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Can Social Media Pressurize Government to Respond?

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Completed Research Paper

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Abstract

People today turn to social media for expressing their views and opinions. Often these opinions trigger large-scale discussion and collective mobilization. However, the impact of such massive discussion and mobilization over social media is unclear. In this study we aim to examine and understand this impact by seeking answer to the following question: Under what conditions do social media mobilization influences Government to respond? We examine this phenomenon using the theoretical lens of critical mass theory and media affordances. The results of this study suggest that government responds to citizen's online activism when a critical mass is generated. By analyzing the tweets of 100 citizen-led online activism events, we found that supporters and amplifiers play a crucial role in pressurizing the government to respond.

Keywords: online activism, social media, government responsiveness, CART, critical mass theory

Introduction

We use Facebook to schedule the protests, Twitter to co-ordinate, and You Tube to tell the world #Jan25 #egypt

- *A Tweet during Egypt Revolution*

With the increased usage of Internet in the 21st century, social media has become a powerful tool for self-expression. Citizens are using social media to keep themselves informed about policy issues, to track government actions, form political opinions, mobilize support from others, and voice their opinion, preferences, and needs to the policy makers. Political movements such as India against Corruption in 2014, Arab Spring in 2011, Gezi Park Turkey in 2013, Ahvaz pollution in 2017 and many others have utilized the power of social media for mobilizing and gathering citizens. All of these social media revolutions were directed towards the government with the ultimate goal of pressurizing it to amend its policies. Such striking rise of social media movements across the globe has revolutionized the political system.

In 2011, Times Magazine nominated an anonymous initiator of the protesters in 2011, as the *"Person of the Year"*. This suggests that online communication technologies act as the backbone of the protests. The usage of modern communication technologies for initiating political, social, or civic movements is termed as online/ digital activism. We refer to online social movements as online activism and define it as *"an organized public effort, making collective claim(s) on a target authority(s), in which civic initiators or supporters use digital media"* (Ghobadi & Clegg, 2015; Vegh, Ayers, & McCaughey, 2003). Research suggests that social media does not supplant traditional means of mobilization, except in a few and marginal cases, but tends to amplify and complement them (Bekkers et al., 2011). Today it is used both by big, powerful and centralized social movement organizations as well as by informal networks (Bekkers et al., 2011).

With the increase in number of people using social media during the recent years, we have witnessed a sheer rise in number of people raising awareness about social issues and sending invitations to people to join protests and digital sit-ins. Internet, in general, enables people to rupture barriers pertaining to distance, cost, censorship, and accountability. Moreover, the nature of pressure exerted by Internet is persuasive pressurizing (such as signing petition, writing letters). Internet, thus has a huge potential to support collective action of all sorts (conventional as well as unconventional), but the extent to which this potential can influence action in practice still needs to be clearly understood. With this background we propose our main research question: Can citizen's opinion expressed through social media, influence government's response, and if so, under what conditions?

Till date, the Information Systems (IS) literature related to social media has primarily focused upon understanding its transformative power (Aral et al., 2013). Previous studies (e.g. Aral et al. 2009; Hill et al., 2006; Trusov et al. 2010) explore social media's transformative power in assessing market and consumer behavior. More specifically, studies have explored how different stakeholders such as consumers, firms, government, and platforms use social media and their varied features for achieving organizational and societal goals (Dou et al., 2013; Sundararajan et al., 2013) as well as developing strategies. Yet despite the increase in use of social media by government to form relationships with citizens and improved quality of public service delivery (Andersen et al., 2011) research has not examined the impact of citizen-initiated online participation on government's policies. There is an intuitive link between government-initiated online participation and government response (e.g. Dekker & Bekkers, 2015). For example, studies in political science (see Hobolt & Klemmemsen, 2005) and environment (see Bernardi et al., 2018) have found that government responds quickly in case of government-initiated online participation than in case of citizen-initiated online participation. For example, Andersen et al. (2011) examined and compared the e-mail response quality and response time between Denmark's local government and its central government and found that local government was swifter in than the central government in terms of responsiveness towards citizen's complaints. There is a dearth of research on examining the influence of citizen's online political participation (such as protests through social media) on government's response. Although Bernardi et al. (2018) laid out testable hypothesis using a process-tracking theory development approach, they also proposed the conditions under which a critical event (shock) can influence policy makers to change the policy. An offline event such as Fukushima disaster was the boundary condition for their study.

