of digital libraries developed or sponsored by different types of organisations. The social media applications were examined with regard to the following aspects: types of social media, placement of social media, updating social media, types of interactions, and types of functions.

Findings – This study presents the types of social media applications in the selected digital libraries and further characterises their placements, update frequency, types of interactions between digital librarians and users, as well as various types of roles they played. In the process of analysis the authors also identified problems related to lack of standards, creating two-way communication channels, and the lack of education functions.

Research limitations/implications – Further research needs to expand the selection of institutions and digital libraries to have more representative sampling, in particular institutions that are outside North America and Europe. It is also important to perform in-depth content analysis of social media to identify patterns and functions that social media perform. Moreover the authors will compare specific social media tools, such as Twitter, Facebook, etc., across institutions. In order to explore fully the reason why certain social media tools are implemented in digital libraries, it is important to survey or interview digital librarians of digital libraries in different types of cultural institutions. In addition users can be interviewed to solicit their perspectives about their usage of social media in digital libraries.

Originality/value – This study not only examines the current status and problems of social media application in digital libraries but also offers suggestions on making good use of social media to connect users and digital libraries.

Keywords Social media, Twitter, Digital libraries, Facebook, Blogs

Paper type Research paper

Introduction and literature review

Social media is a means of communication through the internet that enables social interaction. It is an effective approach for people to use in communicating and interacting with each other. Simultaneously more organisations are applying social media to promote their services and interact with their users or patrons. In this study cultural institutions' use of social media as applied to their digital libraries is analysed. Cultural institutions are defined as libraries, museums, and archives. The primary focus is to define various social media applications and to research existing literature regarding how and why libraries, museums, and archives have implemented social media applications in their institutions. In particular the aim is to identify digital libraries and their associated institutions that have implemented social media as a part of their services.

There are different variations of social media. The most popularly applied social media in digital libraries include blogs, Facebook, photo sharing, podcasts, RSS feeds,



Twitter, YouTube, and wikis. There is some cross-classification as a few social media applications have more than one function. For example Twitter is a social networking site, but at the same time, it also serves to share photos and is classified as a microblog. Based on relevant literature Table I defines different types of social media.

Few studies have looked specifically at social media and its usage in digital libraries. Instead the majority of literature focuses on social media usage in cultural institutions as a whole and not their associated digital libraries. While the focus is not directly on digital libraries, some important information can be learned from these studies. For example Buigues-Garcia and Gimenez-Chornet (2012) concentrated on social media's impact on national libraries to find the types of services and technologies that were most appropriate for library web sites. The libraries were located from URL repositories and social media tools. The study found that out of all national library web sites in the world, only a quarter can be considered Library 2.0; a significant portion of the web sites are located in American and Europe. Buigues-Garcia and Gimenez-Chornet (2012) identified the most implemented social media tools in libraries such as Facebook or Twitter and user information services such as RSS, publication of bulletins, blogs, or digital/virtual libraries. The study did not identify the popularity behind the use of social media from a user's perspective, only from the digital librarian side. In relation a study conducted by Gerolimos (2011) reviewed the framework of academic libraries' use of social media. He argued that social media might be disconnecting the library's functions into too many different facets of information.

As many cultural institutions have already implemented social media in other facets of services, it seems natural to begin to add social media to digital libraries, especially since social media was created to enable users to communicate and connect with each other. In addition scholarly communication can take place via social media. Cho (2013) asserted that academic libraries should be using specific social media applications that allow new ways of communication. Gu and Widén-Wulff (2011) found that researchers have a variety of information practices, and suggested that librarians need to incorporate social media in ways to further scholarly communication. Perhaps one of the ways that librarians could potentially strengthen information practices is through the incorporation of social media in digital library collections. One example of integration of social media in a digital library is demonstrated by the Denver Public Library. The Denver Public Library's digital collections allow users to share information via a social media application when they are viewing the individual items; as opposed to the Colonial Williamsburg Digital Library, which does not allow users to share information found in the digital library at the collection level. The Denver Public Library allows users to share information found in the digital library via a multitude of social media applications, from popular applications such as Facebook to more user driven applications such as Reddit. There are a number of potential benefits from integrating social media with digital libraries; however, few institutions have made the step to include social media that link directly with their digital library collections. The literature suggests several reasons to include social media in digital library collections. A study conducted by McDonnell and Shiri (2011) found that the integration of social media search applications into digital libraries made users feel more comfortable when using the digital library. As a result users achieved better search results. Russo *et al.* (2009) found that education is now encompassing traits of new media, shifting from a traditional focus on print material to digital materials. Studies need to be conducted in order to gain knowledge and expertise as to how digital libraries are portraying and displaying social media in conjunction with digital collections.

Table I.
Definitions of different
types of social media

Types	Definitions	Example	Related literature
Blogs	Allow a user to share thoughts and opinions on subjects in a diary-like fashion in a series of posts. Create discussions or an informational site published online and consisting of discrete entries or “posts”	Blog	Buigues-Garcia and Gimenez-Chornet (2012), Schrier (2011), Samouelian (2009), Kroski (2008)
Micro blogs	Allow users to communicate with a handle or username that the user creates, and can write short messages, typically 140 characters that are sent to the user’s followers	Twitter	Grabowicz <i>et al.</i> (2012), Starr (2010), Kroski (2008)
Photo sharing Podcasts	Online image and video hosting site that allows users to share, comment, and connect through posted images Multimedia digital file that is stored on the internet and is available to download, and is similar to a radio broadcast that is available freely online	Facebook; Flickr; Pinterest; Twitter Podcast	Buigues-Garcia and Gimenez-Chornet (2012), Taraborelli <i>et al.</i> (2009), Taraborelli and Roth (2008) Buigues-Garcia and Gimenez-Chornet (2012), Russo <i>et al.</i> (2009), Samouelian (2009), Kroski (2008)
RSS feeds	Rich site summary or really simple syndication comprises frequently updated web feeds that indicate news, events, and blog entries that a user can subscribe to and follow. RSS takes current headlines from different web sites, and pushes those headlines down to your computer for quick scanning	RSS feeds	Buigues-Garcia and Gimenez-Chornet (2012), Schrier (2011), Kroski (2008)
Social networks	Online platform that allows users to communicate and connect with each other via interests, backgrounds, and activities that are part of a large social network	Facebook; Twitter; Reddit	Ahn (2011), Knuttila (2011), Yang and Ng (2011), Kroski (2008), O’Reilly (2007), Boyd and Ellison (2007), Dwyer <i>et al.</i> (2008), Millen <i>et al.</i> (2007)
Video	Content distribution of videos, typically available for free to the public	YouTube	Cho (2013), Buigues-Garcia and Gimenez-Chornet (2012), Kroski (2008)
Wikis	Allow users to create and edit webpage content online. Hyperlinks and crosslinks connect between pages. Users are allowed and encouraged to edit wikis	Wiki	Buigues-Garcia and Gimenez-Chornet (2012), Lightle (2010), Samouelian (2009), Kroski (2008)

Digital collections do contain a lot of information, and not all of them may appeal to all users. A few cultural institutions have already begun to implement specific social media applications for certain areas and have adopted mission type statements. The New York Public Library began an organisation called NYPL Labs which took a broad “user-focused approach to [the] ever-evolving digital environment and [the] challenges it represents for service centric cultural institutions” (Taranto, 2009, p. 30). Likewise the California Digital Library (Calisphere) made the decision to implement a Twitter account as a communication tool after discussions with colleagues that Twitter offered avenues to new audiences (Starr, 2010). NYPL and Calisphere are both examples of potential ways to market or promote collections and services through social media. Khan and Bhatti (2012) conducted a study that explored how different types of social media applications can be utilised to market library services. Librarians and LIS school academics at two universities in Pakistan identified which social media applications were viewed as positive for the promotion of library services. Facebook, wikis, LinkedIn, blogs, and YouTube were all recommended. While this study only surveyed information professionals to gather popular opinions of social media, it does shed some light on how social media is viewed among other professionals. However, the user perspective is equally important when selecting social media applications for library service use.

The focus on the user is becoming more important, and more cultural institutions are already focusing and thinking of users in regard to other aspects of new programmes. In 2012 OCLC conducted a survey to learn more about users of archives and their social media use within the context of archival research. The findings indicated that e-mails and word of mouth were the main ways that archival researchers share information. Interestingly social media features such as tags, reviews, recommendations, and user comments were only viewed as useful by fewer than half of the respondents. OCLC's findings are echoed by Gu and Widén-Wulff's (2011) recommendation that librarians need to figure out a better way to integrate and communicate scholarly information to the user through social media. For example Taranto (2009) noted that library outreach programmes have been extended to digital activities, including digitisation and the integration of social media. However, other than offering guidance principles, no empirical data are provided in Taranto's study. From a museum perspective Charitonos *et al.* (2012) used a mixed methods approach to determine whether social and mobile technology would improve the visitor experience in school field trips. What is interesting about the study is that the museum curators specifically sought new ways to integrate social media use into the experience of the visitors. The study used descriptive numerical analysis, created a network map of tweets (microblogging) produced by students, and participant interviews concluded that microblogging increased interest for the students (Charitonos *et al.*, 2012).

Social media was created to enable the user to communicate and connect with others. The increased development of digital libraries has resulted in many institutions treating digital libraries as an extension of their institution. However, it is important for digital librarians to know their users in order to provide appropriate digital outreach services. As many cultural institutions have already implemented social media in other facets of services, it seems natural to begin to add social media to digital library interfaces. However, successful engagement in social media requires that, within the context of this study, a cultural institution follows a number of people as well as being followed by users. That is because social networks are only as strong as their network size and network quality (Sacks and Graves, 2012). Granovetter's theory

of the strength of weak ties predicts that social networks are only as strong as the communities behind them and information bridging across different networks will only extend as far as the strong ties between the individuals (Granovetter, 1973).

Social media has been established a stronghold in society for a number of years. Cultural institutions have implemented these applications in various services. Consequently social media applications are beginning to be incorporated into digital libraries. As social media continues to become further integrated into society, digital libraries, and other elements within cultural institutions will have to change in order to comply with user needs and expectations. The changes that will need to be made to ensure that digital librarians are engaging with their users in a suitable manner can only be properly made if it is known what changes did not work from the beginning.

Current research demonstrates that many cultural institutions are engaging in social media applications. Research on digital libraries and social media is at the very beginning of understanding the possible benefits and problems behind incorporating these applications into a digital library environment. There are many questions that need to be answered regarding the application of social media in digital libraries.

Research problem and research question

Social media research has primarily focused on their usage in cultural institutions. Very few studies have concentrated on social media application in digital libraries. This study attempts to assess how social media has been applied in selected digital libraries. In particular this study intends to answer the following research question and associated sub-questions.

What are the characteristics of social media applications in digital libraries? More specifically:

- What are the types of social media applied?
- Where are the different types of social media located?
- How often are different types of social media updated?
- What are the types of interactions that social media has created between librarians and users?
- What are the types of roles that social media has played?

Methodology

The objective of this study is to assess how social media are applied in digital libraries. In order to have a stratified sample, two institutions were selected from each of the following cultural institution types: public libraries, academic libraries, museums, and government and international organisations. The criteria for inclusion are as follows:

- (1) Each institution selected for this study had a digital library.
- (2) The institution had publications about its digital library development and/or use of social media and implementation process.
- (3) Each institution had to have at least one social media application installed before the study began.
- (4) Each institution's digital library had its own social media application outside of its parent institution.

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- (5) Each institution actively maintained and updated its social media applications. The social media applications are created and maintained by staff of the institution.

The social media selected for evaluation were social media tools that were implemented in at least three institutions. This study was conducted in 2012-2013. Table II presents the sample data.

In order to evaluate the use of social media in digital libraries, the authors collected data related to active social media applications in each institution. Based on the research questions, data collection and analysis focused on the following aspects:

- (1) Types refer to the types of active social media applied in the chosen digital library. All social media applications in the selected digital libraries were selected and analysed based on the definitions discussed in Introduction. The following types of social media were identified from the data set: blogs, Facebook, Flickr, Pinterest, podcasts, RSS feeds, social news web sites, Twitter, and YouTube.
- (2) Different names are used for social media in different institutions. Some social media applications have their unique names presented in the digital libraries, while others just use the generic names. If specific names were used, these specific names were identified and presented, such as NYPL Blogs, Jefferson's Blog, etc.
- (3) Icon placement refers to first where the icons for social media applications are located: institution homepage, digital library homepage, or the collection homepage, and second where the icons are placed: top left, top centre, top right, bottom left, bottom centre, and bottom right. Icon placement was studied to verify at what points during the search process users could have access to social media. Often social media icons are available on the homepage of the institution's digital library, but upon entry into the collection, the accessibility to social media diminishes, thus not allowing users the ability to share information via common social media tools. In addition it is also important to survey the most popular location of icon placement.
- (4) Update frequency refers to how frequently the social media applications are updated. The following update frequencies were identified from selected digital libraries: hourly, daily, weekly, monthly, and sporadic. The latter include posts that happen in succession followed by two or three months in between subsequent posts. In some of the digital libraries, frequency of posts is dependent upon the digital project or library. Posts can range from daily to monthly. For newly implemented social media applications, it is too early to assess frequency. Two further categories were: recent updates are maintained by users but not institutions, or that some updates are not entirely related to the digital library but to the entire institution.
- (5) Functionality refers to the functions through which social media allows librarians and users to interact with each other. A total of ten functions were available for them to choose from: check in, comment, friend, following, like, news feed, notifications, post, share, and tweet.
- (6) Role refers to the roles that social media play related to the management and promotion of digital libraries. The following roles played by social media emerged from the data: information, marketing/promotion/outreach, peer-to-peer connection, and information sharing. Definitions of the types of roles are discussed in the results section below.

