Mobilizing Media: Comparing TV and Social Media Effects on Protest Mobilization

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Abstract

The year 2017 saw a cycle of protest ignited by President Trump's election and subsequent policies. This research seeks to investigate the role of social media and television in raising awareness of protest events and increasing participation in marches and demonstrations. This paper uses data from two surveys conducted in May and June 2017, during the peak of this cycle of protest. We explore the role of social media for protest participation (in general) as well as for awareness and participation in the Women's March and March for Science. We find that Twitter use offers more consistent effects compared to Facebook in relation to the cycle of protest. In contrast, television use has no impact on awareness and thus, limited potential for mobilization. Social media is distinctive in relation to mobilization, because of social networking features that allow people to learn about specific events, discuss the issues, expose people to invitations to participation, as well as identify members of one's social network who are also interested in participation.

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In 2017, there were many large scale protests in the United States in the aftermath of President Trump's election. In this same year, there were more than 6 million protestors in 6,500 events across the United States (Andrews, Caren, & Browne, 2018). Tarrow (1998) coined the concept of *cycles of contention* to depict periods of "heightened conflict and contention across the social system" (p. 142). At the time of Tarrow's writing, scholars were not discussing a communication infrastructure that could help fuel such contention. However, social media has been credited with mobilizing millions of citizens across the United States to attend various events, including the Women's March and the March for Science. In terms of protest mobilization, social media functions differently than other media. Social media is particularly conducive to mobilization, because the invitations to participate and information about the issues flow through social networks. Social movement scholarship has established that social networks are key to protest participation (e.g., Snow, Zurcher and Ekland-Olson, 1980).

This paper uses survey data from two nationally representative samples of Americans. In particular, we examine the role of these different media in raising awareness of these events, then participation in these events. We find that social media use predicts awareness of and participation in the Women's March and March for Science. Twitter use offers more consistent effects than Facebook use on both awareness and protest participation in these events. Five of the six models show significant Twitter effects on protest mobilization. To establish the robustness of our findings, we examine social media use in relation to participating in any marches and demonstrations in the past year. We replicate the findings that Facebook and Twitter use are correlated with protest participation. Surprisingly, television use does not increase awareness of events, which limits its potential for mobilization. We explain these differing media effects in

terms of social media's affordances, specifically, allowing people to discuss the event and related issues, exposure to invitations to participate, and the ability to identify members of their social network who are also interested in participation in the events. These affordances enable mobilization. These affordances contrast with television's pro-establishment bias and reactive coverage of the protest events, after they occur.

Our paper is distinctive in this line of research. We test our models across two nationally representative survey samples: one survey is collected in May 2017 and the other in June 2017. The surveys tap into the cycle of protest in the period after the election of President Trump (Andrews et al., 2018; Fisher, 2018). Our data is also unique in assessing the mobilization process, including hearing about an event (awareness) as well as participation in the event, making a distinct contribution to literature, which tends to focus on surveys of protestors. In relation to the March for Science and Women's March, there are several studies that surveyed protesters at these events (Fisher, 2018; Ley & Brewer, 2018; Ross, Struminger, Winking, & Wedemeyer-Strombel, 2018). We find that social media matters for both stages of protest recruitment: awareness and participation. Further, we offer consistent findings about the importance of social media, particularly Twitter, across two protest events as well as protest participation in general. Our data can help extend theories about protest participation in *specific events* to participation in protest *in general*. This is an important contribution to social movement scholarship, which tends to be movement or event-specific.

Media and Protest Awareness

Media is a key resource for learning about current events, cultivating interest in political issues, and monitoring the government's response to political issues. Media is one of many ways

in which people can learn about a protest event. However, television, print news, radio news, and online news differ in their effectiveness in performing these informational roles. Surveys of protest participants show that the Internet and personal networks are key methods for hearing about the event (Anduiza, Cristancho, & Sabucedo, 2014; Fisher, Stanley, Berman, & Neff, 2005; Fisher & Boekkooi, 2010; Fisher, 2018; Van Laer, 2010). Social media are distinctive in that people learn about an event through their friends, organizational ties, or through campaigns (Anduiza et al., 2014). For example, Tufecki and Wilson (2012) found that interpersonal connections (via face to face, telephone or Facebook) were the most popular ways to learn about the protest events in Tahrir Square. Social media is different from other media in offering an information flow that can occur rapidly before the event occurs and without external gatekeepers/editors.

Traditional media, in contrast, tends to be reactive in its coverage of events. Anduiza et al. (2014, p. 752) argued that traditional media had poor coverage of the 15M protests in Spain in 2011, because "no parties or unions or large organizations were involved in staging the event and the traditional media could not anticipate its success." The implication is that traditional media did not have access to contacts to enable coverage of these events. Having connections to social movement actors, i.e., reporters who cover specific "beats", is important to news coverage of social movement activities (Gamson, 2004; Oliver & Maney, 2000; Wouters, 2013). For ritual events, i.e., annual marches, these relationships develop over time, but for new events, these relationships may not exist, impeding coverage of the event. On the other hand, more routinized or ritual events may be less newsworthy and thus, do not receive traditional news coverage (Oliver & Maney, 2000).

However, others have pointed out that even if traditional news media did know about these events, they still might not cover the event before it occurs. Providing mobilizing information may be perceived as violating journalistic norms around neutrality (Hoffman, 2006; Valenzuela, 2013). Traditional media may have a pro-establishment bias, whereas social media may offer a pro-movement perspective (Lee, Chen, & Chan, 2017). Editors may wait to cover events, after they occur, considering factors such as the size of the event, presence of conflict or violence, or the topic of the event (Earl, McCarthy, & Soule, 2004; Kilgo & Harlow, 2019; Oliver & Maney, 2000; Wouters, 2013).

