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Individuals' Use of Twitter to Discuss Freedom of Information in the United States: A Social Network Analysis

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Article Information	Abstract
Received: Jan. 21, 2019	This study employs social network analysis to examine more than 10,000 Twitter interactions that include the U.S. Freedom of
Accepted: Feb. 13, 2019	Information Act hashtag (#FOIA) to understand who is engaging online, and to what extent. The analysis finds evidence of a dynamic
Published: Dec. 15, 2019	conversation online among citizens, journalists, advocates, and public agencies. Findings offer insights into how citizens are using social
Keywords	media to engage with government and one another in conversations around important public policies, such as government transparency, as
Freedom of information	well as how technologies such as social media can be leveraged to better understand citizens' interest. The study also found a significant increase
Social media	in tweets during national Sunshine Week, a vehicle that increases
Government transparency	national dialogue about FOI, and highlights effective social media
Citizen engagement	strategies employed by MuckRock and other advocacy organizations.

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Introduction

The introduction of social media platforms such as Twitter, Facebook, and Instagram have shifted the way in which people interact with the world, one another, and their government. Social media no longer function simply as places for individuals to connect with one another superficially; they have since become places for breaking news and disseminating information of all kinds, including governmental practices and laws like the U.S. Freedom of Information Act.

Elected officials and those seeking election are adopting social media to connect with constituents and brand themselves in unprecedented ways. Governments at all levels are also adopting social media to encourage citizen participation and collaboration and increase transparency (Snead, 2013; Bertot, Jaeger, & Grimes, 2010). This widespread adoption of social media technologies has been influenced by both top-down policy initiatives such as the Obama administration's Open Government Initiative as well as bottom-up pressure from citizens as social media platforms continue to permeate marketing, popular culture, and social norms. As a result, scholars have argued that social media adoption by citizens, governments, and political actors has the potential to change drastically the ways in which actors involved in the political process interact with one another (Karakiza, 2015).

To date, the literature has examined several facets of social media adoption and its effects on government and citizens. Most notably, scholars have identified important factors that lead to the adoption of social media technologies by governments (Picazo-Vela, Fernandez-Haddad, & Luna-Reyes, 2016; Reddick & Norris, 2013; Mergel & Bretschneider, 2013), subsequent impacts on citizen participation (Boulianne, 2015; Loader, Vromen, & Xenos, 2014; Evans & Campos, 2013; Zuniga, Jung, & Valenzuela, 2012; Effing, Hillegersberg, & Huibers, 2011), coproduction (Linders, 2012), and transparency (Song & Lee, 2016; Welch, 2012; Bertot, Jaeger, & Grimes, 2010).

Much of the literature on the use of social media in government has placed great emphasis on its potential to increase citizen participation but with little attention paid to who actually uses social media for that purpose. Therefore, this paper asks, first and foremost, who uses social media to engage with government and in what way? It focuses specifically on the social media platform Twitter, with special attention paid to the types of interactions that take place on the platform between different types of users and their roles regarding government transparency. Understanding who uses social media for participation, and in what ways, is integral to assessing the reality of social media's promise as a tool to achieve open government values.

One way to examine how individuals use social media for civic participation is by examining online dialogue around a particular policy issue. This paper will look specifically at the dialogue on Twitter around Freedom of Information (FOI). As more and more governments around the world adopt transparency policies, FOI and open government agendas have become more salient to both citizens and policymakers. Furthermore, the rapid advancement of technology has changed the way in which individuals seek information and even pursue public record requests, often turning to the internet for information-seeking in such pursuits (Cuillier & Piotrowski, 2009). The ability to quickly and efficiently share information between government and its stakeholders due to advancements in information and communication technologies (ICTs) has arguably led to increased demands on governments to adapt their FOI processes.

Simultaneously, advocacy around FOI in the United States has increased greatly as a result of efforts by journalists, citizens, and legal experts to strengthen and protect FOI laws at the local and state levels. Using data from the popular social media platform Twitter, this paper presents an

exploratory social network analysis that provides evidence of a dynamic multi-stakeholder dialogue around FOI taking place on social media. These findings offer insight into how social media are being used by individuals, the media, and interest groups to come together and share information about important policy issues, such as FOI and open government.