Table II.
Sample data

Name of digital library	Name of institution	Type	Digital library web address
NYPL Digital Collections	New York Public Library	Public Library	http://digitalgallery.nypl.org/nypldigital/index.cfm
Denver Public Library Digital Collections	Denver Public Library	Public Library	http://digital.denverlibrary.org/
South Carolina State Library Digital Collections	South Carolina State Library	Academic Library	www.statelibrary.sc.gov/digital-collection
Calisphere	California Digital Library	Museum	http://calisphere.universityofcalifornia.edu/
Ringling Art Library	Ringling Art Library	Museum	http://ringlinglibrary.contentdm.oclc.org/
CW Digital Library	Colonial Williamsburg	National Government	http://research.history.org/DigitalLibrary.cfm
Smithsonian Digital Library	Smithsonian	National Government	http://library.si.edu/digital-library
National Archives Online Exhibits	National Archives and Records Administration	National Government	www.archives.gov/exhibits/
Toronto Public Library Digital Archive	Toronto Public Library	International	www.torontopubliclibrary.ca/digital-archive/
National Library of Scotland Licensed digital collections	National Library of Scotland	International	https://auth.nls.uk/ldc/

Two researchers coded the data independently. If there was disagreement on coding, researchers discussed them based on the definitions of the coding categories until agreement was reached.

Results

The results of this study reported the applications of social media to digital libraries regarding the following aspects: types of social media, placement of social media, updates of social media, types of interactions, and types of roles.

Types of social media

In the data set multiple types of social media applications were implemented in the selected digital libraries. Table III presents the distribution of social media applications in the ten selected digital libraries. Among them the most popular social media applications were Facebook and Twitter; all ten institutions used both. The second most popular application used was Flickr with nine institutions. The third most popular was blogs with eight institutions. RSS feeds and YouTube were fourth equal with seven institutions. Pinterest was fifth with six institutions, while podcasts came seventh with three institutions.

Out of all the cultural institutions selected for the study, very few had social media applications completely dedicated to the digital library. Blogs were the most specific social media application chosen for dedicated digital library postings. All of them selected blogs to convey digital library-related information. Flickr was another popular choice; nine institutions used Flickr, but only six of those institutions used Flickr as a way to promote their digital library exclusively. Other social media applications found on institutions' sites were Google +, Tumblr, and LinkedIn. As well as only being utilised by a few of the institutions selected for this study, none of those applications were directly being used for digital libraries. Consequently the applications were not included in the study.

There were eight institutions that employed blogs. Each one of the blogs has a specific name which alludes to the content of the blog. The Denver Public Library

	Blogs	Facebook	Flickr	Pinterest	Podcasts	RSS feeds	Twitter	YouTube
NYPL ^a	X	X	X	X		X	X	X
DPL	X	X	X				X	
RADL	X	X	X	X			X	
CW	X	X	X	X	X	X	X	X
TPL	X	X	X	X		X	X	X
NLS	X	X	X			X	X	X
SCSL		X	X	X		X	X	X
CDL		X					X	
Smithsonian	X	X	X		X	X	X	X
NARA ^a	X	X	X	X	X	X	X	X

Notes: ^aThere were multiple ways to share/save information via social media formats, but the institution did not actively maintain all of these sites; The institutions had ways for users to share/save the information posted in the digital library. However, the institution did not actively engage in maintaining their own social media sites; X, indicates the types of social media that are being used by each digital library

Table III.
Types of social media

Digital Library is the only institution to have a digital library specific blog entitled "Western History and Genealogy". All of the other institutions have subject areas as blog topics. Digital library-related posts are posted to the blog that most closely matches the subject of the collection added to the digital library. Depending on the institution, blog topics range from healthcare professionals, banned books, and local artists to historical topics of interest. The Smithsonian, Colonial Williamsburg, and NYPL blogs are categorised by subject topics. Within each one of the subject-specific blogs, appropriate digital library posts are made to the most closely aligned blog. For example at the NYPL a new digital collection about photographs of an old New York neighbourhood may be to the blog entitled, "How and Where People Live: Upcoming Programs at the Mid-Manhattan Library". At all of these institutions, users are encouraged to browse the blogs to find topics that interest them. Toronto Public Library has a wide selection of blog topics ranging from topical subjects to area-specific branch blogs. The branch blogs are blogs created by individual libraries within the Toronto Public Library system. Each library branch is encouraged to create blog posts that may interest their local users. TPL also has subject-specific blogs like other cultural institutions and blogs about specific collections, programmes, and services. For example topical blogs range from Arts & Culture to New to Canada, and branch blogs are available from 11 different branches.

Of course not all digital libraries have their own specific blogs; instead they share their institution blogs. The Ringling Museum Digital Library does not have a specific blog for the digital collections. Updates made on the blog are utilised by the entire Art Library, not just the digital collections. Likewise the National Library of Scotland does not have a specific blog for its digital collections. NLS blogs range from Bartholomew Archive blog, Family and Local History Resources, Medical History of British India blog, New to the Catalogue blog, Rare Books blog, Modern Scottish Collections blog, Rare Books blog, Modern Scottish Collections blog, and John Murray Archive blog to the Official Publications Unit blog. Each one of these blogs can post pertinent information regarding digital collections as it applies to the subject matter. For example, if a rare book was recently digitised, information would be posted to the Rare Books blog to inform users. NARA has a number of different blogs ranging in subject areas: archivist of the USA, The Carter Chronicle, The Federal Register Blog, FOIA Ombudsman, Media Matters, Narrations, National Declassification Center, Prologue: Pieces of History, Records Express, Rediscovering Black History, The Text Message, Transforming Classification, and Washboard the CIO blog. Again each one of NARA's blogs could potentially share information regarding the digital collection mixed with other information on the blog that corresponds to the subject matter.

Placement of social media

The placement of social media on the institution's web site influences the interactions between users and librarians or digital collections. Basic web design assumes that the more opportunities that are available for users to engage in different aspects of the web site, the better. In this case the opportunity is social media. As it is unknown when a user may have an opportunity to share information via social media, better web site design will provide social media icons throughout the site to allow interactions at any moment.

This study reviewed the placement of social media applications related to digital libraries. Table IV presents the placement of social media. Since the location of the

	NYPL	DPL	RADL	CW	TPL	NLS	SCSL	CDL	Smithsonian	NARA
Institution homepage	X	X	X	X	X	X	X	X	X	X
Digital library homepage		X	X		X	X	X	X	X	X
Collection homepage		X	X		X		X			
Top left										
Top centre										
Top right									X	
Bottom left							X			
Bottom centre										
Bottom right	X	X	X	X	X	X		X		X

Note: X, indicates the digital library location on the web site

Table IV.
Social media web
site placement

social media was not decided by type, and all the social media applications that the institutions use on their web sites are located in the same location, Table IV was created by presenting social media locations in the rows and the digital libraries in the columns. The locations identified for social media application placement were: the institution homepage, digital library homepage, and the collection homepage of the digital library. All of the institutions provide users with the means to share information at the institution level of the web site. However, at the institution level there is no direct linkage to the digital library's social media. Half of the institutions allow users the opportunity to share information via social media at the digital library's collection level: Denver Public Library Digital Library, Ringling Museum of Art Digital Library, Toronto Public Library, South Carolina State Library, and the Smithsonian. California Digital Library and the National Library of Scotland do not provide users with the means to share an item found at digital library collection levels, but do allow users to share at the digital library homepage level. NARA, Colonial Williamsburg, and the New York Public Library do not provide a direct way to share information at the digital collection level; instead sharing capabilities are provided in a number of other ways, for example through placements on the homepage of the digital library. In addition some social media applications allow users to share information through other social media applications. For instance Flickr allows users to share images posted via Twitter and Facebook.

As to the locations of social media icons within one page, it seems that bottom right is a common location the social media icons are placed except for SCSL which places its social media icons at bottom left of the page. Again some of the institutions place different social media icons at different locations. For example NYPL places blogs at top right and other types of social media icons at bottom right. Only Smithsonian Libraries' homepage offers social media applications at both the top right and left of the page. The top right offers some social media icons while the news feed on the left of the page offers updates regarding all the social media posts. For example the latest tweet, latest blog entry, and recently digitised collections are all frequently updated. The homepage for the Smithsonian Digital Libraries offers the same icons at the top right of the page.

Updates of social media

Overall the frequency of updates to the social media applications is complicated. Very few of the institutions have specific social media applications that are completely dedicated to the digital library. Some of the institutions such as the National Library

of Scotland and New York Public Library have a selected number of social media applications (e.g. blogs) that have posts dedicated strictly to the digital library while other applications such as YouTube cover the entire institution. None of the institutions involved in the survey have social media policies related to updating. However, the Toronto Public Library, Smithsonian, and National Archives and Records Administration did have policies posted to their respective Facebook pages and/or their web sites in regard to policies concerning comment conduct. Consequently verifying the frequency of updates about digital libraries in a social media application is tedious. Some institutions such as NARA and the Smithsonian have specific social media applications devoted to various topical subject areas. There is not necessarily a specific digital library topical area; instead the “digital material” is posted within relevant subject areas. In contrast the Denver Public Library is one of the institutions that have dedicated social media pages for its digital library.

Table V presents updates of social media by types of social media and Table VI presents updates of social media by institution. This study found that Twitter is updated hourly, and blogs tend to be updated less frequently, ranging from weekly to monthly. Facebook shows the most diverse updating information, ranging from hourly to sporadic. This study found that it is difficult to identify patterns of social media

Table V.
Updates of social
media by type
of social media

	Blog	Facebook	Flickr	Pinterest	Podcasts	RSS feeds	Twitter	YouTube
Hourly		X		X			X	
Daily	X	X	X	X	X	X	X	
Weekly	X	X	X			X		
Monthly	X	X						X
Sporadic	X	X	X	X			X	X
User-based updates only					X			
Updates not related solely to digital library	X	X	X		X	X	X	X

Note: X, indicates the frequency of the updates to each social media type

Table VI.
Updates of social
media by institution

Digital Library	Blog	Face-book	Flickr	Pinterest	Pod-casts	RSS feeds	Twitter	You-Tube
New York Public Library	D, W, M	H	S	H, D		D	H, D	S
Denver Public Library	W	D	W, M			W	D	
Ringling Art Digital Library	M	D	N	N			D	
Colonial Williamsburg					D			M
Toronto Public Library		H	D	D			H	S
National Library of Scotland	W	H/D	S			M	H, D	M
South Carolina State Library		D	N	D, W			H	S
California Digital Library: Calisphere		S					S	
Smithsonian						D		
National Archives and Records Administration			S					

Notes: D, daily; H, hourly; W, weekly; M, monthly; S, sporadically; N, new to social media format; X, indicate the type of interaction that the digital library takes part for each type of social media

application updates in institutions. The updates are sometimes sporadic, meaning there are posts that happen in succession followed by two or three months in between subsequent posts. This finding holds true for all of the applications, even the most popular (Facebook and Twitter). Frequency of posts is dependent upon the digital project or library.

The study also found that many institutions had recently added many of the social media applications at the time of the study; therefore frequency was too early to tell. Overall the social media applications that had the most current updates maintained by the institutions were Twitter followed closely by Facebook.

In addition some social media applications are left to the user group, and the institutions do not intend to maintain them. Many of the social media sites had recent updates but were maintained only by user groups or followers. RSS feeds, Flickr, and Pinterest were the three social media applications that institutions had made available to their users, but their staff were not actively engaged in the site.

Types of interactions

There are a number of tools that the digital librarian can use to interact with users via social media applications. Librarians and users have different types and levels of interactions with social media. In addition it is up to each cultural institution to decide how much and what kind of interactions take place on each social media application. Cultural institutions can decide whether or not to mediate the social media site or to allow users free rein on the site. Table VII breaks down the basic interactions with social media by social media type, whereas Table VIII describes the institutional and user interactions of social media. Among all the interaction types, comment and news feed can be applied in different types of social media applications while “check in”, “friend”, and “tweet” are more social media specific. A check in feature allows patrons to share with their friends or followers where they are and what they are doing. For example if a patron arrives at the library, the patron may decide to login to their Facebook account and check in. Within the context of the digital library, patrons may decide to check in to inform their friends or followers what digital library they are currently browsing and what collection they are currently looking at. Typically librarians and users can comment, like, add information to the news feed, notify (notifications), post, and tweet with users/librarians to engage in communication and interaction regarding news about the digital library. The levels of interactions

	Blog	Facebook	Flickr	Pinterest	RSS feeds	Twitter	YouTube
Check in		X				X	
Comment	X	X	X	X	X	X	X
Friend		X					
Follow	X		X	X	X	X	
Like	X	X	X	X	X		X
News feed	X	X	X	X	X	X	X
Notifications	X	X	X	X	X	X	
Post	X	X	X	X	X		
Share			X	X	X	X	X
Tweet						X	

Note: X, indicates the role that social media plays for each digital library

Table VII.
Interactions with
social media by social
media type

Table VIII.
Institutional and user
interaction with
social media

	Blog	Facebook	Flickr	Pinterest	Podcasts	RSS feeds	Twitter	YouTube
NYPL	C, P, S	C, L, NF, N, P, S	C, P	C, FO, S		NF, S	FO, T	C, S
DPL	C, P, S	C, L, NF, N, P, S	C, P					
RMDL	C, P, S	C, L, NF, N, P, S	C, P	C, FO, S			FO, T	
CW	C, P, S	C, L, NF, N, P, S		C, FO, S	NF, S	NF, S	FO, T	C, S
TPL	C, P, S	C, L, NF, N, P, S	C, P	C, FO, S		NF, S	FO, T	C, S
NLS	C, P, S	C, L, NF, N, P, S	C, P			NF, S	FO, T	C, S
SCSL		C, L, NF, N, P, S	C, P	C, FO, S		NF, S	FO, T	C, S
CDL		C, L, NF, N, P, S					FO, T	
Smithsonian	C, P, S	C, L, NF, N, P, S	C, P	C, FO, S	NF, S	NF, S	FO, T	C, S
NARA	C, P, S	C, L, NF, N, P, S	C, P	C, FO, S	NF, S	NF, S	FO, T	C, S

Notes: CI, check in; C, comment; F, friend; FO, following; L, like; NF, news feed; N, notifications; P, post; S, share

between digital librarians and users can be classified as very strong, strong, or weak connections.