Television tends to broadcast clips of the event after it occurs, creating an audience of spectators, but not an audience of mobilized citizens. In this way, different media have differing mobilization potential. Television has less of a mobilizing effect on protest participation, than social media. Across the globe, research has found minimal effects of television news on protest participation (see Table 1). Of the 13 tests of the correlations between television news and protest participation, only three were statistically significant.

[Insert Table 1 here]

In contrast, there are 29 tests of the relationship between social media and protest participation. Twenty tests are positive and significant, one test was negative and significant, and the remaining tests were not significant. As such, our first research question is:

Research Question 1: How do social media effects differ from television effects in raising awareness of and participation in protest events?

Media and Protest Participation

Klandermans and Oegema (1987) studied a peace demonstration in 1983 in the Netherlands. The event was unprecedented with about one of every 25 citizens joining this demonstration. To examine the process of mobilization, Klandermans and Oegema (1987) offered a four step process. This process merits revisions to examine the role of social media. These revisions recognize how social media is distinct from other media and how social media better aligns with the key mechanisms outlined by Klandermans's protest mobilization model.

In Step 1, people are expected to participate in a demonstration, **if they agree with the goals.** Movements work towards consensus mobilization (Klandermans, 1984) to educate or influence people to agree with their position, so that people's first exposure to a movement is not merely when approached with a recruitment attempt. In this step, social media is important, but the platforms may differ in their function. Social media is important for facilitating conversations (Valenzuela, 2013). Conversations on social media can lead to recognizing an injustice and agreement with the goals of a movement (Anduiza et al., 2014; Lee, Chen, & Chan, 2017), which supports the mobilization process. The use of social media for political expression is illustrative of this conversational element which is connected to protest participation (Moseley, 2015; Valenzuela, 2013; Valenzuela et al., 2016). These conversations could occur through Twitter or through Facebook, but the nature of the conversations may differ across platforms (Koc-Michalska, Schiffrin, Lopez, Boulianne, and Bimber, 2019; Tufekci, 2017). In particular, Twitter conversations tend to be more open, which may allow discussion among more loosely connected, diverse discussion partners who may not know each other (Koc-Michalska et al., 2019; Tufekci, 2017). In contrast, Facebook may allow for discussion among people who already have an established relationship. As such, the mobilization potential of these different platforms may differ. If Twitter is composed of weak ties (Scherman, Arriagada, & Valenzuela, 2015), this

may be advantageous for information flow (Granovetter, 1973). However, close ties may be more influential in recruitment attempts (McAdam & Paulsen, 1993; Somma, 2010). Furthermore, the platform effects may depend on how this media is being used. If Twitter is more focused on news and current events, whereas Facebook is more focused on personal and family information, the effects of Twitter on participation would be larger than the effects of Facebook (Scherman et al., 2015).

In Step 2, Klandermans and Oegema (1987) examine whether the person was the target of a mobilization attempt. In other words, **they need to be asked to participate**. Here, networks become critical. They write that the mass media is ineffective in mobilizing people. However, we argue that social media is distinctive in that the recruitment attempt may arrive through trusted friends (Lee, Chen & Chan, 2017). If a friend asks you to participate, you are much more likely to agree to participate than if a stranger asks. Snow et al. (1980) conducted a mini meta-analysis of 10 case studies of social movements. They found that movement members are most likely to be recruited through friends/acquaintances and relatives, rather than recruited by people outside their networks (strangers). As mentioned, Twitter and Facebook may differ in terms of social networks. Facebook networks may be composed of friends and relatives, which may offer more effective recruitment networks, compared to Twitter. However, this network effect depends on whether one's Facebook friends are supportive of protest as a form of political activities (Step 1). In early work about the Internet and collective action, online communication (email listserv) was observed to mobilize citizens during certain periods of discontent when collective action may be perceived as an effective strategy, as well as de-mobilize citizens during later stages when collective action does not seem to be effective (Hampton, 2003). On social media, we might see the same dynamics.

In Steps 3 and 4, **participants weigh the costs and benefits of participation** (Klandermans & Oegema, 1987). Snow et al. (1980) explain that the decision to participate, once invited into a movement, is dependent on countervailing influences. These countervailing influences (or structural availability) include discretionary time and risks or sanctions associated with participation. In distinguishing university students who were movement sympathizers, rather than participants, Snow et al. (1980) find that the most commonly cited reasons for not participating are: 1) didn't know anyone actively involved, 2) not enough time, and 3) wasn't asked. These findings support both network and "structural availability" explanations of differential recruitment. Social media is distinctive in addressing whether one knows someone who plans to participate and whether one is asked to participate. Identifying protest participants in one's social network is easier through social media tools that allow people to specify their interest in attending an event. For example, on Facebook, a person can set up an event and ask people to attend; Twitter does not have a similar feature. This model of participation leads to two research questions:

Research Question 2a: To what extent does Twitter predict awareness of and participation in protest events?

Research Question 2b: To what extent does Facebook predict awareness of and participation in protest events?

Social Media and Protest Participation

The prior studies of media effects on participation have focused on the *informational* role of both social media and traditional media (Table 1). However, the potential of social media extends beyond the distribution of information. Valenzuela (2013) points out three types of

social media use: *information, network building, and political expression*. In particular, he finds that the information effects of social media are not significant, but social media effects for networking (joining causes) and political expression are significant predictors of protest participation (Valenzuela, 2013). This finding is important as many scholars claim that people are liking, sharing and posting to social media, but argue that people do not continue this engagement offline (see review of this discourse in Boulianne, 2019). Nonetheless, a growing body of literature documents that sharing political information via any social network site is positively and significantly correlated with protesting (see Table 1).

While using social media for political expression is positively correlated with protest participation, existing research has established that other measures of social media use also matter. Table 1 summarizes 18 studies (containing 29 estimates) about the role of social media in protest participation. In general, the research finds positive correlations between various types of social media and protest participation. As such, our final research question is:

Research Question 3: What types of social media uses (information, network building, and political expression) have the largest impact on protest participation?