This article first provides an overview of FOI, including a discussion of the many stakeholders involved in its advocacy. Second, social media as a tool for participation is introduced and existing literature is reviewed. The methodology, data, and analysis are then presented and followed by a discussion of the findings. Finally, implications for practice and opportunities for future research are discussed.

Background

Freedom of information (FOI) advocacy

Freedom of Information (FOI) is an important issue to examine for a number of reasons. First introduced in the United States in 1966, the federal Freedom of Information Act (FOIA) has become a model for transparency and good governance. Since its introduction in the U.S., there has been an explosion of similar FOI laws across the world (Ackerman & Sandoval-Ballesteros, 2006) with 128 countries having established FOI laws as of November 2019 (Right to Information Ratings, 2019). The right to seek and receive information has even been called a universal human right under Article 19 of the Universal Declaration of Human Rights (1948) and in the United States and many other democratic governments, citizens' "right to know" is considered a fundamental democratic principle (Piotrowski, 2014). As more countries have adopted FOI laws, the push for open government, greater government transparency, and citizens' "right to know" has become more commonplace in both scholarship and political discourse.

Freedom of Information (FOI) laws generally refer to legal protections that guarantee citizens the right to access information, the right to inform, and the right to be informed (Villanueva, 2003). It is through such laws that citizens have both the right and ability to request information by way of formal requests at the federal, state, and local levels of government. In the United States, FOIA is the federal law that offers citizens these protections at the federal level while state governments have each established their own versions of laws that offer protections at the state and local levels. It is important to note that while all citizens have the same protections at the federal level under FOIA, state laws vary a great deal.

Due to the nature of FOI laws and the protections they offer for freedom of speech and the value of transparency, it is not surprising that there are many groups engaged in FOI advocacy across the United States. For example, the National Freedom of Information Coalition (NFOIC) is a non-partisan, nonprofit organization that works with coalitions across 40 states and the District of Columbia to promote open government and access to information. NFOIC supports and encourages coalitions, which are made up of a diverse group of stakeholders including journalists, legal experts and nonprofit leaders, in their work to both improve and protect open FOI laws and policies at the state and local levels.

Additional groups heavily involved in promoting and preserving FOI and "right to know" laws include Open the Government, which works at the national level in the U.S. to promote open government policies; MuckRock, a nonprofit organization that helps individuals make requests for information and share records in an effort to increase transparency; and others such as the Reporters Committee for the Freedom of the Press and the News Leaders Association (formerly

American Society of News Editors), which advocate for access to information for journalists. News Leaders Association coordinates a campaign each March to promote freedom of information, called national Sunshine Week. Established in 2005, the event coincides with James Madison's birthday and Freedom of Information Day to promote government transparency and engage the public. While organizations such as these are active in FOI advocacy, the rights that FOI laws and policies afford make promoting and defending them a concern for all citizens.

Social media and participation

"Social media" is understood to mean various activities that seek to integrate technology, social interaction, and content through applications such as blogs, wikis, photo and video sharing platforms, podcasts, and social networking sites. These web-based applications are designed for social interaction and have come to dominate society in a number of ways.

Bryer and Zavattaro (2011) identify five particular types of technologies classified as social media: Blogs, wikis, media sharing tools, networking platforms, and virtual worlds. These five categories are consistently examined throughout the literature. Within these broader categories are more specific platforms that have become quite popular. For example, media sharing tools refer to platforms that produce, distribute or exchange audio, photo, video, and text content. More specifically, it refers to companies and applications such as Skype, Instagram, Snapchat, and YouTube. Furthermore, networking platforms such as Facebook, Twitter, and LinkedIn have come to dominate many social media spaces. What is particularly special about these types of platforms is that, unlike traditional e-government such as web portal applications, they rely on user-generated content and are underpinned by the exchange of information between two or more parties.