Some of the institutions created very strong connections between digital librarians and users. A very strong connection would be one in which on at least a daily basis interaction is taking place: for example a digital librarian makes a post to Facebook regarding a new addition to a digital collection. The interaction that follows that first post should also be continuous, so if a user posts a subsequent question about the collection, the digital librarian should respond in a timely fashion. For example RMDL digital librarians interact with users through the following features: comments, following, like, news feed, notifications, posts, and tweets. What is interesting about RMDL is their use of Pinterest; not only do librarians “pin” new material to the museum’s board, but they also follow a number of other users on Pinterest. Thus the interactions create a very interactive space. RMDL also interacts with their users through Flickr, often by posting images and asking users to make comments or guess what is going on in the photograph and even tagging people they may know. TPL follows its users on Twitter and Pinterest. Like RMDL TPL interacts with users through Flickr to encourage online discussion of images. The California Digital Library Calisphere (CDL) encompasses a number of interactive tools through Facebook and Twitter applications, and on Twitter CDL is following 1,081 users and has 999 followers. CDL follows slightly more users than it has users who follow it; it is important to take note of the number of users or followers that the institution is making connections and interacting with. A common misperception that is associated with social media is that one simply needs to post and post often. However, social media is not just simple promotion. It is a two-way street of communication practices. It is the context of the message that is important; users should want to respond to what librarians post and librarians should respond to their users. The point of social media is to engage and facilitate connection. The significance of CDL following more users than follow it, is that CDL is striving to build their user community by engaging with those who may find the information they are posting interesting. Once an institution builds a profile through social media, it is the users who view that institution as an interacting entity. Therefore the institution needs to build a profile that demonstrates “likes” and interests to which users can relate.

Some institutions have a strong connection between digital librarians and users. For example NYPL does not have dedicated digital library social media posts;

significant stories relating to the digital library are shared through the social media applications that the library has chosen to use. As a result there are few ways for the librarian to post relevant information about the digital library. However, updates are made frequently to the social media applications, from hourly to daily. NYPL uses many social media communication tools, except check in features, though this feature is more on the user end of the interaction, except in instances where check in features are used for promotional features. Librarians also “follow” their users on Twitter, but the lack of specific posts about the digital library does make it difficult to follow specific updates as a whole.

The Denver Public Library also has a strong connection with their user community. Librarians interact with users through Facebook, Twitter, a news blog, and Flickr. The level of interaction involves librarians commenting on users’ posts, e.g. notifying users of new information, and exchanging tweets with users. Librarians also “follow” their users on Twitter. DPL does not use the check in feature, nor does it host social media applications that use that feature. Updates are made frequently to different social media applications from daily to monthly, depending upon the application being utilised.

Of course not all institutions build a strong connection between librarians and users. Some of them demonstrate a weak connection, which is defined as only one-way communication instead of two-way communication. The National Library of Scotland has a number of ways that the librarians can interact with users: comments, following, likes, news feeds, notifications, posts, and tweets. However, much of the interaction is one sided with users. This means that NLS posts information regarding the library, digital library, etc., and users post comments or “like” the information on the page, but there is very little interaction that goes on after this point between the user and librarian. There is not a two-way street of active interactions. For example on Twitter NLS has 5,640 followers but is only following 523.

Overall user interaction is similar to interactions that are led by librarians. Two levels of interactions with social media by users are visible within the social media applications. Both strong and weak interactions were observed in this study. There are variations within these two categories: strong user interactions and weak user interactions.

In instances where librarians do not encourage strong connections or interactions amongst the user groups, users build relationships and facilitate interactions amongst themselves. Some users form large user groups that support themselves without the “help” of interacting with a librarian. These interactions would be considered very strong. NARA is one of these cases. NARA participates in a number of different social media applications and posts or tweets a substantial amount of new information about the institution and its varying collections. Once the information is posted, there is little interaction from the institution regarding that initial post, but users are able to connect and interact with one another. The Smithsonian is another example of strong connections among the users themselves. The Smithsonian has divided various aspects of the institution into different topical areas and created social media application profiles around each topic. This allows users to find the interest groups and follow the posts as they wish. Like NARA there is little posting by the institution about a single post after the initial post takes place. Even though there are strong connections among users, there is a lack of interaction between librarians and users.

There are also other types of strong interactions that take place in instances where the users are equally as involved as the librarians. Calisphere is a good example

of what would be considered strong interactions on both sides for the user and librarian. Calisphere makes posts to Facebook typically every few days and when these posts are made, interactions amongst the user group and between the users and the librarian were observed. For example, if a user made a comment on a particular image posted, the librarian would make a connection to that user, and an interaction would take place.

Weak user interactions were also observed. In these cases digital librarians may be observed as building the foundation to create a strong interaction setting, but the users are just not interacting on a daily basis. It was observed that the Ringling Art Library closed their Facebook and Pinterest page and merged with the main Ringling Museum Facebook page. The Ringling Art Library made note of the lack of followers on Facebook in their Twitter account, by noting that all of the library posts would now be made through the main museum’s Facebook page and that they would be deactivating the individual Art Library Facebook page. However, the Ringling Art Library has maintained their blog, Flickr, and Twitter accounts. The library posts frequent information and the Ringling Art Library follows more users than there are users who are currently following them; this observation may be an indicator that the institution needs to promote more of their social media applications or more posts need to be added before users begin to take notice.

Types of roles of social media

Social media applications can play a number of roles within a cultural institution. This study specifically analysed how institutions were using social media applications in relation to their digital libraries. Providing information, marketing/promotion, peer-to-peer connections, and information sharing, are all different functions of social media related to digital libraries. Table IX illustrates the roles played by social media applications by each social media type while Table X presents different types of roles that social media applications play by each institution.

Social media applications can provide different functionalities that manage, promote, and communicate with users. Some applications can play more roles than others. For example blogs can provide information sharing, peer-to-peer connections, and marketing and promotion. Conversely Pinterest provides peer-to-peer connection opportunities, but would not serve as the best social media application to promote a new digital collection. This is not to say that an institution should not announce a new digital collection by creating a new board for users to re-pin and follow, but other social media applications may be more efficient channels.

Informative (information) posts can be made through any type of social media application. However, there are applications that are more appropriate for informative

Table IX.
Roles of social
media applications

	Information	Information sharing	Marketing/promotion	Peer-to-peer connection
Blog		X	X	X
Facebook	X	X	X	X
Flickr		X	X	X
Pinterest				X
RSS feeds	X	X	X	X
Twitter	X	X	X	X
YouTube		X	X	X

	Blog	Facebook	Flickr	Pinterest	Podcasts	RSS feeds	Twitter	YouTube
NYPL	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP	PP		I, IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP
DPL	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP				I, IS, M/P, PP	
RADL	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP	PP			I, IS, M/P, PP	
CW	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP	PP	IS, M/P, PP	I, IS, M/P, PP	I, IS, M/P, PP	M/P, PP
TPL	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP	PP		I, IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP
NLS	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP	PP		I, IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP
SCSL		I, IS, M/P, PP	IS, M/P, PP	PP		I, IS, M/P, PP	I, IS, M/P, PP	M/P, PP
CDL		I, IS, M/P, PP					I, IS, M/P, PP	
Smithsonian	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP		IS, M/P, PP	I, IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP
NARA	IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP	PP	IS, M/P, PP	I, IS, M/P, PP	I, IS, M/P, PP	IS, M/P, PP

Notes: I, information; IS, information sharing; M/P, marketing/promotion; PP, peer-to-peer connection

Table X.
Institutional roles
of social media

material. For example, if the library were closing early due to inclement weather, digital library maintenance, power outage, etc., a post of this nature would be best disseminated through a social media source that works well with frequent updates that may appear in a user's news feed, such as Facebook, Twitter, or RSS feeds. All institutions use social media to convey important or instant information related to their library or digital library activities or status.

Marketing/promotion for digital library promotions were indicated in all social media applications but were intermingled with other postings regarding the entire institution. Marketing/promotion posts were made with regard to developmental status or upcoming events at the institution and its digital library, for example if new items were added to the collection. The Denver Public Library, which has dedicated social media for their digital library, was able to communicate announcements about their digital collections very clearly. Thus one could conclude that this method would serve as a more measurable marketing tool. In order to discover more about a specific image or aim at sparking a group discussion about a specific subject area, some institutions will actively engage their user group on Flickr. This function allows institutions to resolve issues, for instance promoting a "mystery image" on Flickr and asking users to post what they think or know about the image. Furthermore the institution could potentially be able to identify which collections the users found more interesting. It also offers an opportunity for digital librarians to engage actively with the user group, thus creating a new level of outreach.

Outreach is another important aspect of marketing and promotion. Social media applications that allow for fast updates seem to be the best way for digital librarians to reach their user groups and expand outreach. For example Facebook allows administrators to post information about their institution. After each post is made, if a user has "friended" that institution, the post will appear in the user's news feed, thus making it possible for the digital library to appear accessible to the user on an hourly, daily, or weekly basis. Institutions that post more frequently are more likely to have more successful outreach and interactions taking place.

Peer-to-peer connections are enabled through all of the social media applications reviewed in this study. Depending on the needs of the cultural institution and its digital library, any one type of social media could work, though the two most popular means of peer-to-peer connections were Facebook and Twitter. In this instance communication is a huge factor in peer-to-peer connections. Communication was noted in instances where the librarian/institution was directly responding to the user via the social media site. Each application allows users the potential to involve themselves with various aspects of the digital collections and meet other users who share similar interests. Larger institutions are managing these connections by creating specific subject areas; this allows users to find their interests much more quickly. One aspect of establishing peer-to-peer connections is the location of social media in relation to the digital collection. A user is much more likely to "share" an image that the user feels a connection to if social media is accessible at the item level of the collection.

Information sharing was an observed tactic of institutions that employed social media in digital libraries. Within the context of this study, information sharing was defined as institutions sharing and linking their digital collections with other digital or physical collections within the confines of social media. For example, when an institution adds a new digital collection to their home web site, the institution will not only add a link to the digital collection but also associate the digital collection

with other related digital collections or physical collections via social media. In a sense posting digital collections to Facebook is similar to posting digital collections to the institution's web site. Information sharing is closely connected to marketing/promotion; however, the difference is that information sharing serves as more than another platform for institutions to share their digital collections. Moreover it also organises and makes associations of knowledge within the institution. Within the context of this study, we observed institutions using blogs, Facebook, Twitter, Flickr, RSS feeds, and YouTube as means to inform users about their information sharing.

Discussion

The authors tried to select a sample that represents different digital libraries sponsored in different types of cultural institutions. The main objective of the study is to survey the current status of social media applications in digital libraries, not to compare social media applications across digital libraries. The findings of this study highlight the characteristics of social media applications in digital libraries. Simultaneously the results also show several problems of social media applications in digital libraries. First there is a lack of standards in terms of how digital librarians are posting information via social media applications. Social media applications are not consistently located at different levels of the site. Generally much of the information posted is loosely oriented with the purpose of promoting the digital library or making connections. However, there are inconsistencies amongst many posts when evaluated across organisations. Additional evidence is found from Samouelian (2009), who conducted an exploratory study and discovered in interviewing archivists who had implemented social media at their archive that little to no planning was done prior to implementation, although the repositories did receive initial positive feedback from users. In order to reach both the users and potential users of digital libraries, it is important to use social media consistently at all levels of the site including the institution site, library site, digital library site, as well as the digital collection site, so users can receive, follow, and comment on the information at any page of the institution.

At the same time the importance of identity cannot be overestimated in an online setting. In the case of digital libraries the sense of identity is even more important because they do not occupy a physical space. One of the criteria for selecting digital libraries to be a part of this study was that each digital library has its own social media application outside of its parent institution, meaning that if a digital library was within an academic library, the digital library must have its own Facebook page separate from that of the library. However, there are social media posts that cross-linked institutions, for example a digital library that is part of a larger institution such as an academic library and frequently posts information on their social media site regarding the academic library's activities, in addition to the digital library's activities. This could possibly be confusing to users and pose potential problems when creating an online identity. Just as in social settings, people behave differently when with different groups. In a sense it is the same online. The integration of social media into a number of different avenues in our lives makes the implementation of social media in cultural institutions seem almost natural due to its popularity. The user decided to "follow" or "like" the digital library site to see information about the digital library, not the parent institution. In that sense it is a good idea for the library site to post information related to the digital library, rather than vice versa unless they are associated with each other.