Case Studies

Following Klandermans and Oegema (1987), we study this mobilization process using a case study approach. We use two protest events in 2017: the Women's March and the March for Science. These two events occurred at the peak of the cycle of protest and are among the largest events (Andrews et al., 2018; Fisher, 2018).

Women's March, 2017

The first Women's March was held on January 21, 2017. Four million people marched in Women's March events across the United States (Andrews et al., 2018), including 500,000 people in Washington, DC (Fisher, 2018; Fisher, Jasny & Dow, 2018). The origins of this movement lie in a Facebook post (Nicolini & Hansen, 2018; Stein, 2017). Teresa Shook posted to a Facebook group to vent about Trump's election and suggested that a pro-woman march was necessary. She then initiated an event invite, and in the early stages, a few dozen friends agreed to participate in the event. Fisher et al. (2017) surveyed protesters at the event in Washington, DC. They found that 70% of protesters *learned* about the march from Facebook.

Farhi (2017) documents the little attention to the Women's March on NBC and ABC news, as well as New York Times and Washington Post. That said, Kilgo and Harlow (2019) find that the coverage of the Women's March was more "legitimizing", when compared to other protest events in 2017. Studying the New York Times, Fox News, and USA Today's coverage of the Women's March, Nicolini and Hansen (2018) find differences in the framing of the march. In particular, the New York Times and USA Today were largely supportive across a variety of frames, but Fox News was less so. All three organizations focused on the size of the event as well as offered images of protesters and commentary on the event (Nicolini and Hansen, 2018), suggesting that their coverage was largely post-event. Indeed, Farhi (2017) claims that mainstream news coverage is no longer necessary for organizing such events; social media can fulfill this role.

March for Science, 2017

On April 22 (Earth Day), 2017, citizens took to the streets of Washington, DC (and other cities) against Trump's position on climate change and his cuts to the Environmental Protection Agency (Ross et al., 2018). The Washington event attracted approximately 100,000 people

(Fisher, 2018; Fisher et al., 2018). The origins of this movement lie in a Reddit conversation (Ahuja, 2017; Kahn, 2017; Ley & Brewer, 2018; Ross et al., 2018). Approximately 49% of March for Science protesters heard about the event on Facebook (Fisher, Dow, & Ray, 2017); Ley and Brewer (2018) found that 60% of their March for Science protesters learned about the event through Facebook and 10% of protesters learned about it on Twitter. Motta (2018) documents the little attention to the March for Science in the news media in the days leading up to the event. Instead, news coverage centers on the day of the event and the day after the event (Motta, 2018, Figure 1).

METHODS

The first survey was conducted May 2 to 20, 2017 and the second survey was conducted June 9 to 30, 2017. The survey was administered by Lightspeed to an online panel matched to the gender and age composition for the US (Appendix A). Both surveys included 1,500 respondents. In the first survey, we asked, “On January 21, the day after Trump's inauguration, there was a Women's March on Washington with similar events across the globe. Have you heard of the Women’s March?” We found 87% of respondents had heard about the Women’s March and 7% of respondents had participated in it (Table 2). In Survey 2, we asked, “On April 22, Earth Day 2017, there was a March for Science on Washington with similar events across the globe. Have you heard of the March for Science?” We found 39% of respondents had heard about the March for Science and 6% of respondents had participated in it. Half of respondents to the second survey were repeat respondents from survey 1. However, we do not analyze the data as a panel design, because of the short time lag in the two surveys, compared to the measures, which focused on social media uses and protest activities in the past 12 months.

[Insert Table 2 here]

Our measures include questions specific to the particular events, following Fisher (2018), Lee et al. (2017), Tufecki and Wilson (2012), and Scherman et al. (2015). We also have a measure about participation in marches and demonstration in the past year, which reflects on a broader perspective (similar to Valenzuela, 2013) and provides insight into a protest cycle. Focusing on a particular event helps highlight the specific mobilization channels and dynamics (Inclan & Almedia, 2017; Saunders, 2014). However, this focus raises questions about the broader generalizability of findings and theoretical models, which we overcome by asking respondents if they have participated in any marches or demonstrations in the past 12 months.

In Survey 1, approximately 17% of respondents answered that they had participated in a march or demonstration in the past 12 months. This finding is consistent with other general population surveys conducted in 2017 and 2018, but is higher than historical figures which tend to range from 8% to 10% (see Boulianne, 2016; Fisher, 2018). Clearly, 2017 marked a cycle of protest, which is reflected in the higher incidence rate of protest participation.

Independent variables

While media effects research has documented that the effects of media depend on the type of use (e.g., Boulianne, 2019), hours of use are the easiest way to compare across media (social media, digital media, television). For those who said that they had a Facebook account, we asked, “How many hours per day do you use Facebook?” (non-users are coded as zero). For those who had a Twitter account, we repeated the question about the number of hours. For television use and Internet use, we asked about hours spent consuming news. The question asked was, “On a typical day, how much time do you spend... about politics and current affairs?”. The

middle reference alternated between “watching television news or programs,” and “using the internet for news.” While different time intervals were offered, the intervals were standardized to: never, less than 1 hour, 1 to 2 hours, etc.

We also asked a line of questioning about posting to social media. For those who were aware of the Women’s March, we asked, “Have you posted a note to social media about the Women’s March?” We repeated this question for the March for Science in Survey 2. In Surveys 1 and 2, we asked about posting to social media beyond these specific events. In Survey 1, we asked “During the past 12 months, how often have you shared or posted a news story about a campaign or a political issue on social media?”. In Survey 2, the exact question wording was: “Please indicate, during the past 12 months, have you done any of the following online activities? Shared or posted political or campaign information via social media”. For Survey 2 only, we had additional items in this list including “read political or campaign information via social media” and “joined on social media a special group that is defending a social or political cause”, following the line of research offered by Valenzuela (2013). All questions were recoded so that if the respondent did not do this activity at all in the past year, they were coded zero and otherwise, they were coded as one.