Therefore, we examine the influence of protests propagated through social media on government's responsiveness. The specific research questions examined in this study are: (1) *Can citizen led online activism pressurize Government to respond*, and (2) *If so, under what conditions would a Government respond to such online activism*. Hobolt & Klemmemsen (2005: 380) define responsiveness as "*the congruence of collective public attitudes towards political issues with the policy preferences and actions of elected representatives."* Building on Vaast et al. (2017) work, we develop a model that extends our understanding about how the social media features help citizen to create pressure on the government to respond. We have used critical mass theory as an appropriate lens for examining this phenomenon. The reason to choose critical mass are twofold. Conceptually, the core tenet of critical mass is that the result of collective interests contributes to the creation of public goods (Oliver et al. 1985). Contextually this theory is suitable for explaining the phenomenon of online activism (Ghobadi and Clegg, 2015). Identification of conditions under which government responds to the online activism

is the main contribution of this work. Moreover, this understanding will help practitioners such as social movement organizers and NGOs to design and plan social movements in an enhanced manner thus getting proper and quick response from the targeted body.

Literature Review and Theoretical Background

Debates on social media use and government responsiveness

Social Media allows users to share, create and forward varied content (Kaplan & Haenlein, 2010). There are various social media platforms such as video-sharing sites, blogs, microblogs, social networking sites and so on. Each of these platforms have unique features which grants a user the power to create, share, and disseminate content. IS scholarship has till date focused upon the use of social media by organizations and have examined, at length, the consequences of using social media within an organization for knowledge sharing (e.g. Leonardi, 2014; Majchrzak et al., 2013), communication (e.g. Huang et al., 2015), and collaboration (e.g. Gibbs et al., 2015). More specifically, they have examined social media as a facilitator to achieve organizational and societal goals in various domains such as education (e.g. Majchrzak et al., 2013), healthcare (e.g. Yan & Tan, 2017), pharmaceutical (e.g. Sarker et al., 2015), e-commerce (e.g. Godes & Mayzlin, 2004), and e-government (e.g. Medaglia & Zheng, 2017). A few IS studies (e.g. Criado et al., 2013; Meijer et al., 2013; Mergel, 2013; Mossberger et al., 2013) have examined the relationship between social media use by government and its beneficial effect on citizens and have proposed new ways of promoting democracy and resolving public problems.

A number of IS studies (e.g. Alfano, 2011; Andersen et al., 2011; Bonsón et al., 2012) have examined government responsiveness – a construct borrowed from political science, environment disaster, and public administrative literature – after government turned towards social media considering its benefits and features. These studies have focused upon improving the quality of public service delivery and government structure using internet and social media usage. Most of these studies, however, have examined government's responsiveness towards citizens' participation in government-facilitated online platforms rather than in citizen-initiated online participation. These studies report that government responds swiftly in case of government-initiated citizen online participation as compared to citizen-initiated online participation (Dekker & Bekkers, 2015). Anderson et al. (2011) report that Danish local government is swifter in response as compared to the central government in responding to the e-mails. Moreover, the results of these empirical studies contribute to a country-specific or government-specific understanding. For instance, similar to Andersen et al. (2011), Eom et al. (2014) also report that most local governors in South Korea use social media to promote and advertise their own activities instead of interacting with citizens for improving public services quality. Likewise, Sobaci & Karkin (2013) also found that Turkish mayors use Twitter to send personal messages and share news. All these studies suggest that the leaders across the globe are using social media but for their personal benefit and are responding when it is directed towards a government officiated platform. The studies on government responsiveness to citizen-initiated platforms are rather low in number. Eom et al. (2018), in their study using social network analysis, demonstrated that government responsiveness increases when political leaders occupy bridging positions and act as brokers between citizens and public officials. Therefore, there is a need to examine government's responsiveness towards citizen-initiated platforms.

Some of the potential benefits to public sectors in using social media include reduction in information asymmetry and lowering of participation barriers for citizens (Eom et al., 2018). Governments across the globe are using social media such as blogs, microblogs, and social networking sites to disclose information regarding various public policies and processes. This allows citizens to monitor policies thus increasing transparency between citizens and government, which in-turn, reduces information asymmetry and helps both parties to co-create value. In such cases, citizen-participation is channelized towards government-operated platforms or pages and citizens are accountable for their opinions. Moreover, criticizing and participation on government-initiated platforms involves higher risk of being notified, and thus, higher accountability. However, with the availability of a variety of social media platforms, citizens do not necessarily need a government-initiated platform to express their views. They often express their opinion using their own social media account or by posting comments on newspaper

articles and videos. The same can be done anonymously or by using pseudonym. Social media features effectively reduce participation barrier for citizens. This is evident in cases of recent large-scale political-demonstrations across the globe, such as Jallikattu in India, or Egyptian Revolution in Egypt, wherein citizens raised their voices against their respective governments using social media and participated voluntarily in collective action (Margetts et al., 2015). These online activisms are citizen-initiated and has received less attention in IS literature (but see e.g. Ghobadi and Clegg 2015). Thus, this study contributes by adding citizen's perspective to the literature which is currently dominated by studies exploring the impact of government's presence on social media.