Second it is still a challenge to create a two-way communication channel between digital librarians and users. Social media has become so natural and integrated into society, it is sometimes difficult to take a step back and fully evaluate the information being made available to users. It is important to remember that social media interactions can help users or consumers discover new information. Magngold and Faulds (2009, p. 359) found that one should not underestimate the power of today's users, and "consumers' ability to communicate with one another limits the control companies have over the content and dissemination of information". Taking advantage of how your users are already using social media makes the transition even swifter for an organisation. In addition evaluation of not only what institutions are posting but what users are indicating through their posts (or lack of posts) can provide strong evidence of users' expectations and needs. The findings of this study show that many institutions still have difficulty facilitating a two-way communication channel. While digital librarians actively engage in applying social media to connect users, users do not follow them or actively participate in the interactions. Informing and educating users with a variety of social media applications is the first step. Providing workshops about how to use different types of social media applications is a big help. Offering incentives for users to engage in interactions is an effective approach to attract users. Of course responding to users' postings is the best advertisement for the promotion of users' use of social media in digital libraries.

Third, even though social media has played important roles in informing users of digital libraries, there is still an important role that is missing: education. Currently few institutions have applied social media to educate their users. Social media can be used to give users an overview of a digital library, teach them how to use digital libraries, introduce different features of digital libraries, and recommend different digital libraries based on subjects, formats, and other criteria. In discussions of museums' incorporation of social media, it is seen as a tool for informal learning and has the potential to encourage participation (Russo *et al.*, 2009). Social media has become the main avenue of societal interactions and expectations. For example Facebook is a social network that had a large user base of over one billion users as of September 2012 (Fowler, 2012). With this level of activity, incorporating education on digital libraries and social media is a necessary transition, especially as students' reliance on social media is even higher: it is estimated that 73 per cent of teens use social networking sites (Lenhart *et al.* (2010).

Conclusion

There is no "one size fits all" when it comes to social media and cultural institutions. The findings of this study identify the characteristics of social media application in digital libraries including the types, placement, update frequency, interactions, and roles of social media. The results, on the one hand, help researchers and practitioners understand the usage of social media in the digital library context, while on the other hand, also identifying the problems in applying social media in digital libraries related to a lack of standards, lack of two-way interactions between digital librarians and users, and a lack of education functions. Offering social media applications at different levels of sites, offering incentives to engage users and different types of education functions are the possible solutions to overcome these problems.

This study focuses on the exploration of social media applications in digital libraries. There are limitations of this study, many of which can be further resolved by conducting more research. For instance further research needs to expand the selection

of institutions and digital libraries to have broader representation in the sample, in particular of institutions that are outside of North America and Europe. It is also important to perform in-depth content analysis of the social media to identify patterns of social media usage and different functions that social media serves. Moreover the authors will compare specific social media tools, such as Twitter, Facebook, etc., across institutions. It is important to survey or interview digital librarians in different types of cultural institutions in order to explore why certain social media tools are implemented in digital libraries. In addition users can be interviewed to solicit their perspectives about their usage of social media in digital libraries.

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Marketing academic library information services using social media

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Abstract

Purpose – The purpose of this paper is to examine the use of social media in the marketing of academic library resources and services in Kuwait and identifies the factors related to the use of social media applications in marketing academic libraries.

Design/methodology/approach – A quantitative data-collection approach using a paper and online questionnaire has been employed to elicit the opinions of librarians working in academic libraries in Kuwait in both private and public institutions. In total, 89 valid questionnaires have been analyzed using descriptive (frequencies, percentages, means and standard deviations) and inferential statistics (factor analysis, correlations, experimental analysis and regression).

Findings – The study shows that the academic librarians have a positive perception toward the use of social media. The identified factors relating to the use of social media for marketing library information resources and services are the usefulness of social media tools in raising awareness and in providing needs analysis and satisfaction assessments. However, management support for the use of social media for library marketing is poor.

Practical implications – This study provides insights into the factors related to the use of modern social media platforms to promote information resources and services at academic libraries to provide outreach services to current and potential users.

Originality/value – This research contributes to the field of information studies as it highlights the importance of using social media platforms in marketing academic library information resources and services. Library administrators could use the results to develop social media marketing plans to effectively promote their library resources.

Keywords Social media, Kuwait, Academic libraries

Paper type Research paper

1. Introduction

New technologies have allowed libraries to adopt online marketing strategies to promote their resources and services (Siddike *et al.*, 2015) to as many users as possible (Garoufallou, Siatri, Zafeiriou and Balampanidou, 2013). In particular, social media, defined as “a group of Internet-based applications that allow for the creation and exchange of user-generated content” (Kaplan and Haenlein, 2010, p. 62), has enabled people to interact and share information online (Xu *et al.*, 2015). With the rise of social media in the last decade, many libraries have included social media applications as primary marketing and communication tools to engage with the user community (Luo *et al.*, 2013; Kho, 2011; Garoufallou, Zafeiriou, Siatri and Balapanidou, 2013; Jahan and Ahmed, 2012), as social media offers real-time channels for communication, information sharing and interactive dialogue at any time on any portable mobile device (Palmer, 2014; Xu *et al.*, 2015).

ICT penetration and use in Kuwait is high, with social network use as high as 90 percent for Kuwaitis aged 15–44 years old. Social media in Kuwait has been found to be mainly used for news and information (94 percent) with female use (91.2 percent) and male use (89.4 percent) being relatively similar (The Central Agency for Information Technology, 2016). Therefore, given the depth of social media penetration in Kuwait, it is expected that this would have an effect on the use of social media in higher academic institutions.

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Unfortunately, academic libraries in Kuwait have lacked the initiative to adopt social media applications, even though the higher education institutions the libraries belong to generally have good technological infrastructure (Al-Daihani, 2009; Al-Daihani and AlAwadhi, 2015). Therefore, this exploratory study examined the factors related to the use of social media applications in academic libraries to market their resources and services. It was expected that the results of this study could assist academic libraries develop strategies for using social media tools to promote their resources and services, publicize news and events and increase their visibility, outreach and customer engagement.

2. Literature review

Marketing has become vital to the viability of public and non-profit organizations (Kotler and Levy, 1969). Over the past three decades, libraries have embraced marketing to improve library services and create stronger contacts with the user community (Garoufallou, Siatiri, Zafeiriou and Balampanidou, 2013; Garoufallou, Zafeiriou, Siatiri and Balapanidou, 2013; Siddike *et al.*, 2015) so as to increase library use, enhance the value and image of the library, provide user education, and change user perceptions (Al-Daihani and AlAwadhi, 2015). Library 2.0, which is a model for modern library services that focuses on user-centered change and participation, has significantly changed the types of interactions between libraries and their users (Ghuloum and Buabbas, 2016). Further, as technological developments have led to the increased use of internet services, academic libraries have begun to embrace social media to better engage with various community groups outside the physical library walls to ensure that resources and services are more accessible and user friendly (Harrison *et al.*, 2017). Xie and Stevenson (2014) investigated the use of social media in the digital libraries of ten cultural institutions and found that Facebook and Twitter were the most popular social media applications, and that social media was important within the institutions for providing information, marketing and promotions, connecting with users and sharing information.

Yi *et al.* (2013) examined the marketing activities in Australian academic libraries and found that classroom instruction and advertisements were the most effective marketing techniques, followed by one-to-one conversations and training sessions, the library website and social media. It was also found that webcasts, website announcements, workshops and social media tools were most effective in promoting the library's services and resources, while Facebook advertisements, blogs, e-mail, newsletters and Twitter were the most effective Web 2.0 tools for marketing library resources and services. Age and education were found to be correlated with the marketing of library services and resources, with older librarians and those with higher levels of education perceiving social media tools to be the most effective marketing tools.

Ramsey and Vecchione (2014) experimented with the use of new social media tools at the Albertson Library at Boise State University by collaborating with units outside the library. It was found that the use of social media networks in the library promoted engagement, creativity and collaboration. Given that these networks were mainly used for user interactions, it was easier for library staff to understand the users' needs. Twitter was also found to be an effective interactive tool as library tweets were shared and "liked" by users. The collaborative outreach with other university departments assisted the library in gaining a broader picture of specific user needs. However, fear regarding the type of information that might be posted on these social media networks was found to be one of the barriers.

Luo *et al.* (2013) presented a successful case study on an online video marketing project at an academic library in China, and found that social media tools could be effectively employed in libraries to share content, engage with target users and partner with students. Chatten and Roughley (2016) confirmed that using social media in academic libraries increased the engagement with users and assisted in the creation of a community of users. Similarly, Xu *et al.* (2015) explored the use of WeChat, a social media application, by 39 academic libraries in China and found that the main WeChat uses were answering

questions, interacting with users, sharing information and publicizing the library collections, services, events and news. The study stressed that the marketing information should be interesting, appropriate and based on users' needs, and concluded that identifying user needs using social media could assist academic libraries develop focused marketing plans for their services (Stvilia and Gibradze, 2017).

Siddike *et al.* (2015) investigated the perceptions of academic librarians toward the use of word-of-mouth (WOM) through social networking sites in marketing library services, and found that librarians had positive perceptions about the use of WOM as a marketing tool to promote library services, create awareness and build relationships with customers through social networking sites, and Facebook in particular. Twitter has been found to be the most popular social media platform for library marketing and engagement (Yi *et al.*, 2013; Ramsey and Vecchione, 2014; Stvilia and Gibradze, 2014; Xie and Stevenson, 2014; Al-Daihani and AlAwadhi, 2015). Stvilia and Gibradze (2014) confirmed that most academic library tweets were related to building and maintaining connections with library users and informing library users about news, events, workshops, exhibitions and facilities and to promote the library collections and services.

However, there were several factors found that could affect the adoption of social media for marketing library resources and services. For example, Mahesh (2002) identified several factors that hindered libraries and information centers from using social media for their marketing activities, such as the lack of a needs assessment to identify user requirements, a focus on collection and resource development, the lack of marketing skills in library staff and a lack of management support and encouragement for library marketing activities. Likewise, Al-Kharousi *et al.* (2016) identified both internal and external factors that affected the use of Web 2.0 applications in Omani academic libraries. The internal factors were related to low motivation, a lack of training and constant management changes, while the external factors were related to a lack of policy and regulations and poor internet speeds.

Another influencing factor was usefulness. Khan and Bhatti (2012) investigated the attitudes of academics and librarians toward the usefulness of social media for marketing library services and found that most respondents had a positive attitude. However, many respondents also indicated that there were problems that could hinder the application of social media in marketing the library information resources and services, such as a lack of marketing knowledge, inadequate training and technical issues. In a study exploring the use of Twitter in academic libraries, Al-Daihani and AlAwadhi (2015) analyzed a sample of tweets posted by 18 academic libraries, and found that Twitter was widely used for announcing library activities, interacting with users and sharing information.

This literature review has highlighted a number of factors related to the use of social media for marketing information resources, including user outreach, interacting with users, information sharing, creating awareness, needs analyses and satisfaction assessments. Other identified factors were the need for administrative support, adequate employee training and technical issues.

3. Research constructs and objectives

Based on the literature review, the following constructs were identified as being significantly correlated with the use of social media to market academic library information resources and services:

- The usefulness of social media tools in announcing activities, interacting with users, and sharing information (Xie and Stevenson, 2014; Luo *et al.*, 2013; Al-Daihani and Alawadhi, 2015; Siddike *et al.*, 2015; Khan and Bhatti, 2012; Ramsey and Vecchione, 2014; Stvilia and Gibradze, 2014).

- Using social media as an awareness tool to provide information about library events, activities and new arrivals for users and non-users (Ramsey and Vecchione, 2014; Xu *et al.*, 2015; Siddike *et al.*, 2015).
- Using social media as a needs analysis tool to evaluate information services and spaces, identify user needs and enhance communications to satisfy user needs (Luo *et al.*, 2013; Ramsey and Vecchione, 2014; Siddike *et al.*, 2015).
- Using social media as a satisfaction assessment tool to assess user satisfaction, identify the users' changing needs and receive service feedback (Mahesh, 2002; Khan and Bhatti, 2012).
- Management support (Mahesh, 2002; Khan and Bhatti, 2012) has also been identified as a critical factor for the use of social media applications when marketing information resources and services. Management support was related to the provision of adequate funding to support the development of library social media marketing programs, and librarian training activities.

This study also examined the demographic and professional characteristics of participants in terms of gender, age, academic qualifications, position and work experience, and type of academic library and the effect of these characteristics on the adoption of social media applications.

The following research objectives were developed from the identified constructs:

- (1) to investigate the use of social media applications in marketing information resources and services in academic libraries;
- (2) to identify the factors that have positive relationships with the use of social media to market academic library services and user interactions;
- (3) to determine whether certain personal and professional librarian characteristics are correlated with the factors related to the use of social media tools in marketing information resources and services in academic libraries; and
- (4) to explore the role of management support in the adoption of social media applications for marketing academic library information resources and services.