Controls:

As for statistical controls, we asked respondents if they recalled who they voted for in the 2016 presidential election. If they specified that they voted for Trump, we assigned them a value of 1 and otherwise, they were coded as zero. This measure is our proxy measure for agreement with the goals of these protest events (Klandermans & Oegema, 1987). We also controlled for political interest, which is measured as a four-point scale. We also controlled for demographic

variables that are common predictors of protest participation in the United States (see Caren, Ghoshal, & Ribas, 2011). For gender, females are coded as 1 (others as zero). We matched census data for the gender profile of the United States (50%:50%). The average age is reported in Appendix Table A and treated as a ratio level of measurement in the analysis. Comparing census data on age to the survey respondents, we are within two percentage points for each age category. Building on Caren et al. (2011), we also controlled for African American status, income, and marital status. Appendix Table A offers descriptive statistics for each of these variables. Approximately 6.6% of the sample are African American, 46.87% are married, 50% are female. The average age is 45 years and the average income is $62,784 USD.

RESULTS

Research Question 1

Research Question 1 compares social media effects to television effects in the protest mobilization process. Watching television news has minimal impact on protest mobilization (Table 3). Surprisingly, television news consumption did not increase awareness of these two events. In terms of protest participation, television news use has a small correlation with participation in the Women's March and this impact is also reflected in the generic measure of protest participation in the past year. However, this effect was not reflected in the second survey or for the March for Science. Given the magnitude of the coefficient, we conclude that television news has minimal impacts on protest mobilization. Certainly, the effects of social media are much more substantive and significant, particularly Twitter, when compared to television effects. As such, in relation to Research Question 1, we find that social media effects are stronger than television news.

Research Question 2

The next set of research questions are about the impact of Twitter and Facebook use on awareness and participation in protest events (see Appendix B for an analysis of having social media accounts). Hours of Twitter use and Facebook use increase the likelihood of protest participation in the past year (Table 3). This finding is replicated in two surveys and for both platforms (Twitter and Facebook). Looking at specific protest events, we see that hours of social media use predict the likelihood of protest participation. However, we see that Twitter is distinctive in the consistency of its impact on protest mobilization. Twitter use is significant in five of six tests (Table 3). For March for Science, hours of Twitter use increased awareness of this event, as well as subsequent participation in the event. As for hours of Facebook use, this measure has a positive impact on participation in the Women's March, which we would expect given the origins of this movement. However, Facebook use has minimal impact on awareness and participation in the March for Science. In sum, the findings support Research Question 2b (Twitter), but do not fully support Research Question 2a (Facebook).

[insert Table 3 here]

Research Question 3

The final research question is about the types of social media use (information, network building, and political expression) that impact participation in an offline protest event. In this analysis, we move away from awareness, looking exclusively at participation in protest (Table 4). Looking at protest participation (general) and the two events (March for Science and Women's March), we find that posting to social media is a strong predictor of participation. In other words, people who post to social media are also highly likely to participate in an offline protest event. Posting to social media about the Women's March correlates with attending the

Women's March. The correlation is extremely large. Converting the coefficients in Table 4 into odds ratios, we can interpret the probabilities as follows: those who post to social media about the Women's March are 22 times more likely to participate in the event. We use the causal ordering implied by existing research in this field (Table 1). However, we also note that it could be that participating in the Women's March increases the odds of posting to social media. The key conclusion is that these activities are very highly correlated. We see similar patterns with the March for Science. Posting to social media about the March for Science positively correlates with attending the March for Science. In this case, the odds ratio is 81. Again, these activities are highly correlated, despite claims about slacktivism (people only post and do not convert these posts into offline and consequential activities).

Looking at the cycle of protest (participating in any march or demonstration in the past year), we see similar patterns of strong relationships between posting to social media and participating in protest events. In the May 2017 survey (Survey 1), those who post to social media are 7 times more likely to participate in a protest event. In the June 2017 survey (Survey 2), those who post to social media are 9 times more likely to participate in a protest event. In sum, posting to social media and participation in offline protest events are highly correlated.

[insert Table 4 here]

To further explore the effects of different types of social media use and their impact on participation, we included another set of results from Survey 2, which included more refined measures of social media use (see Methods). Posting to social media continues to have a positive and significant impact on protest participation. However, we find that joining a social group on social media had the largest impact on protest participation. The final column of Table 4 shows that while posting to social media triples the odds of participation in protest, joining a social

group on social media quintuples the odds of participation in protest. In contrast, reading information on social media has a small positive impact (odds ratio = 1.61).

DISCUSSION

As mentioned, existing literature suggests that television has minimal or no impact on protest participation. Our review of the literature suggests only three of the 13 tests were significant (Table 1). For television news and protest participation, we see positive impacts in only one survey and for one event (Table 3). However, we also look at awareness of the event, which surveys of protesters cannot examine (since awareness is a prerequisite for attendance). Television news use does not predict awareness of the Women's March or March for Science. This finding is surprising given that television news would be expected to cover these events. However, content analysis of major media outlets found minimal coverage of these events (see prior discussion of Farhi (2017) and Nicolini and Hansen (2018)). As for Research Question 1, we affirm that social media matters more than television for predicting protest mobilization. We explain these findings in terms of television having a pro-establishment bias where they are not covering discontent of government and political leaders, the motive for protest (see Kilgo & Harlow, 2019), nor are they sharing information about when and where the event is taking place. Instead, coverage is after the fact of the event. In the case of these two events, consuming television news did not contribute to awareness of these events. While our study focused on the US, the mobilizing effects of social media and the null effects of television have been observed in many other countries (see Table 1). As such, our findings can be generalized to a variety of contexts.