Mergel (2013a) argues that social media channels such as those described above, represent an opportunity to uphold a core value of the public sector, which is to engage the public. The bidirectional nature of social media allows for interaction and sharing between governments and the public over platforms that afford the opportunity for increased engagement compared to the unidirectional nature of most early Web 1.0 and traditional e-government applications. There has been a substantial push for technologies such as these as a result of the Obama administration's Open Government Initiative (2009), which encouraged the use of new and innovative technologies to increase participation, collaboration, and transparency.

Social media applications, when managed effectively, have the potential to provide citizens with the opportunity to engage with government and vice versa. Engagement in this manner can take on a number of forms depending on the platform used, but the most common ways observed and discussed in the literature are through user generated content such as blog comments, direct messages, Facebook comments, and sharing or re-tweeting existing content with or without sharing opinions related to the content (Mergel, 2013b; Mossberger, Wu, & Crawford, 2013; Mergel, 2012; Hand & Ching, 2011). Scholars have argued that a great advantage of social media is that it can serve as a tool to increase democratic engagement and reach audiences not historically involved in the political process (Bertot, Jaeger, & Grimes, 2010; Mergel, 2013a). This is because of the virtual nature of the technologies and the relatively low cost of both implementation of technologies in governments and access of technologies by citizens. A majority of platforms on the market today are third-party providers, so all it takes is an agency or individual creating a profile in order to establish a presence on social media. However, social media presence in and of itself is not enough for governments or individuals to engage with one another. Furthermore, it is

still unknown whether social media has the power to engage individuals historically absent from political participation.

To date, the literature has examined how social media has been used to increase citizen participation at the local level (Mossberger, Wu, & Crawford, 2013; Sandoval-Almazan & Gil-Garcia, 2011; Hand & Ching, 2011), empower citizens as co-producers (Linders, 2012), and disseminate critical information that can aid in disaster and crisis management (Kavanaugh et al., 2012). Existing studies have primarily examined how governments are using social media to increase participation and share information but little attention has been paid to the individuals on the other side of those efforts; those who are using social media for participation and/or consuming and aiding in the dissemination of information via social media platforms. The goal of this paper is to contribute to this gap by mapping how social media is being used in this way and by whom. The study posed three research questions:

- *RQ1*: Do national advocacy campaigns, such as Sunshine Week, increase public discourse via social media?
- *RO2*: Do some tweets attract more comments or retweets than others?
- *RQ3*: Who is using Twitter to share information about freedom of information?

Methodology

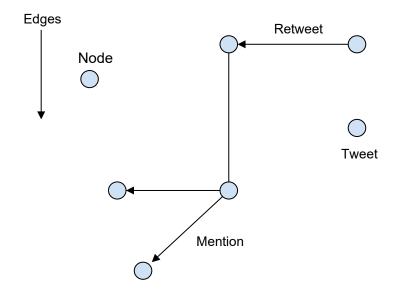
This study applies social network analysis (SNA) to explore the individuals and groups who use social media to engage in dialogue about issues relevant to government, such as transparency. The unit of analysis is a post on Twitter, called a "tweet." Posts are limited to 280 characters of text and often shared out toward a general audience. However, tweets can be directed toward another user or in response to a user when the "@" symbol is included in the tweet. Furthermore, users may repost another user's tweet in the form of a "retweet." Retweets can be as simple and straightforward as a repost of the original tweet with no comment or users may include a comment with the retweet.

This study focuses on tweets that include a particular hashtag (#FOIA), as hashtags are a way of organizing content around specific themes or topics and, therefore, a way to target individuals posting about the issue of interest in this particular study. Data were collected using an application programming interface (API), which allowed for the mining of tweets from Twitter using the chosen hashtag #FOIA. "FOIA" was chosen over FOI because of its heavy prevalence on Twitter and recognition in the United States.

Tweets including the #FOIA hashtag were collected from 5:30 p.m. on Tuesday, March 5, 2019, through 5:30 p.m. on Friday, March 15, 2019. This eleven-day period was chosen because it roughly coincided with "Sunshine Week 2019" (March 10-16). As mentioned previously, Sunshine Week is an annual national initiative promoted by News Leaders Association (formerly American Society of News Editors), which aims to bring awareness to freedom of information, transparency, and open government in the United States. Observing tweets over this time period allows us to see what conversation might look like when increased attention is being paid to FOI. In all, the application programming interface identified 4,043 original tweets and 10,099 retweets using the #FOIA hashtag during the eleven days.