4. Methodology

This exploratory study sought to develop an understanding of how academic libraries can effectively market their information sources and services on social media platforms.

4.1 Survey instrument

A quantitative data-collection method using a questionnaire to address the research objectives and reflect the identified constructs was employed. The survey tool had three sections: the first section collected demographic and professional information about the respondents; the second section probed the respondents' use of social media in academic libraries and their preferred social media tools; and the third section asked respondents to give their opinions about the identified constructs; the usefulness of social media tools for awareness raising, needs analysis and satisfaction assessments; and the need for management support when adopting social media applications; on a Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree."

As the questionnaire was designed in English and the study was carried out in Kuwait, it was necessary to translate the questionnaire into Arabic. Therefore, a panel made up of two faculty members from the Information Studies Department and two senior academic

librarians at Kuwait University revised the survey to ensure its validity and reliability and suggested some corrections.

4.2 Data collection

Paper and online questionnaires in Arabic and English were sent to librarians working in academic libraries in Kuwait in both private and public institutions to assess the use of social media tools in marketing library information resources and services in the two months from January to March 2016. In total, 96 questionnaires were returned in paper and electronic forms, and after incomplete questionnaires were excluded, there were 89 valid questionnaires available for analysis.

5. Results

5.1 Sample demographic characteristics

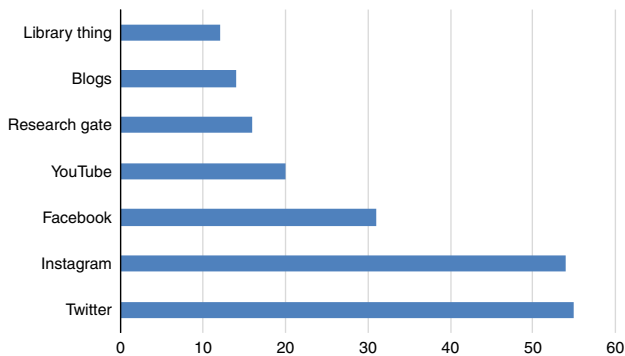
The sample was 33.7 percent males and 66.3 percent females, most respondents (78.6 percent) were aged 30 and above, and 79.8 percent had undergraduate degrees or above. Most respondents (60.6 percent) had more than 11 years of work experience, and 83.1 percent worked in public academic institutions, as shown in Table I.

5.2 Use of social media applications in libraries

It was found that a majority (72.3 percent) of respondents did not use social media applications in their libraries. However, if they were to use social media in the future, Twitter was identified as the most preferred (64.7 percent), followed by Instagram (63.5 percent), Facebook (36.5 percent), YouTube (23 percent), Research gate (18 percent), Blogs (16.5 percent) and Librarything (14 percent), as shown in Figure 1.

Demographics	Frequency	Percent
<i>Gender</i>		
Male	30	33.7
Female	59	66.3
<i>Age</i>		
20 – 25	5	5.6
26 – 30	13	14.6
31 – 35	19	21.3
36 – 40	12	13.5
≥ 40	39	43.8
<i>Education</i>		
High School	2	2.3
Diploma	7	8.0
Undergraduate degree	54	61.4
Graduate degree	25	28.4
<i>Experience</i>		
less than 2 years	3	3.4
2 – 5 years	12	13.5
6 – 10 years	18	20.2
11 – 15 years	19	21.3
≥ 15 years	35	39.3
<i>University type</i>		
Public	74	83.1
Private	10	11.2

Table I.
Demographic
characteristics of the
research sample

Figure 1.
Preferred social
media applications

5.3 Factor analysis

Exploratory factor analyses were employed for the validity and reliability of the research construct items (Table II). All constructs were found to have a high reliability with a Cronbach's α coefficient of 88.3, with a majority of the factor loadings being greater than 50 for all items, and most averages for both the constructs and instruments being greater than three- on a five-item Likert scale, suggesting that there was an acceptable level of consistency between the items.

5.4 Research construct correlations

As shown in Table III, there were strong positive correlations between the perceived usefulness of social media tools for marketing information resources and services and the

Constructs	Explained variance (%)	Reliability (%)	Factor loadings	Mean	Sig.
Usefulness	80.92	92		4.30	0.000
Q1: social media is important to market library activities			0.899	4.28	0.000
Q2: it encourages users to use library services			0.928	4.32	0.000
Q3: it helps in sharing information with users			0.877	4.34	0.000
Q4: it helps in interacting effectively with users			0.893	4.30	0.000
Awareness	80.08	86.6		4.24	0.000
Q5: it helps in providing users with information about new arrivals in libraries			0.922	4.36	0.000
Q6: it helps in informing users about library events			0.897	4.38	0.000
Q7: it encourages non-users to benefit from the library services			0.865	3.99	0.000
Needs analysis	76.66	89.6		3.92	0.000
Q8: social media helps librarians identify the needs of library users			0.879	3.84	0.000
Q9: it enhances librarian–user communication to satisfy users' needs			0.853	4.06	0.000
Q10: it helps in the evaluation of library information services			0.922	4.00	0.000
Q11: it helps in the evaluation of library spaces such as the studying and seating areas			0.847	3.80	0.000
Satisfaction	76.04	84.2		4.13	0.000
Q12: it helps in assessing the extent to which users are satisfied with library services			0.900	4.13	0.000
Q13: it helps the library keep up with the changing information needs of users			0.869	4.01	0.000
Q14: through social media, it is easy to get user feedback			0.847	4.28	0.000

Table II.
Exploratory
factor analysis:
factor loadings,
explained variance,
reliability coefficients
and research
construct means

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awareness ($r = 0.79$, $p\text{-value} = 0.000$), needs analysis ($r = 0.662$, $p\text{-value} = 0.000$) and user satisfaction ($r = 0.544$, $p\text{-value} = 0.000$) offered by such tools. Social media as a needs analysis tool was also found to be correlated with satisfaction ($r = 0.80$, $p\text{-value} = 0.000$), and social media as an awareness tool was found to be correlated with needs analysis ($r = 0.687$, $p\text{-value} = 0.000$) and satisfaction ($r = 0.593$, $p\text{-value} = 0.000$).

234

5.5 Management support

The management support construct had a high reliability of 88.3, with the Cronbach's α coefficient and validity explaining 81.3 percent of the variance. However, management support was negatively perceived at an average of only 2.3 on the five-item Likert scale ($SD = 1.131$). Library management was seen to have a negative approach to the use of social media applications for marketing the library services and resources ($M = 2.14$, $SD = 1.275$). Respondents also felt that library management did not encourage them to attend training activities on the use of social media tools ($M = 2.47$, $SD = 1.278$), and there was also a negative perception regarding management's allocation of an adequate budget for social media marketing ($M = 2.14$, $SD = 1.187$) (Table IV).

5.6 Effect of demographics on the research constructs

This study also investigated the effects of the respondents' demographic characteristics on the research constructs. Several non-parametric tests were run against gender, age group, education, years of work experience, position and type of academic library. As shown in Table V, few significant relationships were found between the demographic characteristics and the research constructs. A significant relationship, however, was found between gender and the usefulness of social media tools ($p\text{-value} = 0.01$), awareness ($p\text{-value} = 0.018$) and needs analysis ($p\text{-value} = 0.022$). A significant relationship was also found between the type of the academic library (public or private institution) and the value of social media for needs analyses ($p\text{-value} = 0.028$).

5.7 Logistic regression analysis

A logistic regression analysis was conducted to identify the main predictors for the use of social media for marketing library information and services (usefulness, awareness, needs

Table III.
Correlation between
research constructs

	Usefulness	Awareness	Needs analysis	Satisfaction
Usefulness	1.0			
Awareness ($p\text{-value}$)	0.790** (0.000)	1.0		
Needs analysis ($p\text{-value}$)	0.662** (0.000)	0.687** (0.000)	1.0	
Satisfaction ($p\text{-value}$)	0.544** (0.000)	0.593** (0.000)	0.800** (0.000)	1.0

Note: **Correlation is significant at 0.01

Table IV.
Mean and standard
deviation for
management support

Management support	Mean	SD	Sig.
The library administration has a marketing program for library services through social media applications	2.33	1.289	0.000
The library administration encourages librarians to attend training activities to learn to use social media applications	2.46	1.291	0.000
The administration allocates an adequate budget for marketing library services over social media applications	2.14	1.191	0.000

analysis, satisfaction and management support) and their mutual interactions. This was a data analysis method for discriminating two binary groups to estimate the probability that an individual was in a particular group. The effects of the explanatory variables on the binary outcome were estimated and interpreted using the logistic regression method. This allowed for the identification of the explanatory variables that significantly contributed to the probability of a person obtaining a binary outcome (Albright *et al.*, 2004). Table VI shows that the model predicted 80.8 percent of the classified cases correctly regarding the use of social media for marketing information. The results in Table VII indicate that the usefulness of social media tools, the needs analysis and the satisfaction offered by such tools were significant predictors for the use of social media in marketing library information resources and services. However, awareness as a single variable did not show any significant predictions. However, the interactions between awareness \times usefulness, satisfaction \times usefulness, management support \times usefulness, awareness \times needs analysis, and management support \times needs analysis indicated a significant contribution of the prediction for the use of social media in marketing library information resources and services.

Constructs	Usefulness	Awareness	Needs analysis	Management support	Satisfaction
Gender: Mann-Whitney U (p -value)	570.500 (0.010)	573.500 (0.018)	589.500 (0.022)	698.000 (0.569)	630.500 (0.070)
Age: χ^2 (p -value)	1.636 (0.802)	2.767 (0.598)	1.778 (0.777)	2.640 (0.620)	1.682 (0.794)
Education: χ^2 (p -value)	1.099 (0.777)	1.262 (0.738)	3.821 (0.281)	2.492 (0.477)	3.489 (0.322)
Experience: χ^2 (p -value)	5.180 (0.269)	3.615 (0.461)	4.818 (0.307)	2.802 (0.591)	7.982 (0.092)
Position: χ^2 (p -value)	7.397 (0.596)	3.387 (0.947)	6.945 (0.643)	7.879 (0.546)	10.590 (0.305)
Library type: Mann-Whitney U (p -value)	284.500 (0.252)	236.500 (0.082)	206.500 (0.028)	251.000 (0.179)	227.000 (0.063)

Table V.
Effects of
demographic
characteristics on
constructs

Observed			Predicted		
			Use		Percentage correct
		0	1		
Use	0	53	3		94.6
	1	11	6		35.3
Overall percentage					80.8

Table VI.
Model classification

Constructs	B	SE	Wald	df	Sig.
Usefulness	31.069	11.769	6.969	1	0.008*
Needs analysis	-13.808	5.573	6.138	1	0.013*
Satisfaction	20.870	9.709	4.620	1	0.032*
Awareness \times usefulness	-2.202	0.930	5.600	1	0.018*
Satisfaction \times usefulness	-4.490	2.080	4.662	1	0.031*
Management support \times usefulness	-1.192	0.693	2.962	1	0.085**
Awareness \times needs analysis	2.422	1.093	4.912	1	0.027*
Management support \times needs analysis	1.446	0.773	3.504	1	0.061**
Constant	-88.125	41.017	4.616	1	0.032*

Notes: *,**Cut values are 0.050 and 0.010, respectively

Table VII.
Logistic regression
results for the use
of social media

6. Discussion

The majority of respondents had positive perceptions toward all study constructs for the use of social media applications for the marketing of the academic library information resources and services. Although the findings showed a low usage of social media in the academic libraries, the respondents indicated the importance of such tools and their preference for using Twitter, followed by Instagram, Facebook and YouTube. This finding corresponded with Yi *et al.* (2013), Ramsey and Vecchione (2014), Stvilia and Gibradze (2014), Xie and Stevenson (2014) and Al-Daihani and AlAwadhi (2015) that Twitter was one of the most popular social media platforms for library marketing and engagement as it was seen as valuable in connecting the library with users and the community to share information, promote services and events, and reach users and non-users (Forrestal, 2010), thereby achieving the study's first objective.

The findings of the logistic regression analysis indicated that the model predicted 80.8 percent of classified cases correctly regarding the use of social media for marketing information, suggesting that the libraries needed to adopt such social media tools. Moreover, the usefulness of social media, and the possibilities for needs analysis and satisfaction assessments using such platforms were perceived as significant predictors for the use of social media in marketing library information resources and services. These results were in line with the findings in previous research such as Xie and Stevenson (2014), Luo *et al.* (2013), Al-Daihani and AlAwadhi (2015), Siddike *et al.* (2015), Khan and Bhatti (2012), Ramsey and Vecchione (2014), Stvilia and Gibradze (2014) and Mahesh (2002). Interestingly, awareness as a single variable did not show any significant prediction; however, the interactions of awareness with needs analysis and usefulness were perceived as significant in predicting social media use. Further, the interactions between satisfaction \times usefulness, management support \times usefulness, and management support \times needs analysis were perceived to make a significant contribution to the predictions for the use of social media in marketing library information resources and services. This finding suggested that some factors may result in insignificant predictions if individually tested and only become significant if interacting or combined with other factors; these results achieved the second study objective.