As for Research Question 2, we found more consistent findings for Twitter use, compared to Facebook use. Five of six Twitter tests were significant, whereas only three Facebook tests were significant. The tendency in existing research is to assess social media effects without reference to platform (see Table 1). When a platform is identified, it tends to be Facebook. In our study, when Facebook is assessed, three tests are positive and significant (as mentioned), one test is positive and not significant, one test is negative and significant, and one test is negative and not significant (Table 3). As mentioned in relation to Klandermans and Oegema's model (step 2), we expected that Facebook might have a larger impact on recruitment attempts to the extent that Facebook is composed more of ties to family and friends as opposed to strangers (Koc-Michalska et al., 2019). However, there are a number of factors that explain the small effects of Facebook. One, Facebook could be composed of strong ties, but if these strong ties are composed of people who do not believe protest is an effective activity or who do not agree with the objectives of the protest event (see Klandermans and Oegema's step 1), then Facebook would have minimal mobilizing potential.

Another possible explanation is that Facebook use is quite diffuse across the population and people use it very differently. Some may use it to cultivate larger and more diffuse networks, others interact in small networks. The very different uses of Facebook may explain the divergent findings in this field of research. A final explanation relates to platform affordances. In contrast to Twitter, Facebook newsfeed is strongly influenced by algorithms. The content that the user sees depends on a number of factors. This content may be manipulated to downplay current events information or negative content, such as the widespread discontent related to the election of Donald Trump. As such, perhaps users did not see the information circulating about the upcoming protest events.

For Twitter and blogs, the existing literature consistently finds a positive relationship with protest participation, but also finds that the relationship is not significant. However, we did find consistent effects related to Twitter in this period characterized as a cycle of protest. Twitter's effects could reflect the nature of ties on this platform. For example, Twitter's more consistent impact on participation points to diffuse networks of weak ties being important to participation. These diffuse networks are linked together through hashtags. This platform's unique effects could also reflect the types of people, groups, and organizations participating in this platform: news media, activists, politicians, academics, as well as civic and political organizations. Twitter is very much an elite platform: only 25% of Americans use this platform; perhaps it is not the platform's affordances that lead to mobilization, but the nature of the Twitter community.

As for Research Question 3, we affirm Valenzuela's (2013) finding that posting to social media has a strong correlation with participation in specific protest events, as well as protest participation in general. However, when other measures of social media use are accounted for, posting to social media remains important, but it may not be the most important social media use in predicting participation. Using social media to join a social group has a sizable impact on participation. When the coefficients are turned into odds ratio, we can interpret the effects as follows: posting to social media triples the likelihood of protest participation, but joining a social group on social media quintuples the likelihood of protest participation.

In 2017, the Women's March and March for Science were two new events that emerged as a result of the election of Trump. However, these events have now become a ritual. In this context, the mobilization process, as well as roles of different media, may differ (Inclan & Almeida, 2017). For ritual events, traditional media may have a stronger role to play in

mobilization, whereas reactive protests may capitalize on the "instantaneous diffusion" afforded through social media (Inclan & Almeida, 2017, p. 53). However, for the inaugural events in 2017, social media use was a key predictor of participation. Furthermore, we replicated the findings about the importance of social media when examining protest in the past year. The set of findings suggest that social media matter for a range of protest events. Our findings also affirm the importance of social media in this cycle of protest that unfolded in 2017.

In sum, we use Klandermans and Oegema's (1987) model of protest mobilization to understand the role of social media in this process. Our study is distinctive in exploring two events and using two nationally representative samples to understand how social media influence awareness of protest events, then the decision to participate in these events. We find platform differences in the potential of social media, with Twitter offering more consistent effects on awareness and participation in these two protest events. We explain this stronger impact in terms of the composition of Twitter networks.

Our study does have some limitations. We did not ask about time spent reading print news sources. Print news media may operate in the same way as television, in terms of focusing on events after the fact, limiting the potential for mobilization. However, print news media may operate similar to the online news media effects that were observed in Table 3. Using the Internet for news was positively related to awareness and protest participation. As such, further research should investigate print news media (in online and offline format) for these differential effects.

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Table 1: Summary of Existing Research on Television and Social Media Effects on Protest Participation

Author	Country	Media measure	+/-	Sign .05
Anduiza, Cristancho, & Sabucedo 2014	Spain	hear about event on SM	+	Yes
Ardevol-Abreu, Hooker, & Gil de Zuniga, 2017	USA	SM Posting about political issues	+	Yes
Chan & Lee, 2014	Hong Kong	TV news	+	No
Conroy, Feezell & Guerrero 2015	USA	various measures of SM use	+	Yes
Enjolras, Steen-Johnsen, Wollebaek, 2013	Norway	join FB groups	+	Yes
Hassanpour, 2012	Egypt	State radio/TV news	-	Yes
		Other TV news	-	No
Inclan & Almeida, 2017	Mexico City	Traditional media (TV, radio, newspaper)	+	No
		SM (online social networks)	+	Yes
Karyotis & Rudig, 2018	Greece	SM use (general)	+	No
Kirkizh & Koltsova, 2018	Multiple WVS	TV	+	No
Lee, 2005	Hong Kong	TV news	-	No
Leung & Lee, 2014	China	TV news+newspaper	+	Yes
		SM use (general)	+	Yes
Moseley, 2015	Latin Am	SM info	+	Yes
Pavlic, 2018	Chile	SM use (general)	+	No
Rojas, Barnidge, & Abril, 2016	Colombia	SM info	+	Yes
		SM use (general)	+	No
Salzman, 2016	Latin Am	SM Posting about political issues	+	Yes
Schussman & Soule, 2005	USA	TV news	+	No
Stetka & Mazak, 2014	Czech	SM Posting about political issues	+	Yes
Susanszky, Kopper, & Tóth, 2016	Hungary	TV use (general)	-	No
Tufekci & Wilson, 2012	Egypt	Satellite tv	-	No
		blogs (general)	+	No
		blogs (general)	+	No
		FB use	+	No
		TW use	+	No
		hear about event on FB	-	No
Valenzuela, 2013	Chile	TV news	-	Yes
		SM use (general)	+	Yes
		SM info	+	No
		SM groups/activism	+	Yes

