



Leveraging the Power of a Twitter Network for Library Promotion



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ABSTRACT

The Twitter network of two academic libraries was analyzed to determine the influential accounts that connect to them. Such information can be exploited by libraries to create tailored social media outreach and information dissemination programs. Three network metrics, measuring different definitions of importance, were calculated for each account in the network. This allowed for the quantification and ranking of the accounts by influence/importance, normally considered to be qualitative and subjective. By all measures, accounts associated with the institutions, and not faculty, staff, or students, were found to be the most influential players in the networks of both libraries, suggesting that this is a general feature of academic library Twitter networks. Furthermore, the library, as an institutional account itself, is also influential to the broader Twitter community of its home institution. This demonstrates that the library is in a key position to propagate information from sister accounts at the institution.

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INTRODUCTION

Academic libraries, in an effort to provide convenient and effective service, have been quick to implement new technologies, evaluate their efficacy, and refine their use. Perhaps the most significant recent example of this has been the incorporation of social networking into promotion and outreach activities. In particular, Twitter has become one of the most widely adopted and studied platforms. Libraries have used Twitter primarily for marketing of services and programs (Del Bosque, Leif, & Skarl, 2012; Gunton & Davis, 2012; Milstein, 2009). Many aspects of a library's Twitter program affect its effectiveness; however, they can be divided into two primary categories, properties of the tweets and properties of the associated accounts (Petrovic, Osborne, & Lavrenko, 2011; Suh, Hong, Pirolli, & Chi, 2010; Yang & Counts, 2010). Milstein (2009) and Cole (2009) present best practices involving the former. This work focuses on the latter.

Information dissemination is the primary goal of any Twitter program run by the library. In analyzing the success of such endeavors, we often simply look to the number of followers of the account. It is certainly true that the information reaches more people as the number of followers increases; however, relying solely on the number of followers to gauge the impact of a Twitter program ignores much of what makes social media an effective vehicle for outreach and dissemination of information, the network. Indeed, Twitter accounts form a network. Accounts follow and/or are followed by the library, but these accounts

can follow one another and even others not directly connected to the library. Links between accounts that are not directly connected to the library can have significant impact on information dissemination. If properly harnessed, these links can help spread the library's message well beyond its direct followers (Yep & Shulman, 2014).

This work presents an analysis of the follower/followee networks of the libraries from two primarily undergraduate state institutions, The Richard Stockton College of New Jersey and California State University San Marcos, with the goal of identifying the influential accounts connected to the library. Such information can allow those in charge of a library's account to tailor their tweeting and increase the reach and effectiveness of Twitter activities. Three metrics related to an account's influence were examined. Interestingly, it was found that the most influential accounts, by all measures, were not the students nor the faculty, but the other accounts associated with the institutions. Similar results from the analyses of both schools suggest that this is a general feature of such networks. The consequences of this finding will be detailed below. Importantly, the procedure employed in this study can be easily implemented by librarians to identify specific influential accounts at their institutions, detect communities within the network, and tailor their Twitter activities to maximize information dissemination.

A story reported by Harold Glazer (2009) of Rutgers University nicely illustrates how a single social media connection can enhance a library's electronic outreach efforts. Glazer describes the implementation of Facebook at his library. Early in the program, he noticed a marked increase in library related articles in the school's student newspaper, several of which were featured on the front page. Glazer traced the source of this new attention to the editor of the paper, who had

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connected to Glazer and the library on Facebook. The moral of this story, for the present work, is that not all social media connections are equal. As much as we might not like to admit it, some accounts wield more influence than others. The purpose of this study is to identify the influential players in the Twitter network so that they may be recruited for dissemination purposes. It also allows for the quantification of an account's influence, something that is normally qualitative. Finally, the procedure outlined below can be automated by a computer and requires few resources from library staff.

LITERATURE REVIEW

SOCIAL MEDIA USE BY PATRONS AND LIBRARIES

Two comprehensive reports were presented by Cassidy and coauthors (2011, 2014) on student technology use at Sam Houston State University. The most recent study found that more than 80% of students had a smartphone, which has led to a larger demand for mobile library services. The reports also show that student adoption of Twitter has doubled, from 21.2% to 41.4%, during the intervening years. Sixty percent of students in the 2014 study were not interested in library services using Twitter; however, the majority of Twitter users did indicate desire to connect with the library via Twitter.

Park (2010) examined the use of the popular Korean social networking site Cyworld by students, both undergraduate and graduate, and faculty. He found undergraduates open to adopting new technologies and interested in exposure and ability for self-expression afforded to them by Cyworld. In contrast, graduate students and faculty preferred to use the internet for information gathering purposes. Faculty demonstrated little social media use, while graduate students employed it for assistance with schoolwork and career advancement. Park concludes that efforts by libraries to engage faculty via social media should highlight the benefits of its use to social networking and communication.