The findings also showed significant positive correlations between the perceived usefulness of social media for marketing library information resources and services and awareness, needs analysis and satisfaction, which confirmed that social media could be useful in promoting library information resources and services, identifying user needs and satisfying these needs if used for engagement and non-user outreach. Female academic librarians found social media more effective in the marketing of library information resources and services than males. There were significant gender differences found in the perceptions of the usefulness of social media and its value as a tool for raising awareness and analyzing needs, thereby fulfilling the third objective of the study. Although both males and females had positive perceptions toward the use of social media applications, females had more positive perceptions than males. This could be explained by the fact that females are significantly more likely than males to use social networking sites (Duggan, 2013). These findings also demonstrated that there was a significant relationship between the type of the academic library (in public or private institution) and the use of social media as a needs analysis tool. Academic librarians in higher public institutions perceived the use of social media as a needs analysis tool more positively than their counterparts in the private institutions. This could be attributed to the larger populations in public academic institutions, as it is more difficult to assess user needs in traditional settings. Therefore, the use of social media could offer greater opportunities for librarians to identify the unique needs of specific users and to enhance communication to satisfy these identified needs. These results were in line with those in Ramsey and Vecchione (2014).

The role of management support has been recognized as critical to the adoption of social media for marketing libraries. As the fourth objective of the study attempted to investigate, it was found that all respondents negatively perceived management support, suggesting that library management had not developed any social media marketing programs for library services and resources. It was also found that in general, management did not offer the librarians any training opportunities and did not encourage them to attend such activities to improve their professional skills related to developing the marketing skills associated with the use of social media to promote the libraries' resources, services, activities or events. Further, as it was found that respondents were unaware of any budget allocations for social media marketing campaigns; consequently, management support for this item was negatively perceived. It is the role of higher management to cultivate an open communication environment for staff and to engage them in the planning processes (Cowart, 2017) such as deciding on appropriate budget allocations for training and other activities. These findings confirmed the results of Khan and Bhatti (2012) and Mahesh (2002) and highlighted the critical role of higher management in applying ICT, and specifically social media, to marketing their libraries. Higher management needs to create suitable marketing plans that consider the identified factors to provide direction for library advertising, promotion, outreach and other related activities (Falciani-White and Tomcik, 2015).

7. Conclusion

This study identified the factors that had a significant relationship with the adoption of social media for academic library marketing purposes. These factors were related to the usefulness of social media in promoting awareness and its value as a needs analysis and satisfaction assessment tool. The interactions of these factors were also found to be important in the social media adoption process. As found in previous literature and confirmed in this study, management support is considered essential in encouraging librarians and information specialists to adopt social media in academic libraries to promote library information resources and services and to provide outreach services for current and potential users.

Social media is a leveraging tool that should be effectively used by academic libraries to create, deliver and share information resources and services with users. Marketing through social media can enable academic libraries to develop networks through which users and non-users can interact and communicate their information needs. It also has the potential to increase users' awareness of academic libraries and their services, resources, activities, events and new arrivals.

Therefore, this study is a call to the higher management of libraries to take advantage of the opportunities offered by social media and to adopt these as marketing tools for information resources and services. Social media is now seen as a primary way to access and exchange information, interact with users to identify information needs and satisfy those needs, all of which could result in more efficient, effective and trustworthy libraries. Therefore, higher management needs to focus on the factors identified in this study that have a significant relationship with social media use. Even though this study was limited to academic libraries in Kuwait, the results could be applicable to other libraries in similar circumstances, such as those in the Gulf countries. Once social media tools are applied in libraries, further research is required to investigate their role and effectiveness in marketing library resources and services. Future research could also analyze the content of library-user interactions on social media and investigate management's perspective on the use of social media for academic libraries to compare and contrast the results with the findings of this study.

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Understanding public libraries' challenges, motivators, and perceptions toward the use of social media for marketing

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Abstract

Purpose – The purpose of this paper is to identify challenges and motivators to social media adoption for marketing purposes in public libraries and to investigate how these libraries perceive the importance of social media marketing.

Design/methodology/approach – A nation-wide online survey on public libraries in the USA was conducted to carry out this study, and a total number of 470 responses were used for data analysis.

Findings – This study determined a range of challenges and motivators to implementing social media for marketing in public libraries. The results also showed that public libraries perceive social media as an important tool for their library marketing and intend to increase their use.

Practical implications – The findings from this study can serve as a guideline for public libraries when employing social media for marketing purposes in their libraries.

Originality/value – This study assessed the current state of social media use for marketing in the public library context, a context that has been under-researched in the literature, from three perspectives: challenges, motivators, and perceptions.

Keywords Public libraries, Library marketing, Information technologies, Social media, Social networking sites, Microblogging

Paper type Research paper

1. Introduction

Social media has become an important, if not indispensable, channel for many individuals to communicate and interact with others. According to a recent report by [Greenwood et al. \(2016\)](#), for example, 68 percent of all US adults use Facebook, one of the most popular social media platforms, and 76 percent of the Facebook users visit the site on a daily basis. Social media refers to “a set of online tools that are designed for and centered around social interactions” ([Bertot et al., 2012](#), p. 30), and the tools take on a variety of forms such as networking (e.g. Facebook), publishing (e.g. Wikipedia), photo and video sharing (e.g. Flickr, YouTube), microblogging (e.g. Twitter), cataloging (e.g. Goodreads), and curating (e.g. Pinterest), etc.

Given the popularity of social media among the general public, all types of organizations have also been actively employing these tools to enhance their marketing and promotional activities. Libraries have been no exception in this respect and are constantly making efforts to increase their presence on various social media platforms ([Luo et al., 2013](#)). For instance, a survey targeting libraries in the USA indicated that the majority of the libraries use social media tools for purposes such as promoting library services, providing updates to users, and reaching out to new users ([Rogers, 2009](#)). A white paper compiled by [Taylor & Francis Group \(2014\)](#) reported that over 70 percent of the libraries that participated in its international survey were found to use social media tools, and their primary reason for using these tools was to promote library services and resources.

A number of benefits of using social media for marketing in libraries have been discussed. By conducting a SWOT analysis, for example, [Fernandez \(2009\)](#) identified a range of advantages such as low cost, high efficiency, two-way communication, and proactive outreach.



The white paper by [Taylor & Francis Group \(2014\)](#), mentioned above, pointed out several additional benefits including requiring little training, increasing engagement and interaction with users, and gathering feedback to improve user services. [Blakeman and Brown \(2010\)](#) also suggested a few other benefits of adopting social media for library marketing, such as increasing community efforts, developing community networks, and fund raising.

These benefits are especially attractive to public libraries considering that many of them are suffering from budget cuts and facing various contemporary challenges such as competition with the internet ([Miller, 2008](#)). Thus, they are in constant need of proving their value to funding agencies, patrons, and communities. Also, as suggested in [Rutherford \(2008a, p. 411\)](#), some of the attributes of social media, such as providing users with a place to build a library community where they can contribute their own content and share their knowledge with others, well support the mission and goals of public libraries that put great emphasis on the importance of user participation and community building.

Much of the extant research on libraries' use of social media for marketing, however, has been conducted in the context of academic libraries, the aims and users of which are largely different from those of public libraries ([Anttiroiko and Savolainen, 2011](#); [Gan, 2016](#); [Phillips, 2015](#); [Rutherford, 2008b](#)). Moreover, the previous studies have been mostly case studies examining the adoption or use of a single or a few social media tools in individual libraries ([Phillips, 2015](#)), and thus fall short in providing more general implications. In addition, although social media seems to continue to gain popularity among libraries, there has been a lack of research concerning how libraries actually perceive and value their use of social media. In order to mitigate these gaps in the literature, this study aims to determine challenges and motivators to social media adoption for marketing purposes in public libraries by conducting an online survey in the USA. The study further intends to provide a snapshot of the current perceptions of public libraries toward the use of social media tools for marketing (i.e. perceived importance and future use intention).

The remainder of this study is organized as follows. The next section reviews relevant literature; then, the research method is presented in the third section. The fourth section presents and discusses the findings of the study, and the last section highlights contributions of the study and concludes by proposing directions for future research.

2. Literature review

The rapid growth in the use of social media for library marketing has triggered various research interests. Among them, the large bulk of research effort has been devoted to sharing best social media practices in different types of libraries, often by employing a case study approach ([Phillips, 2015](#)). In the academic library context, for example, [Ganster and Schumacher \(2009\)](#) illustrated how the University at Buffalo Libraries successfully designed and used their Facebook page to reach out to the campus community and to promote library resources and services. In addition, [Luo et al. \(2013\)](#) demonstrated the processes of carrying out an award-winning online video marketing campaign in Tsinghua University Library in China and concluded that four factors (i.e. content, style, venue, and partnership with students) were key to the success of their campaign.

Likewise, in public library settings, for instance, [Gosling et al. \(2009\)](#) presented three case studies of public libraries in Victoria, Australia that effectively employed various Web 2.0 tools such as podcasts, blogs, Flickr, and wikis for improving their online presence and better marketing their services. [Krabill \(2009\)](#) shared the positive experiences of the West Palm Beach Public Library with Twitter, highlighting "Twitter is one of the most useful free publicity tools we have" (p. 14). [Krabill \(2009\)](#) also provided some samplings of tweets and further suggested that libraries should avoid treating Twitter like an online bulletin board but instead should try to give it a personality so that users like to interact with it. In addition,

[Cahill \(2009\)](#) described how Vancouver Public Library systematically enhanced their web services with a set of thoughtfully selected Web 2.0 tools. In a follow-up study, [Cahill \(2011\)](#) further provided several best practices and lessons that they learned from managing their own social media (i.e. Facebook and Twitter) accounts.

While these case studies offer valuable insights and guidance, there have also been a few studies surveying social media use and trends. For example, [Xu *et al.* \(2009\)](#) analyzed 81 academic library websites in New York and revealed that although 41 percent of them employed one or more Web 2.0 tools, the actual utilization of those tools greatly varied by individual library. By reviewing the literature on library 2.0 and analyzing the websites of public libraries that have successfully deployed Web 2.0 tools, [Anttiroiko and Savolainen \(2011\)](#) identified four main categories of Web 2.0 application areas (i.e. communication, content sharing, social networking, and crowdsourcing) in the public library context. [Mahmood and Richardson \(2011\)](#) investigated the websites of 100 member academic libraries of the Association of Research Libraries in the USA and concluded that a growing number of Web 2.0 tools were greatly accepted in these libraries for different uses. Similarly, [Boateng and Liu \(2014\)](#) surveyed the websites of the top 100 US academic libraries and found that Facebook, Twitter, and blogs were the most widely employed Web 2.0 tools, while wikis and social bookmarking/tagging were the least used. More recently, [Gan \(2016\)](#) examined 46 sub-provincial and provincial Chinese public libraries' WeChat accounts, one of the most popular mobile social media tools in China, and provided an overview of the application of WeChat in Chinese public libraries.

In addition, a handful of studies have delved into the challenges of implementing social media in libraries. For example, in a study of seven public libraries in the USA and New Zealand, [Rutherford \(2008b\)](#) revealed that the most significant implementation issues that they had in common were people-related, such as reluctant staff, staff training cost, and human resource constraints. [Hall \(2011\)](#) argued that librarians need to actively transfer their increasingly sophisticated use of social media into applications to library services delivery. Drawing on Roger's diffusion of innovations theory ([Rogers, 2003](#)), [Neo and Calvert \(2012\)](#) interviewed nine public libraries in New Zealand and identified a number of demotivating factors that had hindered the adoption of Facebook in these libraries, such as limited staff time and poor customer response. [Chu and Du \(2013\)](#)'s survey study of 38 academic libraries across Asia, North America, and Europe also found that when implementing social networking tools in their libraries, they faced several challenges such as limited engagement by staff and users, and maintenance cost. Similarly, [Smeaton and Davis \(2014\)](#) performed a case study on two Australian public libraries and indicated that both organizational culture and staffing (i.e. level of staff skills and staff acceptance) were key factors contributing to their successful adoption and use of social media. Additionally, [Cavanagh \(2016\)](#) conducted a survey on 71 public libraries in Canada, regarding their use of Twitter, and found that more than 90 percent of the challenges that they experienced in using Twitter were related to management issues (e.g. time constraints and double-posting).

Despite the continuing popularity of social media among libraries, only a few studies, mostly in the academic library context, have investigated the perceptions of librarians toward the use of social media in their libraries. For instance, in their survey study of 126 academic librarians concerning their perceptions toward Facebook, [Charnigo and Barnett-Ellis \(2007\)](#) found that most of the librarians were neutral about Facebook although some were enthusiastic about its potential for library marketing. In contrast, [Chu and Du \(2013\)](#)'s study, discussed in the previous paragraph, indicated that most library staff perceived the usefulness of social networking tools positively, suggesting a "shift" in how libraries value these tools from the above [Charnigo and Barnett-Ellis \(2007\)](#)'s finding ([Chu and Du, 2013](#), p. 69). In another more recent survey study of 58 college libraries in the UK, however, [Jones and Harvey \(2016\)](#) reported that the average rating for the effectiveness of social media as a promotional tool for their library was only 2.9, just above the middle of the rating scale from

one (ineffective) to five (effective). In addition, [Fasola \(2015\)](#)'s survey study of 81 librarians in Oyo state, Nigeria revealed that while librarians from academic and special libraries exhibited high perceptions and acceptance of using Facebook and Twitter for promoting library services, a large number of the respondents in public libraries were negative about their usefulness. Thus, this review shows that there have been some mixed results across these perception studies.