		SM Posting about political issues	+	Yes
Valenzuela, Arriagada, & Scherman, 2014	Chile	FB use (general)	+	Yes
		TW use (general)	+	No
Valenzuela, Somma, Scherman, & Arriagada, 2016	Latin Am	SM Posting about political issues	+	Yes
Vassallo & Ding, 2016	Multiple, ESS	TV news	-	No
Vissers & Stolle, 2014	Canada	SM Posting about political issues	+	Yes
		SM Posting about political issues	+	Yes
		join FB group	-	Yes
		join FB group	+	Yes
Watts, 2001	Germany	TV news	-	No

Table 2: Descriptive Statistics for Two Probability Sample Surveys

	Responses	Mean	SD
Survey 1 variables			
Dependent variables			
Awareness of Women's March	0,1	0.87	
Participated in Women's March	0,1	0.07	
Participated in any march in past 12 months	0,1	0.17	
Predictors			
FB use hours*	0 to 24	1.91	2.93
TW use hours*	0 to 24	0.60	1.75
Post to social media about Women's March	0,1	0.12	
Post to social media about campaign information or political issue	0,1	0.33	
TV for politics and current affairs news	0,3	1.10	0.78
Online news for politics and current affairs	0,5	1.30	1.05
Political Interest	1 to 4	2.85	0.92
Voted for Trump in 2016	0,1	0.37	
Left-wing ideology (1,2,3 of 10 point scale)	0,1	0.17	
Survey 2 variables			
Dependent variables			
Awareness of March for Science	0,1	0.39	
Participated in March for Science	0,1	0.06	
Participated in any march in past 12 months	0,1	0.27	
Predictors			
Post to social media about March for Science	0,1	0.08	
Post to social media about campaign information or political issue	0,1	0.37	
Political Interest	1 to 4	2.85	.92
Voted for Trump in 2016	0,1	0.37	
Left-wing ideology	0,1	0.17	
Read political or campaign information via social media	0,1	0.49	
Joined on social media a special group that is defending a social or political cause	0,1	0.33	

*Non-users coded as zero.

Table 3: Logistic Regression of Hours of Media Use and Protest Mobilization

	Women's March (Survey 1)						March for Science (Survey 2)						Participation in any march in the past year					
	awareness			participation			awareness*			participation*			Survey 1			Survey 2*		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p
TV Politics	0.100	0.133	.454	0.451	0.194	.020	-0.021	0.129	.870	0.006	0.344	.986	0.471	0.136	.001	0.202	0.174	.246
Net Politics	-0.062	0.090	.492	0.290	0.117	.014	0.229	0.098	.020	0.433	0.219	.048	0.316	0.088	.000	0.465	0.121	.000
FB (hours)	-0.039	0.031	.206	0.085	0.038	.027	-0.068	0.042	.108	0.086	0.066	.193	0.175	0.032	.000	0.119	0.044	.007
TW (hours)	0.072	0.080	.369	0.136	0.057	.017	0.342	0.109	.002	0.182	0.089	.041	0.141	0.053	.008	0.230	0.089	.010
Model info	Cox & Snell R Square = .092, n=1487			Cox & Snell R Square = .138, n=1487			Cox & Snell R Square = .211, n=740			Cox & Snell R Square = .128, n=740			Cox & Snell R Square = .239, n=1487			Cox & Snell R Square = .231, n = 740		

*Note: the sample size drops substantially in this analysis, because the time use questions were only asked of repeat panelists. The time use measures were included on survey 1 and thus, can only be connected to repeat panelists at survey 2. The full model with demographic controls is included in Appendix Table C. The table above focuses on media use variables to offer clarity.

Table 4: Logistic Regression of Political Expression on Social Media on Protest Participation

	Women's March Participation, Survey 1			March for Science Participation, Survey 2			Participation in any march in the past year, Survey 1			Participation in any march in the past year, Survey 2			Participation in any march in the past year, Survey 2		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Post to social media*	3.107	0.287	.000	4.391	0.340	.000	1.972	0.189	.000	2.214	0.160	.000	1.070	0.219	.000
Read info on social media													0.475	0.233	.041
Join social group on social media													1.591	0.197	.000
Model info	Cox & Snell R Square = .189 n=1487			Cox & Snell R Square = .229 n=1496			Cox & Snell R Square = .245 n=1487			Cox & Snell R Square = .321 n=1496			Cox & Snell R Square = .358 n=1496		

*For Women's March and March for Science, the survey questions were about posting related to the march. It was only asked of people who indicated that they were aware of the march. For participation in marches and demonstrations, the survey question was about posting to social media about a campaign or any political issue. The full model with demographic controls is included in Appendix D. The table above focuses on social media use variables to offer clarity.