Social media and Collective Action

Collective action is defined as "*actions taken by two or more people in pursuit of the same collective good"* (Marwell & Oliver, 1993, p.4). People participate in a collective action after evaluating the benefits of participation (Bimber et al. 2005). These benefits are judged on the basis of the value of collective good. Collective good could range from traditional goods, such as construction of parks and bridges (Olson, 1965) to political goods, such as political policies and electoral outcomes (Bimber et al. 2005). In this study, we argue that the main objective of any citizen-led online activism is the creation of a public good, which in our case is a political good. People on social media do critical coverage of government policies individually through posts, shares, comments, and likes. Traditionally also the critical coverage of government policies is done often by citizens rather than media houses (Eltantawy & Wiest, 2011). The opinions expressed on social media get amplified further with each sharing and commenting, thus leading to an increased visibility through collective sense-making (Oh et al. 2015). Finally, such sharing and commenting results in online activism (collective action) which intends to achieve the shared objective of pressurizing the government respond to their demands. Collective sense-making precedes collective action in social movements (DiFonzo and Bordia 2007, Shibutani 1966). Bimber et al. (2005) proposed following requisites for all collective actions:

- *a means for identifying people with relevant, potential interests in the public good;*
- *a means of communicating messages commonly perceivable among them; and*
- *a means of coordinating, integrating, or synchronizing their contributions.*

Traditionally, all these conditions were fulfilled by formal organizations responsible for accumulating resources. However, previously access to the larger mass of audience incurred huge cost in terms of identifying people with potential interests, distributing messages, and organizing meetings in terms of labor and materials. With the rise of social media, this cost of accumulating resources has reduced substantially (Bimber et al., 2005) for various reasons. First, social media allows individuals to write about themselves, thus allowing others having similar interests to locate them and connect with them. Features for creating community/ group along with easy search option is available on each page of the mobile-app. The web version of the platform also helps in identifying people with similar interests and agenda. For instance, Facebook and Twitter allow people to create a closed / open group and twitter handle for a specific community. People with similar interest can join these groups and contribute in creation of a public good. Secondly, for a collective action to occur there must be a means for communication. For large-scale activism, it is necessary that interactions among people are highly targeted, so as to generate meaningful participation. Social media features such as hashtags bring greater coherency in expanding awareness and act as symbolic anchors to direct other user's attention towards the activism (Oh et al., 2015). For instance, usage of #jan25 and #egypt during Egyptian Revolution allowed people to identify and relate with a common agenda and bring in a collective action to attain the objective of policy change. Thirdly, there has to be a means to control the activism and facilitate integration and co-ordination of the event. People use social media to schedule protests, spread awareness, and co-ordinate amongst the participants. #jan25 hashtag was used to spread situational awareness across the world and for coordinating with participants who were preparing for the event on Tahrir square on January 25, 2011.

In summary, social media fosters collective action by allowing people to share, create, and seek information, thus bringing the like-minded people together. Based on Bimber's et al. (2005) requisite

conditions for collective action, it can be inferred that apart from the platform, people's participatory behavior plays a deterministic role in collective action. Vaast et al. (2017) identified three major types of roles in social media namely "*advocates*", "*supporters*", and "*amplifiers*" which lead to collective action (Table 1). These different participatory roles on social media can be explained through the lens of affordances. Affordances are "*actions possibilities and opportunities that emerge from actors engaging with the focal technology*" (Faraj & Azad, 2012 , p.238). Social media platforms offer affordances which can be used by different online users differently. Leonardi (2013) categorize these affordances into individualized, shared, and collective affordances. In case of online activism, collective affordances are more appropriate, as they reflect the way an individual uses technology for his/her own need but which in aggregate generates collective outcome (Vaast et al. 2017). Building on Vaast et al. (2017), we argue that these participatory roles taken by citizens play a crucial role in contributing to the public good. We discuss these in detail now.