The social network analysis software program NodeXL, developed by the Social Media Research Foundation (Smith et al., 2010), was used for analysis and generation of graphs and maps presented in the findings on subsequent pages of this article. The software program illustrates each tweet or retweet, called a "node" or "vertex," as a round dot. The software also identifies how those nodes are related to one another using an arrow, called a tie, or "edge." These symbols are illustrated below in Figure 1.

Figure 1
Social network analysis terms and symbols



Findings

Overall, total tweets, including retweets, mentions, and comments that included the #FOIA hashtag, started from just 61 on March 5 and increased to a high of 1,783 during the second day of Sunshine Week, a Monday. Tweets tapered as the week progressed, but were still relatively strong into the following week (see Table 1 next page). The trend is shown graphically in a bar chart on the next page, as well (Figure 2). To answer the first research question, Sunshine Week appears to have a significant effect on total tweets.

Over 41% of all tweets posted during the time period analyzed are retweets, which suggest that these users are not only using Twitter to disseminate information about FOI related content but they are then spreading such information outside of their direct networks. The number of retweets during Sunshine Week increased by almost 330% over the preceding week. This significant increase suggests that users were leveraging Twitter to share information about Sunshine Week. This is also reflected in the increase in the number of original tweets generated during this time, which almost tripled as well. Still, the ratio of retweets to original tweets (8.4-to-1) during Sunshine Week suggests that a small number of tweets were highly influential and

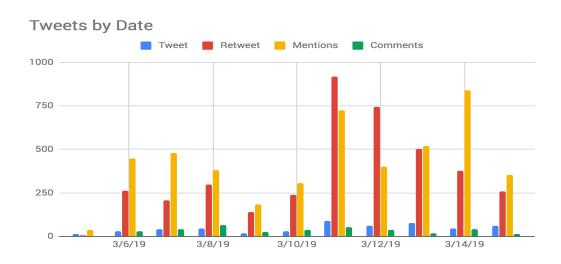
shared widely as a result. Furthermore, nearly 50% of tweets included mentions, a feature which allows users to directly tag another user either as a method of calling their attention to something or tagging them as a topic of discussion if information is related to a particular organization, agency, or public official. This number increased two-fold during Sunshine Week, suggesting even more interaction between users during the week of advocacy.

Table 1

Total tweets by day

Date	Total Interactions	Retweet	Mentions	Comments	Unique Tweets
3/5	60	14	6	37	3
3/6	769	262	450	28	29
3/7	769	207	481	40	41
3/8	791	298	382	66	45
3/9	368	139	185	26	18
3/10	611	240	305	38	28
3/11	1783	919	723	52	89
3/12	1242	743	399	39	61
3/13	1118	502	520	18	78
3/14	1306	377	841	43	45
3/15	684	259	352	12	61