Appendix A: Demographic Variables at Both Waves

	Pooled sample across waves		
	values	% or mean	SD
Gender (females1)	0,1	50%	
Age	18 to 93	45.16	17.60
Income	5K to 200K	62,784	46,536
Married	0,1	46.87%	
Education	1 to 4	2.17	1.05
African American	0,1	6.60%	

Appendix B: Logistic Regression of Social Media Account and Protest Mobilization

	Women's March (Survey 1)						March for Science (Survey 2)						Participation in any march in the past year					
	awareness			participation			awareness			participation			Survey 1			Survey 2		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Facebook account	0.378	0.194	0.051	0.482	0.382	0.207	0.118	0.155	0.448	1.177	0.618	0.057	0.548	0.247	0.026	0.556	0.209	0.008
Twitter account	0.353	0.200	0.077	0.490	0.244	0.045	0.763	0.138	0.000	1.349	0.284	0.000	0.417	0.169	0.013	0.640	0.147	0.000
Political interest	0.678	0.093	0.000	0.764	0.161	0.000	0.544	0.072	0.000	0.391	0.152	0.010	0.743	0.107	0.000	0.520	0.083	0.000
Voted Trump	0.238	0.185	0.199	-0.482	0.271	0.076	-0.235	0.132	0.075	-0.234	0.259	0.366	0.107	0.186	0.566	-0.366	0.156	0.019
Leftwing	0.938	0.325	0.004	0.482	0.278	0.083	1.032	0.166	0.000	-0.085	0.328	0.794	0.574	0.202	0.004	-0.016	0.183	0.929
Females1	0.452	0.169	0.008	0.032	0.241	0.893	-0.464	0.122	0.000	-0.438	0.259	0.091	0.072	0.166	0.667	-0.527	0.142	0.000
Age	0.011	0.005	0.032	-0.055	0.010	0.000	-0.002	0.004	0.551	-0.052	0.011	0.000	-0.054	0.006	0.000	-0.048	0.005	0.000
Income	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.328	0.000	0.000	0.001	0.000	0.000	0.007	0.000	0.000	0.451
Married1	-0.270	0.182	0.137	0.889	0.273	0.001	-0.014	0.135	0.918	0.576	0.300	0.055	0.201	0.183	0.273	0.215	0.160	0.177
Education	0.166	0.092	0.069	0.318	0.119	0.008	0.312	0.063	0.000	0.197	0.131	0.134	0.412	0.083	0.000	0.425	0.074	0.000
African Am	0.260	0.344	0.450	-0.248	0.505	0.623	-0.927	0.273	0.001	-0.297	0.512	0.562	0.495	0.289	0.086	0.286	0.257	0.267
Model info	Cox & Snell R Square = .095 n=1487			Cox & Snell R Square = .114 n=1487			Cox & Snell R Square = .188 n=1496			Cox & Snell R Square = .118 n=1496			Cox & Snell R Square = .186 n=1487			Cox & Snell R Square = .232 n=1496		

Appendix C: Full version of Table 3

	Women's March (Survey 1)						March for Science (Survey 2)						Participation in any march in the past year					
	awareness			participation			awareness*			participation*			Survey 1			Survey 2*		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p
TV Politics	0.100	0.133	.454	0.451	0.194	.020	-0.021	0.129	.870	0.006	0.344	.986	0.471	0.136	.001	0.202	0.174	.246
Net Politics	-0.062	0.090	.492	0.290	0.117	.014	0.229	0.098	.020	0.433	0.219	.048	0.316	0.088	.000	0.465	0.121	.000
FB (hours)	-0.039	0.031	.206	0.085	0.038	.027	-0.068	0.042	.108	0.086	0.066	.193	0.175	0.032	.000	0.119	0.044	.007
TW (hours)	0.072	0.080	.369	0.136	0.057	.017	0.342	0.109	.002	0.182	0.089	.041	0.141	0.053	.008	0.230	0.089	.010
Political interest	0.690	0.102	.000	0.426	0.171	.013	0.552	0.115	.000	0.726	0.322	.024	0.458	0.116	.000	0.297	0.142	.036
Voted Trump	0.253	0.185	.170	-0.584	0.292	.045	-0.285	0.190	.134	0.021	0.494	.966	0.072	0.201	.721	-0.669	0.265	.012
Leftwing	0.966	0.323	.003	0.733	0.291	.012	1.231	0.242	.000	0.631	0.592	.287	0.848	0.213	.000	0.284	0.287	.321
Females1	0.487	0.171	.004	0.241	0.257	.349	-0.479	0.176	.007	-0.956	0.497	.054	0.230	0.180	.200	0.083	0.230	.717
Age	0.006	0.005	.287	-0.054	0.010	.000	-0.007	0.006	.207	-0.066	0.017	.000	-0.055	0.006	.000	-0.044	0.008	.000
Income	0.000	0.000	.002	0.000	0.000	.004	0.000	0.000	.190	0.000	0.000	.102	0.000	0.000	.006	0.000	0.000	.026
Married1	-0.272	0.182	.134	0.656	0.286	.022	-0.103	0.190	.588	0.823	0.546	.132	-0.066	0.198	.737	0.079	0.254	.755
Education	0.164	0.091	.072	0.318	0.126	.012	0.282	0.089	.002	0.085	0.234	.714	0.466	0.089	.000	0.431	0.117	.000
African Am	0.265	0.345	.442	-0.543	0.522	.298	-0.918	0.447	.040	-0.770	1.164	.509	0.154	0.302	.609	-0.272	0.469	.562
Model info	Cox & Snell R Square = .092, n=1487			Cox & Snell R Square = .138, n=1487			Cox & Snell R Square = .211, n=740			Cox & Snell R Square = .128, n=740			Cox & Snell R Square = .239, n=1487			Cox & Snell R Square = .231, n = 740		

*Note: the sample size drops substantially in this analysis, because the time use questions were only asked of repeat panelists. The time use measures were included on survey 1 and thus, can only be connected to repeat panelists at survey 2.