Role of Advocates, Supporters, and Amplifiers

Building on the critical mass theory (CMT), in this section we present our hypothesis by relating the above-mentioned participatory roles (Vaast's et al. 2017) and their influence in creating pressure on the government to respond. CMT explains how sufficient number of people, when organized (collective action), contribute to collective good (public good) (Marwell & Oliver, 1993). In other words, critical mass is requisite for a collective action to happen. We define *critical mass* from the perspective of innovation diffusion research as *"the point at which online activism is adopted by enough individuals so that it becomes self-sustaining"*. Even social movement scholars have guided their work with an assumption that some threshold number of participants is required to bring a social movement in existence. As per CMT, two independent variables, namely *production functions* and *group heterogeneity* influence the outcome of a collective actions (Oliver et al., 1985). Production functions or forms refers to how inputs of the resources contribute to the creation of public goods. These may include the political opportunities prevailing in the environment (Ghobadi and Clegg 2015). Since we are interested in studying the role of online activism in creation of a public good, the second independent variable – heterogeneity in population in terms of interests and resources – is of greater interest to us. This is because only a few resourceful and highly interested individuals contribute to the initial stages of low returns and create conditions that induce widespread contribution for the creation of public goods, thereby helping others (Ghobadi and Clegg 2015). The interest for the collective good ranges within the group. Few individuals who are highly interested in the collective good will contribute better in achieving it. They are the ones who incur higher costs in initiating the protest. Similarly, within participants there is heterogeneity in terms of the amount of resources available to them. Markus (1987) regard these variations in terms of interest level and resources accessibility as *characteristics of activists*.

Table 1 presents an overview of the types of online users as identified by Vaast et al (2017). Advocates are the ones who *"initiate, guide, and rekindle the online activism"* (Vaast et al. 2017: p.1192). They are responsible for providing content and initiating the activity pertaining to the online activism. Advocates send personalized opinions on an activity and try to spread awareness. They are the heavy users of social media platform and use personalized expression (such as usage of I while posting or tweeting messages). Based on the description provided by Vaast et al. (2017), we suggest that advocates have greater level of interest in achieving the collective outcome and have greater access to resources as well. Advocates incur higher cost in terms of time and effort in creation of resources such as videos, pictures, and tweets, which can bring in greater participation and rekindles the interest of other participants.

Next, supporters are the ones who are moderately involved with social media and are confined with prominently less intense features (Vaast et al. 2017: p.1192). They mainly support the advocates and typically follow the activities posted by advocates. In case of using microblogs, such as Twitter they predominately use available tagging features. Tagging feature allows online user to attach any other user to the post. For instance, the below tweet uses '@' symbol to different users such as PMOIndia which is a twitter handle of Prime Minister Office of India.

> Tweet: @PMOIndia @narendramodi @PTTVOnlineNews @arya_offl @actorvijay @VishalKOfficvish @thanthitv we need #jallikattu plz support

Posts by supporters pressurize the tagged user to react. Moreover, their messages are amalgamation of their personalized opinion as well as a request to others for supporting their cause. The cost to online users arise in terms of their efforts in posting and suitably tagging users who would be interested in the formation of a collective good. They have high interest level, but moderate access to resources as compared to advocates. This is because the only resource they have is high speed Internet (Ghobadi and Clegg 2015) and access to people who might be interested in contributing to the formation of a collective good.

Finally, amplifiers are those who amplify the effect of collective action and help maintain the momentum of activism. They support advocates and supporters by circulating their content using the retweet / sharing feature of present in the social media. Unlike advocates and supporters, amplifiers do not share their personal opinions, but instead lend their support by sharing content created by advocates and supporters. These activists are the ones who are moderately interested and are extremely low in accessing the resources.

Postings on social media by online activists simultaneously targets two stakeholders – government (or policy makers) and citizens. Government is targeted so as to pressurize it for meeting their demands and citizens are targeted to seek support so as to achieve a critical mass and momentum as well as to sensitize them towards the cause (see Illustrative tweets in Table 1 for evidence). This implies that public opinions on social media might play a crucial role in the formation of a collective good.

Table 1. Roles taken by activism participants

Roles	**Advocates**	**Supporters**	**Amplifiers**
Definition	Act as initiator and guide other online users to participate. Heavy users of social media features.	Support advocates in sustaining the activism. Moderate users of social media features. Focus primarily on tagging @ feature.	Help in accelerating the activism and providing it the momentum. Moderate users of social media. Focus only on retweet/ share feature.
Characteristic	High level of interest and high access to resources.	High level of interest and moderate access to resources.	Moderate level of interest and low access to resources.
Illustrative Tweets*	• I support #jallikattu • Tomorrow Protest For #jallikattu in #Marina morning 7am. For #Farmers, 10am to 5pm share it to maximum #Shared... http://fb.me/5ALh3x9b3 • My DEAR All Twitter #Kamalians Please Try To Change Your DP With This Below Image#tnneedjallikatu #jallikattu My Humble Request pic.twitter.com/X25QZO9B3K	• @PMOIndia @narendramodi @PTTVOnlineNews @arya_offl @actorvijay @VishalKOfficvish @thanthitv we need #jallikattu plz support • @SmileSettai comes up with a video #wedojallikatu which shows the power of social media users. #jallikattu https://youtu.be/r7e4BLIvWA • @sompitashet u r one tru friend always thr for me. Thank u for ur understanding& supporting I just told u once n u support #jallikattu	• RT @arvindbalu It's time to bring in the attention of all the national channels !! Create awareness of what exactly is #jallikattu. #wedojallikatu https://twitter.com/cinemacalendar/status/817698431758123008 … • RT @SirJadeja Eating Beef And Animals Is Yummy. But #Jallikattu Is Barbaric And Brutal. Please Stop Such Hypocrisy. #JallikattuSlogans #WeNeedJallikattu