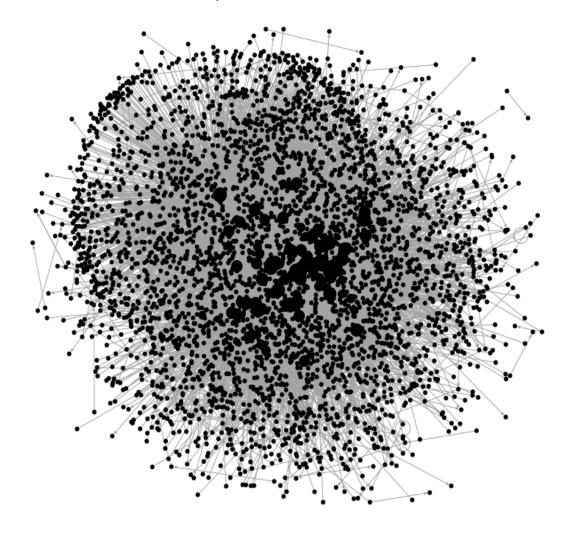
Figure 2
Tweets by day



The second research question asked whether different tweets had higher impact, reach, or interactivity than other tweets. The graph below (Figure 3) illustrates the breadth of discussion about FOI on Twitter across 4,043 unique users (nodes), which resulted in 10,099 total interactions (edges) in the form of original tweets, retweets, comments, or tags (mentions). These data suggest a dynamic conversation about FOIA taking place on Twitter. The tweets that were retweeted or commented on the most are magnified in darker concentration to show their high "betweenness centrality" which refers to the tweet's degree of influence within the network. This graph indicates that some tweets were more popular than others.

Figure 3

Tweet betweenness centrality



Across the time period analyzed, there were relatively few unique tweets. Of the 10,099 total edges, or interactions, in the network, only 498 of those edges represent original tweets posted by users. Those 498 tweets were then retweeted 3,960 times. A closer look at those tweets that were retweeted the most, shows that many of the tweets contained some form of media being shared. These media included links to articles, photos, or blog posts. A majority of the tweets that were retweeted contained URL links, which suggests that individuals are using Twitter to share content from third-party sites.

For example, links to sunshineweek.org, muckrock.com, progressmichigan.org, opengovva.org, washingtonpost.com, and youtube.com were among the most retweeted tweets containing links. The high influence of tweets containing content from other websites, especially those sites aimed at producing and sharing content about FOI, open government, and transparency, such as MuckRock and Progress Michigan, suggests that Twitter is being used as a platform for promoting and disseminating information by advocacy groups.

Furthermore, high engagement from these tweets, as measured by the number of retweets, suggests that there is both a demand for this type of information and that Twitter is an effective method for promoting content. For instance, the data show that tweets posted by advocacy groups with links to full stories located on their websites are retweeted more often. This can be an efficient and effective way to promote an organization's work and drive traffic to its website. For example, an organization such as the Virginia Coalition for Open Government (opengovva.org) might use Twitter to share its monthly Sunshine Report or any other FOI related news posted on its blog or website. Furthermore, an individual, whether a citizen or journalist, seeking FOI news can look to Twitter to stay caught up on what is happening and share information with his or her own networks by retweeting or tagging other users to direct them to information, as well.

To answer the third question, regarding who is using Twitter to share information about FOIA, each node was coded individually by user role and plotted in the SNA software. Users were categorized by five different roles: Media/Journalist, Public Official, Interest/Advocacy Group, Government Agency, and Citizen (Table 2, next page). Roles were determined based on a keyword analysis of each users' Twitter bio. For example, accounts belonging to media outlets or individuals' whose bios referenced affiliations with media outlets whether as reporters, editors, or contributors were coded as Media/Journalist. In these cases, media referred to outlets as large as MSNBC and as small as local newspapers. Accounts that referenced freelance or independent journalism work were also included in this group. Public officials were coded based on references to serving the public in an official capacity within the users' bios. Similarly, any account belonging to an official government agency was coded as such. Accounts belonging to advocacy groups were also coded. For example, official accounts belonging to organizations such as the Reporters Committee, American Civil Liberties Union (ACLU) and other organizations promoting open government, transparency and individuals' right to know.

The rest of the tweets were coded as "Citizen." Special care was taken to exclude accounts that made reference to acting in the interest of the media or a specific cause in any way. Care was also taken to include accounts with disclaimers such as "personal account" or "opinions are my own," which insinuate the use of accounts for personal opinion sharing only. While great effort was made to carefully sort each user into the categories specified, it is important to note that analysis was limited to the information included in each user's bio. Therefore, it is possible that a user tweeting about FOIA during the time period analyzed could be a journalist but did not specify any media affiliation in his or her bio and was thus, coded as a

citizen. However, due to the nature of Twitter as such a popular platform for media and journalists to share information, the likelihood that a user would be tweeting as a journalist without noting association with a particular media platform or as an independent/freelance journalist is low.

Table 2, below, shows a breakdown of the users (nodes), coded by stakeholder group.