3. Method

3.1 Measures

As mentioned in the Introduction section, an online survey was conducted to carry out the study. The initial version of the survey questionnaire was derived from in-depth interviews with three local public librarians who were responsible for their libraries' social media. It was then further developed based on extant research reviewed in the previous section as well as studies on software adoption in information systems related research (e.g. [Cavanagh, 2016](#); [Chu and Du, 2013](#); [Glynn *et al.*, 2005](#); [Jones and Harvey, 2016](#); [Macredie and Mijinyawa, 2011](#); [Paré *et al.*, 2009](#); [Rutherford, 2008b](#); [Seddon and Kiew, 1996](#); [Smeaton and Davis, 2014](#)). The final survey questionnaire with both close- and open-ended questions is shown in the Appendix.

3.2 Data collection

The collection of contact information (i.e. e-mail addresses) was first done manually by visiting the websites of 50 state library departments in the USA and locating their library directories containing the e-mail addresses of the state's public library directors/librarians. A total of 4,252 public library directors/librarians' e-mail addresses were obtained from 25 state library directories. The public library directors/librarians were then asked to forward the survey invitation to the staff member who is in charge of social media in their libraries. As an incentive, survey participants were optionally entered to win one of five \$50 Amazon gift cards. After the removal of surveys with a large number of missing values, a set of 470 usable surveys remained for data analysis.

3.3 Descriptive statistics

The descriptive statistics of our sample by library service population and popularity of social media tools are presented in the following.

[Table I](#) categorizes responses according to library service population ([The Institute of Museum and Library Services, 2017](#)), which is often used as a proxy for the size of a library (e.g. [Cavanagh, 2016](#)). Libraries serving 2,500-9,999 people (26 percent) and 10,000-24,999 people (24.5 percent) together constitute about half of the respondents. Libraries serving less than 2,500 people or more than 50,000 people contributed the second most responses at 18.7 percent each. At last, the libraries that contributed the least amount of responses were libraries serving 25,000-49,999 people at 12.1 percent.

Service population	Freq.	%
Less than 2,500	88	18.7
2,500-9,999	122	26.0
10,000-24,999	115	24.5
25,000-49,999	57	12.1
50,000 or greater	88	18.7
Total	470	100.0

Table I.
Responses by library
service population

The second question asked survey respondents to check all social media tools that their library uses for marketing purposes. As shown in Table II, Facebook (97.7 percent) was found to be the most popular social media tool for marketing in public libraries, followed by Twitter (47.0 percent). A number of studies have previously examined the use of these two popular tools in public libraries (e.g. Aharony, 2012; Cavanagh, 2016; Neo and Calvert, 2012; Witte, 2014), and this finding indicates that they continue to be widely employed in public libraries. It is also consistent with findings from other recent studies (e.g. Boateng and Liu, 2014; Chu and Du, 2013) that found Facebook and Twitter to be the most popular tools in the academic library context. The next popular tool was Pinterest (37.4 percent), suggesting that it is becoming more favored (Dowd, 2013). Other popular tools include Instagram (26.6 percent), YouTube (21.3 percent), and Goodreads (18.7 percent). In addition, respondents who selected “other” (13.2 percent) were further asked to specify their answer, and the tools mentioned multiple times include Constant Contact (7), Flickr (6), LinkedIn (5), WordPress (4), Snapchat (3), blogs (2), and MailChimp (2). The tools that appeared only once include LibraryThing, Meetup, MyEye, Peach, Periscope, and so on.

We were also interested in finding out if there was any correlation between library service population, and the number of social media tools employed for marketing purposes. As seen in Table III, the mean number of tools used becomes greater as the library service population increases. The total mean was 2.77 across the respondents’ libraries. A Spearman’s rank-order correlation analysis also confirmed that the two are in a positive relationship ($r_s=0.466, p<0.01$).

4. Findings and discussion

In this section, we outline and discuss the current state of social media use for marketing in public libraries from the following perspectives: challenges, motivators, and perceptions (i.e. perceived importance and future use intention).

Table II.
Popularity of social
media tools for
marketing

Social media	Freq. (n=470)	%
Facebook	459	97.7
Twitter	221	47.0
Pinterest	176	37.4
Instagram	125	26.6
YouTube	100	21.3
Goodreads	88	18.7
Google+	46	9.8
Tumblr	38	8.1
Other	62	13.2

Table III.
Number of social media
tools by library service
population

Service population	n	Mean	SD	Min.	Max.
Less than 2,500	88	1.75	1.20	0	6
2,500-9,999	122	2.17	1.33	0	7
10,000-24,999	115	2.97	1.76	0	8
25,000-49,999	57	3.07	1.36	1	6
50,000 or greater	88	4.19	2.02	1	10
Total	470	2.77	1.77	0	10

4.1 Challenges

To determine challenges on social media adoption for marketing in public libraries, the survey respondents were presented with a list of 12 factors (C1 to 12) identified from the interviews and literature mentioned in section 3.1 as challenges for libraries to employ social media, and were asked to indicate their level of agreement with each factor as a challenge on a Likert scale of one to seven, where one was strongly disagree, four was neither agree nor disagree, and seven was strongly agree.

Table IV shows that the means of three factors: C4, 5, and 9 were either over five – somewhat agree (C4) or four – neither agree nor disagree (C5 and 9), confirming that the majority of respondents felt that these factors were indeed challenges to implementing social media in their libraries for marketing purposes. A number of previous studies have already pointed out a lack of staff resources (C4) as one of the main issues hindering the adoption of social media (e.g. Chu and Du, 2013; Jones and Harvey, 2016; Neo and Calvert, 2012; Rutherford, 2008b). Given the lack of budget in most public libraries across the nation, this finding indicates that public libraries continue to struggle with finding staff time for social media management. At the same time, it also indirectly highlights “the time-consuming nature of SM [social media]” (Jones and Harvey, 2016, p. 11) and that the successful use of social media requires relentless upkeep and monitoring. Both C5 and 9 with the next highest ratings are related to a lack of staff skills and expertise, and like C4 they have also been repeatedly revealed as critical barriers in several existing studies (e.g. Chu and Du, 2013; Jones and Harvey, 2016; Rutherford, 2008b). This suggests that although there are a plethora of practice-oriented publications (Phillips, 2015) and the staff are expected to have gained greater familiarity with social media, public libraries are still in need of active and constant investments into these areas. While the means of about a half of the factors (i.e. C11, 12, 8, 6, 7, and 2) fell under, but very closely to, the neutral point of four, it is interesting to report that the factors pertinent to library culture and staff acceptance (i.e. C10, 3, and 1) were found to have the lowest means at a mean close to three, the “somewhat disagree” category. It is apparently contradictory to the finding of Rutherford (2008b) that demonstrated a lack of staff acceptance as the most critical challenge to implementing social media in public libraries about a decade ago. This implies that, unlike the early stages of social media when doubts about its effectiveness were common, it is now better accepted as playing an important, not an optional, role in public libraries.

At last, we performed one-way ANOVA and Tukey HSD tests using SPSS 23 software to determine if there were any significant statistical mean differences by library service population. We found that the mean of C9, a lack of staff training, decreases as the library service population increases. In addition, there were statistically significant differences as

Challenges	<i>n</i>	Mean	SD
Difficulty in finding staff time to plan, maintain, and monitor (C4)	470	5.31	1.71
Lack of expertise in social media marketing (C5)	470	4.59	1.73
Lack of staff training (C9)	469	4.34	1.76
Lack of analytic tools to assess social media marketing efforts (C11)	470	3.98	1.77
Difficulty in obtaining relevant best practices (C12)	470	3.91	1.61
Concern over leaving out people who do not have access to or use social media (C8)	470	3.88	1.81
Concern over security and privacy issues (C6)	470	3.76	1.70
Difficulty in setting up a policy for social media use (C7)	470	3.56	1.61
Staff unwillingness to undertake new learning (C2)	469	3.45	1.86
Library culture resisting to change (C10)	469	3.27	1.76
Doubt about the effectiveness of social media for marketing (C3)	470	3.20	1.71
Lack of staff acceptance (e.g. seeing social media as trendy) (C1)	470	2.99	1.71

Table IV.
Challenges on social
media adoption for
marketing

determined by one-way ANOVA, $F(4, 464)=5.975, p=0.000$. A Tukey *post hoc* test revealed that the mean of the less than 2,500 category (4.85) was statistically significantly higher than those of the 25,000 to 49,999 (3.84) and 50,000 or greater (3.80) categories ($p=0.006$ and 0.001 , respectively). In addition, the mean of the 2,500 to 9,999 category (4.60) was statistically significantly higher than that of the 50,000 or greater category (3.80) ($p=0.001$). Thus, it can be inferred that public libraries with a smaller service population may be in a greater need of staff training on social media marketing than those with a larger service population.

In addition, respondents were asked if they could think of any other challenges. A total of 60 respondents answered this open-ended question. Some answers addressed more than one challenge, and thus a total of 72 comments were analyzed. As shown in Table V, 50 out of 72 comments were reiterating some of the challenges presented in Table IV. In total, 22 comments (44.0 percent) underlined a lack of staff resources (C4) as a crucial issue, and 11 comments (22.0 percent) highlighted a lack of staff training and/or expertise (C5/9) as two other major barriers. Thus, about 65 percent of comments echoed the same findings from Table IV regarding C4, 5, and 9 to emphasize the significance of these challenge factors. Interestingly, however, the comments most mentioned next, at 16.0 percent, were related to C8, which was found to be slightly below the neutral point of four in Table IV. They all stressed the issue of digital divide that small and/or rural libraries often face.

The remaining 22 comments were on other challenges that were not covered in C1-12 (see Table VI). The two most common categories (7/22, 31.8 percent each) were: the controls by

Challenges	Freq.	%	Sample comments
C4	22	44.0	Staff time is the biggest challenge Most public libraries, it comes down to how staff time affects the budget The only challenge is having enough staff to create staff time for running social media
C5/9	11	22.0	Finding time to do it without giving anything else up Time and expertise are the big ones Difficulty of figuring out how to effectively use social media networks that younger audience is using Trying to decide which social media to use to reach our target demographic, especially knowing that we want to reach a wide range of ages
C8	8	16.0	Digital literacy, access and inclusion are challenges we are currently dealing with. Many of our patrons do not have access to a computer or the internet, because of this many of them don't feel particularly inclined to visit our website or Facebook page since they get the information from the library directly We are in a rural area where internet access is difficult for about 40% of our population. Outlying patrons may be on dial-up, or use dish access which is unreliable due to weather
C1	3	6.0	I use it, but other staff have not adopted it. I assume their resistance is due to not feeling comfortable, not enough time, not interested in doing so
C11	3	6.0	Tools to assess and track local trends would be useful in the efforts to plan and steer mobile social efforts. Assessments of area business, organizations, groups social media activity at a geographical glance would be an amazing bit of harnessed information to explore and replicate for libraries
C3	2	4.0	It's hard to tell if it is making a difference. The only time we noticed a marked difference was when we launched a paid advertising campaign on Facebook to promote our ebooks and noticed that the number of signups per month doubled. Our baseline was low, so we figured it probably wasn't worth the cost
C2	1	2.0	We are extremely small, there are only two paid staff members and both of us are past the "easy-to-learn-technology" phase
Total	50	100	

Table V.
Comments reiterating
the challenges in
Table IV

Table VI.
Other challenges

Challenges	Freq.	%	Sample comments
Controls by upper administration	7	31.8	Politics: the County Commissioners have attempted to consolidate all social media tools, particularly Facebook, as one entity. This strategy fails to effectively reach the target market As a public library/city agency, we must follow municipal policies regarding the use of social media and in some cases these policies limit “social” activity on social media Resistance from governing boards – trustees, local town authorities
System issues	7	31.8	Facebook limits our fans from seeing some of our posts. We do not always know if they can see what we have posted We find Facebooks algorithms to be difficult to work with, in that too many posts can lead to *less* visibility at times Facebook makes it difficult to reach all of our followers due to the way FB allows posts to be seen
Lack of user engagement	4	18.2	Getting the community involved on social media Motivating patrons to open posts
Other	4	18.2	Our biggest concern is whether multiple staff who are able to post to social media will create competition among programs. We have a lot of programming and try to be mindful that we don’t drown out each other’s events The ever-shifting interests from the populace, e.g., kids moving from Facebook to Instagram. Hard to keep up with the trends Staff does not have smartphone to participate By the very nature of using social media to market we are taking risks that will eventually challenge us, if our goals remain to provide our community members with deep meaningful reading experiences. Social media is shallow at best, although it’s better than no media interactivity, it is not optimal and probably never will be
Total	22	100	

upper administration, such as local government and board members, and some system issues with certain social media tools such as post visibility issues on Facebook. Four comments (18.2 percent) expressed difficulty in attracting user engagement, and four other minor comments (4/22, 18.2 percent) were grouped under the “other” category.

4.2 Motivators

The survey respondents were also presented with a list of five factors (M1 to 5) identified from the interviews and literature mentioned in section 3.1 as motivators to social media adoption for marketing purposes in public libraries, and were asked to indicate their level of agreement with each factor as a motivator on a Likert scale of one to seven, where one was strongly disagree, four was neither agree nor disagree, and seven was strongly agree.