* Tweets illustrated as an example are from single protest event Jallikattu which was a large-scale citizen led demonstration.

Literature suggests (e.g. Lubell, 2002) that personal efficacy is a major factor that motivates an individual to participate in a protest. Personal efficacy refers to the belief that individual participation in a protest will make a difference to the system. Mohai (1985), examining environmental activism, reported that people with higher personal efficacy were more concerned with the environment. Lubell (2002) further extended Mohai's work and found that people who are concerned with unhealthy environment are more likely to engage in environmental activism. Consistent with these findings, it

can be inferred that online users who are acting as advocates, supporters, or amplifiers are the ones who are concerned with the issue, and are therefore, raising their voice by engaging with social media platforms as per their interest and access to the resource.

Prior theorization and findings in social movement literature have credited the outcome (success/ failure) of social movement and protests to structural political opportunities (Kitschelt, 1986). However, later Giugni (2007) reported that structural political opportunities alone are not sufficient for policy change, rather public opinion also plays a crucial role in shaping the policy. He found that protest activities plays a crucial role in spreading the awareness amongst the citizens, and thereby, bringing changes in opinion through greater participation (Giugni, 1998). Giugni (1998) and Agnone (2007) both argue that changes in public opinion help protesters achieve their objective as it makes government more responsive to their demands. In order to bring in greater participation, Agnone (2007) states the mechanism of *amplification*. According to Agnone (2007), presence of *noisy* protestors, who can make the issue public is a must for the voice to be heard by the government. This amplification effect, therefore, rests on the number of protestors and whether the issue converges to the general public as well as the extent to which protesters are concerned with the issue. In this paper, we hypothesize that critical mass of advocates, supporters, and amplifiers will pressurize government to respond to the citizens over social media.

H1: A critical mass of advocates will pressurize the Government to respond.
H2: A critical mass of amplifiers will pressurize the Government to respond.
H3: A critical mass of supporters will pressurize the Government to respond.

Several scholars in public administration literature have unpacked the ways through which state responds to the citizen's demand. For instance, Bryer (2006) listed out six variants of bureaucratic responsiveness – dictated, constrained, purposive, entrepreneurial, collaborative, negotiated. Blair (2011) proposed that the state response for a citizen-led activism can be depicted in a form of continuum, with repression and enthusiastic support occupying the two ends and passivity in middle. Most of the times the government officials or cabinet ministers tagged by supporters in social media posts either choose to express their views in support (enthusiastic support) or remain silent (passivity). Expressing their response in the form of repression is often seen in offline protests such as sit-ins, demonstrations (Steinberg, 2018).

Research Methodology

Data Collection

Our research aims to understand the conditions under which protesters of online activism can pressurize the government to respond. To do so, we first started with identification of protests. In order to remain focused, we confined ourselves to the protests that happened in India between January 2011- January 2018. The reason we selected this time-period of eight years is that this period witnessed multiple instances of citizens raising voice over social media against varied issues ranging from environmental, social, political, cultural and socio-economical. We began with the identification of the protests which were directed towards the government and had utilized social media platforms for attaining collective action. We identified these from the prominent news sites of the country, such as The Guardian, The Times of India, The Hindustan Times and The Reuters and constructed our event dataset. After an exhaustive search, we identified 123 instances of activisms. We used Twitter to examine the phenomena of online activism because each event on Twitter is associated with some unique hashtag, which distinguishes one activism from another. For instance, residents of southern Indian state Tamilnadu started political activism using the hashtag "#StopHindiChauvinism" to collectively vent their anger over the perceived imposition of Hindi language on the state by the central government. Another reason was the presence of government officials and ministers on Twitter. Sometimes multiple hashtags were associated with a single protest event. To overcome this issue, we identified the main hashtag which was related with the online users, and in case of ambiguity amongst the users' pertaining to a hashtag, we incorporated the tag that drew highest number of users for any particular event. For some of the protest events, we were unable to find suitable hashtags whereas other protests did not make it to

Twitter. We removed such events from the dataset and were finally left with 100 online citizen-led activisms. For each of the 100-protest events, we then collected tweets from Twitter. To build the tweets dataset for each protest, we created a web-crawler and scraped the tweets for entire time period of each protest using R script, as Twitter API allows scrape data only for past one week. A separate excel sheet was created for each protest event. Tweets for each protest were collected, till the time government first responded to the citizens (either in passively, in support, or in repression). The start and end time period was selected based on the newspaper articles selected for protest. Figure 1 presents the summary of data collection process.