Table 2

Number of users, by stakeholder group

Stakeholder	Nodes/Users	
Media/Journalist	706	
Public Official	71	
Interest/Advocacy Group	105	
Government Agency	64	
Citizen	3,097	

To further examine the connectivity of the various users, the graph was plotted again (Figure 4, next page) but with each node color coded by user role. The graph illustrates the overall activity as well as the activity by user role. Journalists (red nodes) were very active in both generating original tweets as well as their influence in the network as measured by retweets. The data show that 128 unique tweets were generated by journalists/media during this time and were retweeted 1,111 times. Twitter tends to be a popular platform for journalists as well as media outlets to post breaking news as well as links to news stories on their websites so these findings are not entirely surprising.

Accounts belonging to advocacy/interest groups (green) generated 137 unique tweets and were retweeted 269 times. Similar to the findings discussed above, this suggests that Twitter is effective for promoting information on behalf of advocacy groups. Surprisingly, public officials (purple) and government agencies (blue) generated the least amount of unique tweets at 4 and 19, respectively. However, nodes representing public officials or agencies were much higher at 71 and 64, respectively. This suggests that these accounts did not drive discussion as much as they were the subject of it. In other words, these accounts were much more likely to be tagged in content than they were to tweet or retweet content. For example, a user, whether an individual or an organization, likely tweeted or retweeted information and tagged the public agency or official involved. This could be a way of calling attention to government in an effort to hold agencies or officials accountable or just a way of tagging a relevant actor. This mechanism is hard to discern in this particular analysis but warrants further study.

The remaining accounts coded as those accounts tweeting from the perspective of a citizen (black) were responsible for generating 274 unique tweets. These tweets accounted for

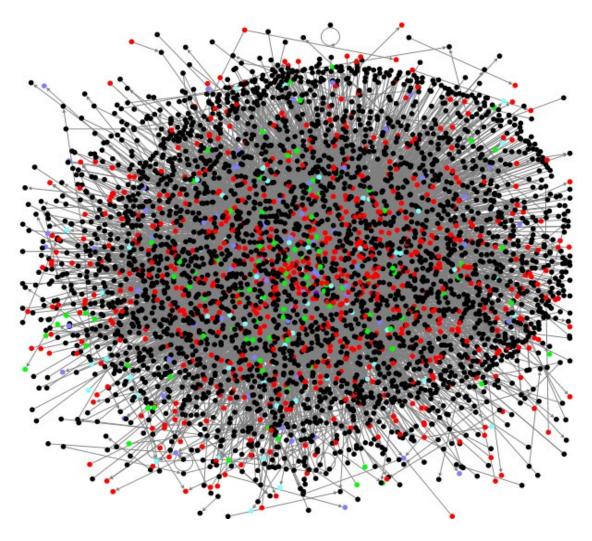
over 50% of the original content generated during the time period analyzed and were retweeted 2,181 times. These data suggest a citizen-driven dialogue or at least high engagement from citizens. It is important to note, though, that little is known about this group of "citizens" other than they are present in the network and not tweeting on behalf of government, the media or organized interest or advocacy groups. Further subgroup analysis is needed to better understand who these individuals are and what has drawn them to Twitter to discuss FOI.

Social media platforms such as Twitter offer an unprecedented way for groups to participate and interact in the absence of traditional barriers such as geographic limitations. These data illustrate a dynamic dialogue about FOI that is taking place across stakeholder groups on Twitter. The high number of retweets suggests high information sharing across, within and between groups that may not otherwise interact in this way.

Figure 4

Tweets by user role

Red = Media; Purple = Gov Official; Green = Advocacy Group; Blue = Gov Agency; Black = Public



The overall SNA statistics (Table 3, below) provide evidence of a network with a very low density but high levels of betweenness centrality. These measures suggest a very wide and unconnected network, though with a handful of nodes possessing a great deal of influence over the network. Given that this is a digital network in which actors are engaging not necessarily with one another, but with pieces of information, the low density makes sense. A high-density network is usually indicative of a close-knit and highly connected network. However, in this case, it is unlikely that the actors represented in the network actually know one another outside of Twitter, so it is not expected that the network would be connected in a way that would produce a high graph density.