In fact, Dickson and Holley (2010) suggest that academic libraries must advertise their social media services. As mentioned previously, Rutgers's library benefitted from the exposure their Facebook page received in the student newspaper. Perhaps one of the more interesting examples of promotion is the use of a Chinese microblogging site to successfully promote a social media marketing campaign (Luo, Wang, & Han, 2013). It's worth noting that the procedure presented below can help librarians market the account and their services by identifying influential Twitter accounts which can be employed to increase the library's exposure.

TWITTER USE BY LIBRARIES

Twitter is most commonly used to broadcast information about the library (Gunton & Davis, 2012; Milstein, 2009). Eleven out of twenty suggestions provided by Cole (2009) involve sending out information to followers, while five are devoted to promotion of the library and its services. In their broad review of Twitter use by academic libraries, Del Bosque et al. (2012) found that libraries primarily used their accounts for discussing resources (55% of libraries), announcing events (24%), and communicating hours (14%).

While Twitter is an effective tool for broadcasting library information, the scholarly community appears to be united in the belief that Twitter should be used by academic libraries to interact with followers in order to take full advantage of the platform (Cole, 2009; Cuddy, Graham, & Morton-Owens, 2010; Del Bosque et al., 2012; Dickson & Holley, 2010; Gunton & Davis, 2012; Milstein, 2009; Sewell, 2013). Gunton and Davis (2012) suggest that limiting a library's social media activities to the distribution of information represents a failure to appreciate the interactive nature of the modern internet. It appears that academic libraries have been slow to adopt such advice. Del Bosque et al. (2012) found that 54% of libraries interacted with followers and less

than 10% used Twitter to answer reference questions, although most libraries did have some version of electronic reference. The authors encourage libraries to take advantage of Twitter-specific features such as direct messages, @replies (replying to an account by using @ followed by the account name), and hashtags (keywords preceded by the # symbol, e.g. #LibraryScience). Hashtags allow Twitter users to easily follow discussions on a topic simply by searching for the hashtag. Del Bosque et al. also advocate the use of library-specific hashtags.

INFORMATION DISSEMINATION VIA TWITTER

It is clear that social media is used by academic libraries as a means to transmit information to and connect with patrons. Thus, an effective program will reach many people. This is a question of information dissemination. Dissemination via Twitter has been studied by several groups. Much of the focus has been on retweeting, or the forwarding of a tweet composed by another, since, according to Suh et al. (2010), "Retweeting is the key mechanism for information diffusion in Twitter." Several account properties are associated with high levels of retweeting, the most obvious of which is the number of followers (Petrovic et al., 2011; Suh et al., 2010). Perhaps more surprisingly, the number of followees is also related to the generation of retweets (Suh et al., 2010) as is the account being a member of Twitter lists (Petrovic et al., 2011).

Kim, Abels, and Yang (2012) studied information dissemination by academic libraries. The study examined the account types that retweeted library content. Retweeters were grouped into twelve categories, e.g. librarians, students, scholars, and university organizations. University organizations did the most retweeting and was the largest intermediary, garnering more retweets of library messages than any other group. Such accounts are central to the Twitter network and are responsible for circulating much library content. Students were found to retweet messages both directly from the library and also those that were previously retweeted by other groups. A moderate amount of retweeters were categorized as local organizations; however, this group was responsible for spreading the second highest number of messages. This indicates the importance of cultivating relationships between academic libraries and such accounts.

This work is concerned with the Twitter networks and influential accounts within them. However, for completeness, it is worth noting properties of individual tweets that are associated with retweets and information propagation. The inclusion of both URLs and hashtags has been shown to increase the retweetability of a message (Petrovic et al., 2011; Suh et al., 2010; Yang & Counts, 2010). Suh et al. (2010) found that the impact of including URLs in a tweet is domain specific. Some URLs enhance the appeal of the message while others reduce it. This was also found for hashtags. Overall, however, messages with these features are more likely to be forwarded by other users.

ANALYSIS OF FOLLOWERS

Sewell (2013) performed a comprehensive investigation of the Twitter followers from a library at Texas A&M University. Such an analysis is critical to the development of targeted marketing and relevant tweets (Cuddy et al., 2010). For example, this knowledge can indicate which communities are heavily represented, and moderators can tailor content to these groups. Furthermore, once known, underrepresented populations can be engaged and recruited.

There were 432 accounts following the Texas A&M library's Twitter account. Each was individually examined and placed into one of eleven categories, e.g. student, faculty/staff, and alumni. Other social media sites were examined to locate this information, if necessary. In addition, Sewell created other account properties such as affiliated/unaffiliated with the University, active/inactive, and number of tweets. Categories also had subproperties associated with them. For example, student accounts were further partitioned by academic program and year.

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