Operationalization of Advocates, Supporters, Amplifiers, and Government Responsiveness

After the collection of tweets for all 100 protests, we then moved to data cleaning. Since our aim is to examine the influence of citizen-led activism, we removed the tweets posted by the media houses. We then identified the number of advocates, supporters, and amplifiers. The identification of the three participatory roles was done on the basis of Vaast et al (2017). As described by Vaast et al. (2017) advocates are those users who initiate the campaign; supporters are those who support and quantify the collective action by using tagging feature of Twitter; and amplifiers are those who give the momentum to the activism by using retweet feature of Twitter. Thus, we identified the number of users who used the tagged/mention feature "@" in their tweets as supporters. Amplifiers were identified by the number of users who retweeted the tweets of advocates or supporters. Advocates were identified by the number of users who tweeted an original tweet. In summary, number of advocates are the original tweeters, calculated by first calculating the original tweets. Original tweets are equal to total tweets sans tweets by supporters and amplifiers. From these original tweets, we found the number of users who tweeted these original tweets. Advocates occupy the largest share when compared to the other roles whereas amplifiers enjoy the least share.

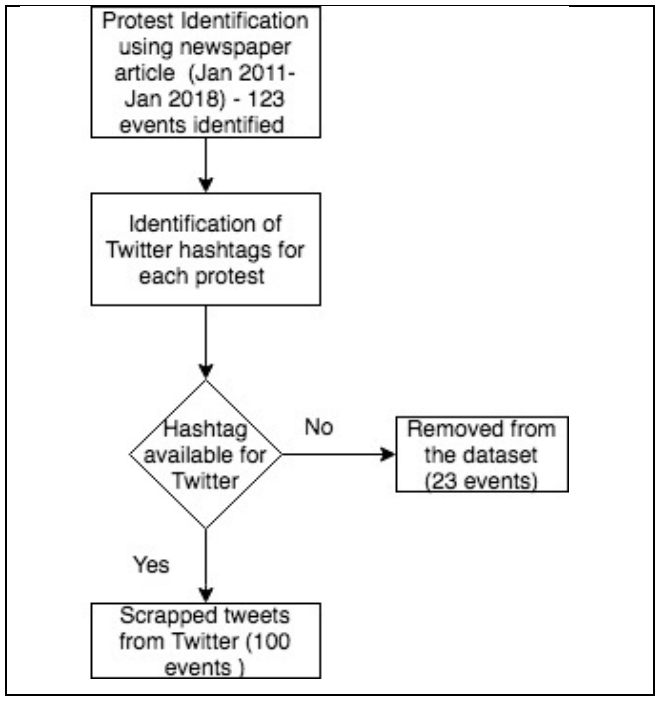

Figure 1. Visual Summary of Data Collection Process

We coded the dependent variable 'government response' manually as binary variable (0/1). If government has responded passively then the outcome was coded as 0, whereas if government responded either with repression or enthusiastic support then outcome was coded as 1 (See Table 2 for description).

Table 2. Variable Description

Variables	Operationalization	Average users
Supporters	Number of users who used @ while tweeting	600
Amplifiers	Number of users who retweeted the tweets	195
Advocates	Number of users who tweeted original tweets	1529
Government Response	Manually code as 0 (no response) or 1(responded)	Number of events where government responded = 41 Number of events where government didn't respond = 59

Data Analysis and Results

We analyzed the data using classification and regression trees (CART) modeling technique. CART is a binary decision tree which uses a top-down algorithm for production of a tree (Zhou et al., 2004). It explains the response variable variation using two or more explanatory variables. Response variable can either be numeric or categorical. In case of numeric response variable, it is known as regression decision tree. While in case of categorical variable it is a classification decision tree. In our case the response variable "government response" is a categorical variable. The tree gives out various rules that explains the conditions under which a response variable is achievable, and is created by repeatedly splitting the data. CART allows non-linear modelling of relationships and is relevant in our case as the nature of relationships between response (dependent) and independent variables are not very clear. Further, this technique is easily interpretable and provides higher accuracy (Pakgohar et al., 2011).