However, the very high betweenness centrality suggests the influence of a few key actors. This is indicative of the less than 500 unique tweets which were retweeted nearly 4,000 times during the time period analyzed. The influence of these particular tweets could be attributed to the influence of the information itself or the actor that is tweeting the information. The high centrality could also indicate the presence of influential media sources, public officials, government agencies, or highly active advocacy groups within the network. These accounts may have been tweeting but were more likely to have been mentioned in a tweet, retweet or comment given the findings for tweets generated by user roles.

Table 3
Social network analysis statistics

Vertices	4,043
Total Edges	10,099
Graph Density	0.000506248
Minimum Betweenness Centrality	0
Maximum Betweenness Centrality	6,777,890.705
Average Betweenness Centrality	12,417.987

Discussion

The analysis presented here provides new insights into how social media is being used for civic participation, and by whom. Findings have several implications for theory and practice.

First, the data suggest that individuals do in fact use social media platforms such as Twitter to participate in discussions related to policy issues that they care about. The findings presented in this paper illustrate a dynamic and ongoing dialogue on Twitter between a diverse community of stakeholders regarding government transparency policies. Over 10,000 tweets using the hashtag #FOIA were posted, retweeted, mentioned, or replied to over an eleven-day period.

Second, Sunshine Week appears to have a significant impact on FOIA-related tweets. The increase of all Twitter activity related to FOI during Sunshine Week – from 60 interactions per day to more than 1,700 per day – suggests that advocates may have been using Twitter as a platform for promoting Sunshine Week.

Third, tweets that included photos, video, or links to advocacy organization websites generated more response, indicating an effective method for raising awareness and attention. Groups such as MuckRock and Reporters Committee for Freedom of the Press, in particular, make excellent use of Twitter to drive readers to their materials. Given that resources for many nonprofits and interest groups are especially challenging to secure and often insufficient even once secured, leveraging Twitter could be a way for organizations to do more with less. Organizations advocating for open government and FOI can look to Twitter to connect with journalists and mainstream media outlets, hold public officials and agencies accountable, and empower citizens to get involved relatively easily and efficiently.

Fourth, while journalists are represented in significant numbers on Twitter, the amount of citizens contributing to the conversation is striking. This suggests that Twitter is a place where citizens may be going to obtain information from media and advocacy organizations about policy issues they care about as well as exercise voice about such issues. It also represents a place where stakeholders have the opportunity to contact public officials, government agencies and the media directly about such issues in an unprecedented way. The bidirectional nature of social media offers users the opportunity to do all of this relatively easily and efficiently.

This study is not without its limitations, however. First, it is largely exploratory in that it focuses primarily on descriptive statistics available from a social network analysis of tweets exported from Twitter over a limited period of time. Analysis over longer periods of time is necessary to truly understand who is using Twitter to engage with issues related to open government and Freedom of Information laws and policies on a regular basis. Subgroup analysis also is needed to understand more about the "citizens" included in the analysis. It would be especially helpful to understand what is driving these users to use Twitter in this way and why they are interested in engaging with others about FOI related topics. Lastly, a more comprehensive analysis of the content of the tweets can inform understanding of not just who is using Twitter for these purposes, but how they are using Twitter. Understanding the type of information that is being shared can be especially illuminating. Specifically, understanding more about the type of information that is more likely to be retweeted can inform how individuals and organizations can more effectively leverage a platform such as Twitter to share information and garner support for their efforts.

This study contributes to a growing literature on social media use in the public sector while connecting such literature to the study of FOI in a way not previously explored. The rapid development of technology, especially the internet, has allowed for cheaper and easier dissemination of information to wider audiences than ever before. In addition, the internet offers the opportunity for greater access and sharing capabilities among individuals. This is especially true of social media, an inherently interactive and internet-based technology, which allows for collaboration and participation among users through the sharing of information in real time. By employing a social network analysis of individuals' use of Twitter to discuss Freedom of Information in the United States, this article illustrates who is using social media to engage in a dialogue about one particular policy area: Freedom of Information.

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