As shown in [Table VII](#), all five motivators were either over five – somewhat agree (M2, 1, 3, and 4) or four – neither agree nor disagree (M5), indicating that the majority of our

Table VII.
Motivators to social media adoption for marketing

Motivators	<i>n</i>	Mean	SD
Peer influence (e.g. other libraries’ active use of social media for marketing) (M2)	470	5.70	1.21
Top management support (M1)	470	5.68	1.37
Patrons’ demand and acceptance (M3)	470	5.41	1.27
Library’s organizational innovativeness (M4)	470	5.41	1.26
IT support (M5)	470	4.38	1.63

respondents agree that they are drivers toward social media implementation in their libraries. The two motivators with the highest means were peer influence (M2) and top management support (M1), and both are often cited as important motivators for technology adoption in IS-related research (e.g. Glynn *et al.*, 2005; Macredie and Mijinyawa, 2011). Both patrons' demand and acceptance (M3) and library's organizational innovativeness (M4) were found to be regarded the second best motivators with the next highest mean of 5.41. The mean of information technology support (M5) marked the lowest, but was still found to be higher than the neutral point of four.

At last, we performed one-way ANOVA and Tukey HSD tests using SPSS 23 software to determine if there were any statistical mean differences by library service population, and we did not find any meaningful patterns or significant mean differences.

Respondents were also asked if they could think of any other motivators. A total of 37 respondents answered this open-ended question. Some answers addressed more than one motivator, and thus a total of 41 comments were analyzed. As shown in Table VIII, only 7 out of 41 comments were reiterating three of the motivators (M1, 2, and 3) presented in Table VII. Four comments highlighted peer influence (M2) as a strong motivator while two other comments emphasized patron's demand and acceptance (M3) as the key to social media adoption. One comment stressed top management support (M1) as an important driver.

A large number of comments (34/41, 82.9 percent) were on other motivators that were not covered in M1-5 (see Table VII). The most common category (12/34, 35.3 percent) pointed to the efficiency of social media (e.g. ease of use, less expensive, fast) as the key to social media adoption. In the second category, 32.4 percent (11/34) stated that social media offers public libraries ways to reach greater/targeted audiences. A smaller group (5/34, 14.7 percent) expressed the interactivity of social media as an important motivator. Two comments (5.9 percent) suggested staff use was driving the library-level implementation. Four other minor comments (4/34, 11.8 percent) were grouped under the "other" category (Table IX).

4.3 Perceptions

One of the main goals of this study was to offer a snapshot of the current perceptions of public libraries toward the use of social media for marketing in their libraries. In the last paragraph of the literature review section, we pointed out that only a handful of studies have examined the perceptions, largely in the academic library context, and that they reported some mixed findings. To better capture the survey respondents' perceptions toward the use of social media for marketing in their libraries, we employed two constructs containing multiple items: perceived importance and future use intentions (Seddon and Kiew, 1996). The first construct, perceived importance, consists of five items assessing different aspects of the concept,

Table VIII.
Comments reiterating
the motivators in
Table VII

Motivators	Freq.	%	Sample comments
M2	4	57.1	Seeing other companies, especially libraries, using these outlets was definitely an indicator that it was time to set our own account up Peer influence internally is a strong motivator It's the way of the world today
M3	2	28.6	Not just patron acceptance, but their positive feedback Obviously our patrons' use of social media is the highest motivator
M1	1	14.3	Even though the board of trustees are hesitant and not all together supportive or have the vision to see the uses of social media for marketing purposes, the library's director is pushing of this technology. It's just harder to get staff "buy in" considering everyone is already stretched as it is
Total	7	100	

Motivators	Freq.	%	Sample comments
Efficiency (e.g. ease of use, less expensive, fast)	12	35.3	Ease of use (as opposed to printing and hanging posters, mail campaigns, etc.) and price A motivator is that it's another FREE way to market the library (for the most part – I have paid for boosting recently) Timeliness – ability to reach target audience more quickly than other marketing tools
Greater/targeted reach	11	32.4	It is relatively easy to keep updated Reaching the digital generation The desire to share images, promotions, and interesting information to a larger swath of the library service population The desire to reach a tech-savvy audience It's the way younger generation (Those 30 and under) keep in contact. Great way to outreach to this group
Interactivity	5	14.7	Desire for marketing that allows for direct interaction and feedback from patrons We enjoy engaging with our patrons in this on-line format Enjoyable way to interact and get feedback with patrons
Staff use	2	5.9	Personal use by staff Individual staff people are driving usage of social media
Other	4	11.8	Popular books launches, publishers, national library campaigns and community initiatives that make content ready to share for libraries is a highly effected motivation for posting/adoption Library transparency Opportunities for involvement from a wide spectrum of staff positions Library Board insists we must be active on Facebook
Total	34	100	

Table IX.
Other motivators

“importance,” on a semantic differential scale of one to seven. As shown in [Table X](#), four of the five aspects were close to six, and the remaining one aspect (Trivia – Fundamental) was still over five, indicating that social media as a tool for marketing is perceived highly positively by public librarians. Similarly, the second construct, future use intention, has three items measuring different aspects of the concept, “future use,” on a Likert scale of one to seven, where one was strongly disagree, four was neither agree nor disagree, and seven was strongly agree. As shown in [Table XI](#), respondents overall indicated that they intend to

Social media marketing in your library is	<i>n</i>	Mean	SD
Unimportant (1)-Important (7)	469	5.95	1.15
Irrelevant (1)-Relevant (7)	468	5.97	1.15
Trivial (1)-Fundamental (7)	467	5.37	1.31
Non-Essential (1)-Essential (7)	468	5.54	1.25
Non-Needed (1)-Needed (7)	468	5.93	1.15

Table X.
Perceived importance

	<i>n</i>	Mean	SD
Our library intends to more actively use social media for marketing (FUI1)	470	5.82	1.06
Our library will increase the depth and breadth of social media use for marketing (FUI2)	470	5.57	1.13
Our library will invest more resources into using social media for marketing (FUI3)	470	4.96	1.42

Table XI.
Future use intention

increase the use of social media for marketing purposes (FUI1 and 2), but when asked if they would invest more resources into using social media for marketing (FUI3), they only slightly agreed. This could be attributed to the lack of staff resources that was found to be the most critical challenge to social media adoption (see C4 in [Table IV](#)).

5. Conclusion

By conducting an online survey targeting public libraries in the USA, this study made several contributions to the literature and the library field, particularly the public library field. First, this study identified the types and popularity of social media tools employed in public libraries for marketing purposes. Consistent with some recent studies (e.g. [Boateng and Liu, 2014](#); [Chu and Du, 2013](#)) and the current trend, popular social media channels such as Facebook, Twitter, and Pinterest were found to be the most widely employed in public libraries. Unsurprisingly, we also found that the number of social media tools used is positively associated with library service population.

Second, this study determined a range of challenges and motivators to implementing social media for library marketing, which public libraries can consult when employing social media in their libraries. As already pointed out by several existing studies (e.g. [Chu and Du, 2013](#); [Jones and Harvey, 2016](#); [Rutherford, 2008b](#)), a lack of staff resources, skills, and expertise (C4, 5, and 9) were found to be the most critical challenges public libraries faced when adopting social media. Interestingly, however, the factors related to library culture and staff acceptance (C10, 3, and 1) were no longer perceived to be a critical challenge by public librarians. When asked if they could think of any other challenges, the majority of the comments reiterated a lack of staff resources, skills, and expertise (C4, 5, and 9) as the major barriers. A few newly identified challenges from the open-ended question include the controls by upper administration, system issues, and a lack of user engagement.

With regard to the motivators, the majority of the survey respondents indicated that all five factors (M1-5) help promote the implementation of social media in their libraries. The two motivators with the highest means were peer influence (M2) and top management support (M1). When asked if they could think of any other motivators, many mentioned other motivators that were not already listed in the questionnaire (see [Table VII](#)) such as efficiency (e.g. ease of use, less expensive, fast), greater/targeted reach, interactivity, and so on.

In addition, this study provided a snapshot of the current perceptions of public libraries toward the use of social media for library marketing. As previously pointed out, some mixed results were reported, mostly in the academic library context. For better assessment, this study used the two constructs containing multiple items: perceived importance and future use intentions ([Seddon and Kiew, 1996](#)). The results showed that respondents perceive social media as an important tool for their library marketing and intend to increase their use.

Based on the above, our recommendations for public libraries are as follows:

- Be aware of and prepared for the issues of a lack of staff resources, skills, and expertise (C4, 5, and 9) that were found to be the three most critical challenges in this study.
- The factors related to a lack of staff acceptance (C10, 3, and 1) are no longer perceived to be a critical challenge, and thus there is little need to make efforts to address them.
- Also, pay attention to the several other challenges that were identified via our challenge open-ended question, such as the issue of digital divide, controls by upper administration, system issues, and lack of user engagement.
- In addition to the five factors (M1-5) that were found to be an important motivator in this study, promote the several other motivators that were also identified through our

motivator open-ended question, such as the efficiency, greater/targeted reach, and interactivity of social media.

- At last, if your library has not employed social media for marketing purposes, keep in mind that many perceive social media as an important tool for their library marketing and intend to increase their use.

This study has several limitations and offers some suggestions for future research. First, by the phrase, library service population (see the first question in the Appendix), we meant the area population that the library serves. The answer choices of the question were adapted from [The Institute of Museum and Library Services \(2017\)](#), which is the latest version of the annual public library survey administered nationally by the Institute of Museum and Library Services. [The Institute of Museum and Library Services \(2017\)](#) uses the phrase, population served, and we believe that our respondents are familiar with the survey, and thus the phrase. However, to eliminate any other possible interpretation (e.g. the actual members of the library), it is suggested that future studies provide further clarification when employing this question. Second, only librarians were surveyed, and their users were not considered in this study. There has been a lack of research on the user side ([Jones and Harvey, 2016](#)), and thus it is suggested that for more balanced implications, future studies address questions such as how to improve user engagement, what their needs are, what types of contents they are most interested in and/or contribute, etc. A number of suggestions can also be drawn directly from our findings. For example, one of the responses to the question asking for any other challenges pointed out a concern pertinent to how to coordinate posting among multiple staff members that are in charge of different programs (see [Table VI](#)). Related to this, it would be interesting to look into any best practice that can guide this type of managing issues. Some of the responses also highlighted the issue of digital divide that small and/or rural libraries often face (see [Table VI](#)). Thus, it would also be interesting to examine if there is any difference by locale, which was not a part of our data. In addition, with regard to the lack of staff skills and expertise, future studies are encouraged to examine public librarians' training and education needs, which can inform library science curriculum and libraries' continued learning program developments. As discussed in section 4.1, a finding from our one-way ANOVA and Tukey HSD tests also suggests that public libraries with a smaller service population may be in a greater need of staff training than those with a larger service population. Thus, future research is recommended to further delve into this difference for any possible implications such as relevant funding policy.

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Appendix. Survey questionnaire

Library service population (The Institute of Museum and Library Services, 2017) and Social media type

Q1. What is the approximate service population of your library?

- Less than 2,500
- 2,500 to 9,999
- 10,000 to 24,999
- 25,000 to 49,999
- 50,000 or greater

Q2. Please check all social media that your library uses for marketing purposes?

- ☐ Facebook
- ☐ Twitter
- ☐ Pinterest
- ☐ Google+
- ☐ Instagram
- ☐ YouTube
- ☐ Tumblr
- ☐ Goodreads
- ☐ Other

If you have chosen “other” in the above question, please specify:

Challenges (1: Strongly Disagree; 7: Strongly Agree) (e.g., Cavanagh, 2016; Chu and Du, 2013; Jones and Harvey, 2016; Neo and Calvert, 2012; Paré *et al.*, 2009; Rutherford, 2008b; Smeaton and Davis, 2014)

Q3-1. Challenges on social media adoption for marketing purposes in your library:

- C1. Lack of staff acceptance (e.g., seeing social media as trendy)
- C2. Staff unwillingness to undertake new learning
- C3. Doubt about the effectiveness of social media for marketing
- C4. Difficulty in finding staff time to plan, maintain, and monitor
- C5. Lack of expertise in social media marketing
- C6. Concern over security and privacy issues
- C7. Difficulty in setting up a policy for social media use
- C8. Concern over leaving out people who don't have access to or use social media
- C9. Lack of staff training
- C10. Library culture resisting to change
- C11. Lack of analytic tools to assess social media marketing efforts
- C12. Difficulty in obtaining relevant best practices

Q3-2 If you can think of any other challenges, please specify:

Motivators (1: Strongly Disagree; 7: Strongly Agree) (e.g., Glynn *et al.*, 2005; Macredie and Mijinyawa, 2011; Rutherford, 2008b)

Q4-1. Motivators to social media adoption for marketing purposes in your library:

- M1. Top management support
- M2. Peer influence (e.g., other libraries' active use of social media for marketing)
- M3. Patrons' demand and acceptance
- M4. Library's organizational innovativeness
- M5. IT support

Q4-2. If you can think of any other motivators, please specify:

Perceptions (Seddon and Kiew, 1996)

Q5. Perceived importance

Social media marketing in your library is:

- Unimportant (1) – Important (7)
- Irrelevant (1) – Relevant (7)
- Trivial (1) – Fundamental (7)
- Non-Essential (1) – Essential (7)
- Non-Needed (1) – Needed (7)

Q6. Future Use Intention (1: Strongly Disagree; 7: Strongly Agree)

- FUI1. Our library intends to more actively use social media for marketing
- FUI2. Our library will increase the depth and breadth of social media use for marketing
- FUI3. Our library will invest more resources into using social media for marketing

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