Appendix D: Full version of Table 4

	Women's March Participation, Survey 1			March for Science Participation, Survey 2			Participation in any march in the past year, Survey 1			Participation in any march in the past year, Survey 2			Participation in any march in the past year, Survey 2		
	B	SE	p	B	SE	p	B	SE	p	B	SE	p	B	SE	p
Post to social media*	3.107	0.287	.000	4.391	0.340	.000	1.972	0.189	.000	2.214	0.160	.000	1.070	0.219	.000
Read info on social media													0.475	0.233	.041
Join social group on social media													1.591	0.197	.000
Political interest	0.332	0.172	.054	0.071	0.194	.715	0.514	0.112	.000	0.254	0.091	.005	0.147	0.096	.126
Voted Trump	-0.358	0.312	.251	-0.345	0.345	.318	0.036	0.197	.855	-0.509	0.170	.003	-0.507	0.177	.004
Leftwing	0.269	0.320	.400	0.185	0.421	.660	0.449	0.214	.036	0.019	0.199	.923	-0.018	0.206	.929
Females1	-0.007	0.276	.981	-0.500	0.335	.136	0.101	0.176	.565	-0.564	0.152	.000	-0.540	0.159	.001
Age	-0.037	0.010	.000	-0.035	0.012	.005	-0.044	0.006	.000	-0.039	0.005	.000	-0.029	0.005	.000
Income	0.000	0.000	.032	0.000	0.000	.009	0.000	0.000	.002	0.000	0.000	.168	0.000	0.000	.229
Married1	0.442	0.303	.144	0.370	0.394	.348	0.030	0.195	.879	0.041	0.173	.813	-0.009	0.180	.960
Education	0.253	0.136	.062	-0.060	0.170	.722	0.366	0.089	.000	0.363	0.081	.000	0.314	0.084	.000
African Am	-0.490	0.548	.371	-0.028	0.689	.968	0.431	0.306	.159	0.125	0.286	.663	0.108	0.295	.714
Model info	Cox & Snell R Square = .189 n=1487			Cox & Snell R Square = .229 n=1496			Cox & Snell R Square = .245 n=1487			Cox & Snell R Square = .321 n=1496			Cox & Snell R Square = .358 n=1496		

*For Women's March and March for Science, the survey questions were about posting related to the march. It was only asked of people who indicated that they were aware of the march. For participation in marches and demonstrations, the survey question was about posting to social media about a campaign or any political issue.

Appendix E: Correlation Matrix of Survey 1 Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	WM heard	1.000																
2	WM participate	.108	1.000															
3	Protest1w1	.065	.559	1.000														
4	TV Politics	.123	.152	.185	1.000													
5	Net Politics	.083	.256	.304	.425	1.000												
6	FB hours	-.028	.218	.285	.140	.217	1.000											
7	TW hours	.037	.237	.272	.103	.202	.434	1.000										
8	Post SM	.121	.260	.447	.176	.282	.283	.260	1.000									
9	WM post	.148	.553	.504	.162	.275	.269	.258	.438	1.000								
10	Political interest	.255	.171	.248	.446	.325	.028	.140	.279	.196	1.000							
11	Voted Trump	.067	-.051	-.028	.149	.049	-.028	-.014	.010	-.051	.122	1.000						
12	Leftwing	.116	.112	.155	.003	.091	-.065	-.018	.163	.151	.162	-.280	1.000					
13	Females1	.006	-.021	-.024	-.200	-.177	.028	-.112	-.055	-.026	-.220	-.086	.020	1.000				
14	Age	.069	-.169	-.257	.248	-.060	-.216	-.222	-.247	-.186	.097	.203	-.059	-.017	1.000			
15	Income	.135	.194	.182	.112	.135	.001	.129	.096	.176	.190	.137	.015	-.078	.022	1.000		
16	Married1	.033	.093	.030	.116	.060	.033	.042	.014	.085	.072	.146	-.100	.023	.224	.397	1.000	
17	Education	.124	.151	.183	.111	.131	-.012	.054	.126	.137	.212	.039	.104	-.062	.087	.408	.239	1.000
18	African Am	.005	-.017	.047	.050	.073	.099	.085	.050	.027	.011	-.145	-.014	-.023	-.137	-.108	-.097	-.062

Appendix F: Correlation Matrix of Survey 2 Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	MfS heard	1.000																		
2	MfS participate	.324	1.000																	
3	protest1w2	.226	.382	1.000																
4	TV Politics	.116	.121	.120	1.000															
5	Net Politics	.197	.244	.302	.425	1.000														
6	FB hours	-.002	.191	.254	.140	.217	1.000													
7	TW hours	.139	.277	.319	.103	.202	.434	1.000												
8	MfS Post	.377	.694	.383	.118	.239	.197	.305	1.000											
9	Post SM	.218	.297	.541	.177	.291	.290	.269	.353	1.000										
10	Info SM	.204	.243	.453	.203	.259	.249	.230	.284	.690	1.000									
11	Join Group SM	.206	.310	.596	.170	.273	.292	.297	.379	.713	.616	1.000								
12	Political interest	.292	.126	.213	.446	.325	.028	.140	.166	.281	.288	.270	1.000							
13	Voted Trump	-.059	-.015	-.078	.149	.049	-.028	-.014	-.006	.002	-.024	-.028	.122	1.000						
14	Leftwing	.235	-.002	.059	.003	.091	-.065	-.018	.016	.045	.059	.066	.162	-.280	1.000					
15	Females1	-.157	-.109	-.165	-.200	-.177	.028	-.112	-.103	-.122	-.111	-.133	-.220	-.086	.020	1.000				
16	Age	-.057	-.192	-.335	.248	-.060	-.216	-.222	-.210	-.323	-.294	-.371	.097	.203	-.059	-.017	1.000			
17	Income	.168	.193	.157	.112	.135	.001	.129	.178	.120	.094	.148	.190	.137	.015	-.078	.022	1.000		
18	Married1	.026	.069	.015	.116	.060	.033	.042	.053	.017	.016	.013	.072	.146	-.100	.023	.224	.397	1.000	
19	Education	.228	.117	.200	.111	.131	-.012	.054	.154	.160	.152	.187	.212	.039	.104	-.062	.087	.408	.239	1.000
20	African Am	-.076	-.010	.075	.050	.073	.099	.085	-.018	.085	.090	.080	.011	-.145	-.014	-.023	-.137	-.108	-.097	-.062