The CART method was carried out for classifying government response for the purpose of determining the joint effects of the participatory roles. The right side of the classification tree (Figure 2) represents the conditions under which the government does not respond, while the left side of the tree are the conditions under which the government responds. Terminal nodes of the tree was positioned at the end of the tree and did not split further. Splits for the nodes was determined using binarization method in CART.

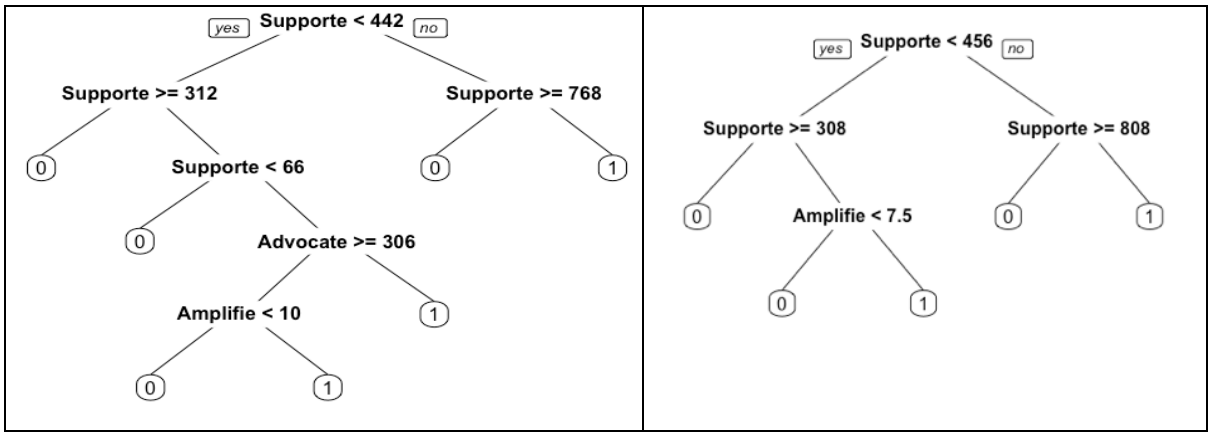

Figure 2a: Before Pruning **Figure 2b: After Pruning**

Figure 2: Classification Tree

NOTE: Amplifie: Amplifier, Advocate : Advocates, Supporte : Supporters
1: Government responded, 0: No response

The initial model was not pruned for controlling the levels of the tree and had 5 levels. Therefore, the terminal nodes had comparatively lesser sample size, thus resulting in 23% misclassification (borne out of overfitting). In order to prune the tree, we validated the classification tree using complexity parameter

and cross validated error. The value of complexity parameter helps us in identifying the optimal pruned size tree (Zhou et al., 2004). Pruning a decision tree is a process of removing a sub-tree or a leaf node in order to reduce the expected error and it helps overcome overfitting problem. Based on the value depicted in Figure 3, the variables selected to model CART on government responsiveness were limited to 3 levels for each category (i.e. 2 splits from the "root" node, the start node of tree), and the misclassification error was reduced to 14%. Thus, the pruned tree has a better classification rate and hence accuracy (Figure 2).

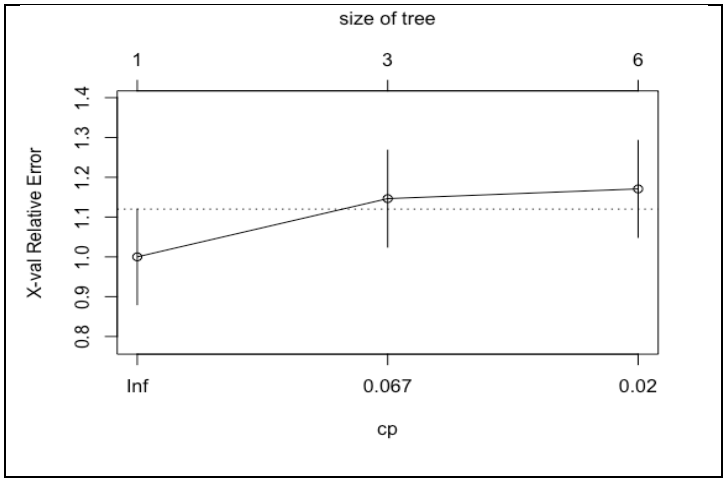

Figure 3. Graphical Representation of Cross-Validated Error Summary

The findings from Figure 2a are slightly different from that of Figure 2b. From Figure 2a it can be inferred that supporters are the ones who pressurize the government the most. They are followed by advocates and then amplifiers. The pruned tree (Figure 2b) reveals that supporters and amplifiers play a crucial role in making a government respond to collective activism. The results of CART modeling provide support for all our hypothesis. However, if we rely only on Figure 2b, we find that H2 and H3 are fully supported, whereas H1 is not supported. We can thus conclude that supporters and amplifiers play crucial role in pressurize the government to respond. From Figure 2b, we can infer two different conditions under which a government will respond:

1. Supporters >= 808
2. Supporters between 308 and 456 AND Amplifiers > 7.5

Conditions where government doesn't respond are the opposite of these conditions. First condition states that for online activists to achieve their goal, supporters need to create the buzz by tweeting at least 44.8% of the tweets. Second condition suggests that both supporters and amplifiers are necessary for achieving the goals. If supporters are able to contribute tweets for less than 44.8%, then amplifiers will also have to contribute at least 1% to the total tweets. Thus, the joint effect of amplifiers and supporters are necessary for pressurizing government to respond.

Discussion and Implications

Discussion for Findings

The objective of this study was to understand, if public political opinion on social media can pressurize the government, and if yes, under what conditions. Previous research has established the relationship between social media use by government and its beneficial effect on citizens. Also, social media has been studied as the tool that facilitates collective action (or mobilization) (Segerberg & Bennett, 2011; Margetts et al., 2015). However, the outcome of this collective action has not been explored in the IS

literature. The results of this study reveal that social media's collective action has a potential to influence government's decision making.

Our finding is consistent with that of previous research and can be explained using Hirschman's (1970) framework. According to this framework, citizens have three possible options to exercise – exit, voice, or loyalty in case they have issues with the government. Voice is any attempt made to change system, rather than ignoring it either individually or collectively. Loyalty is an attempt, where people support the demands of others for policy change without exhibiting any other behavioral change. And exit is an option exercised by those who do not want to participate and voice their opinion as they fear the consequences of being noticed. Mapping these three actions with our participatory roles, advocates exercise voice based participation, supporters are the loyalists, and amplifiers exercise the exit based participation. Online users who enact the roles of advocates, supporters, and amplifiers make an attempt to change by using the social media features. Hirschman (1970) states that those who are more active and reliable are the most articulate person for change. Our results also show that supporters, and amplifiers are able to pave the way for change by making government respond to their demands. Thus, the loyalty and the exit-based participation plays a crucial role in drawing a government's attention. Once advocates raise their voice, supporters and amplifiers who relate with the activism participate by targeting the government using social media features such as mentions and retweets respectively, and thus make the activism self-sustaining. In summary, it is the buzz created by supporters and amplifiers that forces a government to respond.

Implications for Theory and Practice

This study has a few interesting implications for theory. First, much of the IS literature on intersection of social media and government has focused on how the social media use by government impacts their service delivery. But none of the studies so far have focused on what happens when citizen's protests against government over social media through online activism. This study contributes by proposing the conditions under which government responds to the social media public opinions. Secondly, we contribute to the literature by making a methodological contribution as earlier studies on online activism have confined themselves to mostly using qualitative techniques, such as content analysis, and case studies analyzing a single type of activism. We utilized the classification modelling technique to access the impact of collective action on government by incorporating varied activisms ranging from environmental to solidarity events. Thirdly, we used CMT to establish a link between group heterogeneity present amongst online users and participatory roles taken by them. Previously, CMT was used in communication and innovation studies. Ghobadi & Clegg (2015) used CMT to explain online activism conceptually. We extend their work by bringing in the concept of social media affordances in creating critical mass which then pressurizes the government to respond. The study also has a few interesting implications for practice. Our findings reveal that supporters bring visibility to the activism followed by amplifiers. These findings will help social movement organizations to design organized collective participation campaigns on social media.

Limitations and Future Research

These results of this study should be viewed in the light of its limitations. First, we have incorporated only public opinions on social media as predictor of government responsiveness. As the triggering point of any online activism is an offline event, it would be interesting to see the influence of opinions of citizens shared both in the offline and the online environment. Further, inclusion of opinions by media houses and political elites present on social media to the classification model might give us deeper insights in terms of what exactly influences government response. Is it public opinion alone or the joint effect of political structure along with the public opinion? Finally, our findings were confined to Twitter which may influence generalizability of our conclusions.

Conclusion

Till date, social media has been studied in the past as a platform which helps in knowledge collaboration and as a communication platform which accelerates the communication process. However, little

research focuses on the influence of citizen's collective action on a government's policy decision making. There is enough evidence that suggest that people's voice against a government's policies is heard. We examined this phenomena by investigating the impact of citizen's voice and their influence on government's decision making using critical mass theory and social media affordances. The results of this study reveal that both supporters and amplifiers play a critical role in pressurizing a government to respond.

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