# Frequency of Tweeting During Presidential Debates: Effect on Debate Attitudes and Knowledge

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# Frequency of Tweeting During Presidential Debates: Effect on Debate Attitudes and Knowledge

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*This study examines the effects of live-tweeting during a 2012 presidential debate. We assessed the influence of sociodemographics and political and campaign characteristics on amount of tweeting during the debate, and also the effect of tweeting frequency on debate attitudes and knowledge. Results indicate that males tweeted more frequently than females, that political engagement and campaign interest were related to more debate tweeting, that campaign media use was not related to frequency of tweeting, and that political talk was marginally related to tweeting. In terms of live-tweeting effects, we found that amount of tweeting was not related to presidential debate attitudes (debate attention, enjoyment, perceived importance); however, we found individuals who tweeted most frequently learned more from the debate compared to individuals who tweeted less.*

*Keywords: Politics; Presidential Debate; Social Media; Social Watching; Twitter*

The 2012 U.S. presidential election has been described as the ''Twitter election'' (McKinney, Houston, & Hawthorne, in press) as a result of Twitter's popularity and widespread use during the presidential campaign. Twitter is a social media technology that allows users to create profiles, to post messages (tweets) of 140 or fewer

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characters, and to view tweets posted by other users. Throughout the 2012 election, campaigns, journalists, and the public used Twitter to send and receive election news and event updates as well as to disseminate and read political analysis and opinions. The major campaign events during the 2012 election were typically moments of increased Twitter activity and traffic. For example, early in the campaign, Barack Obama's speech accepting his party's nomination for the presidency was marked by 52,756 tweets per minute about the event (Groom, 2012). Just one month later, 158,690 tweets per minute were generated during the first Obama-Romney debate on October 3rd, totaling 10.3 million tweets during the 90-minute event (Camia, 2012). Finally, at the end of the campaign on the height of election night, there were 327,452 tweets per minute related to the event (Lee, 2012). These numbers indicate the popularity of Twitter during the 2012 election and illustrate that the amount of Twitter political activity increased dramatically over the course of the campaign.

As a result of the increased use of Twitter in politics, researchers have begun to analyze Twitter content, Twitter network structure, Twitter uses, and the effects of using Twitter within the domain of political communication. The current study contributes to this final line of research, as we explore how frequency of tweeting during a political event—a 2012 presidential debate—affected attitudes about the debate and debate knowledge.

## Twitter and Political Communication

Twitter has increasingly been used for political purposes not only in terms of the 2012 U.S. presidential elections but also globally in situations such as the large-scale political protests that have occurred in the Middle East and North Africa (Tufekci & Freelon, 2013). Research has utilized a variety of approaches in studying Twitter and politics, including examinations of the content of tweets, the structure of Twitter networks, the varying Twitter functions, and the effects of using Twitter.

With regard to studies of Twitter political content, researchers have compared political/media elite tweets to citizen tweets (Hawthorne, Houston, & McKinney, in press), have examined how users tweet about political events (Anstead & O'Loughlin, 2011; Hawthorne et al., in press) and have assessed whether Twitter content can predict elections (Tumasjan, Sprenger, Sandner, & Welpe, 2011). In terms of Twitter network structures, researchers have explored the interaction between tweeters with different political ideologies (Himelboim, McCreery, & Smith, 2013), between tweeters who are internal or external to political protest (Bruns, Highfield, & Burgess, 2013) and have examined the structure of elite and citizen political tweets (Ampofo, O'Loughlin, & Anstead, 2011). From a functional perspective, researchers have studied how politicians and governments (Lassen & Brown, 2011; Waters & Williams, 2011) and political protesters (Aday et al., 2013; Lotan et al., 2011; Tufekci &Wilson, 2012) use Twitter. In terms of Twitter effects, the line of research most closely related to the current project, research has found that tweeting about specific candidates during a primary election debate was related to individuals' attitudes

about those candidates (McKinney et al., in press) and that tweeting while watching a debate (compared to not tweeting while watching) was related to candidate attitudes, to paying more attention to the debate, and to perceiving debates to be more important (Houston, Hawthorne, Spialek, Greenwood, & McKinney, 2013).

The current study advances our understanding of Twitter effects by examining how amount of tweeting during a political event—a presidential debate—is related to debate attitudes and knowledge. We focus on general election debates because they are generally the most watched election event (McKinney & Carlin, 2004). Beyond being popular, from a normative perspective, debates have a positive impact on viewers as those who watch debates have been found to be better informed about the candidates and campaign issues (Benoit, Hansen, & Verser, 2003). Additionaly, debates are appropriate events for the study of Twitter effects because debates are significant focusing events of a campaign, and as such are prime events for ''live-tweeting.'' Live-tweeting involves individuals tweeting while they watch a live broadcast of political events (Hawthorne et al., in press). Live-tweeting during a political debate provides a new debate-watching experience as individuals are no longer limited to primarily watching a debate privately or in a small group (e.g., with one's family or at a bar with friends and strangers) but are now able to watch the event with a potentially large group of Twitter users. As a social media platform, Twitter provides individuals an opportunity to express their opinions and observations with other Twitter users and also allows individuals to read tweets from friends, journalists, political campaigns and organizations, or any other person or group appearing in an individual's Twitter feed. Ultimately, live-tweeting is a (virtual) form of ''social watching'' a political event (McKinney et al., in press). Twitter is thus a new communication channel that includes components of more traditional media and also provides capcaity for computer-mediated interpresonal communication. As a new form of media, the effects of viewing political events while using Twitter are not well known and thus the current project seeks to expand our understnding in this area.

## Focus of Study

In the current study, we first examine how sociodemographics (gender and ideology) and predebate political or campaign variables (political information efficacy, how informed one is about the campaign, campaign interest, campaign media use, and campaign talk) influence the amount of tweeting during a presidential debate. Based on previous research (McKinney et al., in press), we predict that males and liberals will tweet more during a presidential debate and that the political and campaign variables will be positively related to amount of tweeting during the debate.

Secondly, we examine how amount of tweeting during a debate is related to debate attitudes and knowledge. Attitudes about debates are important due to the normative function of debate viewing. Because debate-watching produces more informed citizens and citizens more likely to participate in politics (Benoit et al., 2003; McKinney & Chattopadhyay, 2007; McLeod, Bybee, & Durall, 1979), watching debates

represents an important campaign communication activity for citizens in a healthy democracy. Thus, understanding activities that contribute to favorable attitudes about engaging the political process is potentially important. Previous research has found that tweeting a debate (compared to not tweeting a debate) was related to individuals reporting that they paid more attention to the debate and to indicating that watching debates is important, but tweeting a debate was not related to greater enjoyment in watching the debate (Houston et al., 2013). Also, in preliminary unpublished findings, Thorson, Hawthorne, Swasy, and McKinney found that retrospective self-report of tweeting during a debate was correlated with individuals reporting that they watched more debates and enjoyed viewing the debates more. We examine these same attitudes but, instead of comparing tweeters to nontweeters or depending on retrospective measures, we focus on amount of tweeting by capturing tweets from participants while they are watching a presidential debate. Building on the previous research in this area though, we predict that more frequent tweeting will be related to more favorable debate attitudes.

Additionally, we add a focus on knowledge acquisition to the study of Twitter and politics. Our study incorporates a novel approach to measuring learning from debates by presenting viewers with knowledge questions immediately following the debate broadcast drawn from the candidates' discussion and claims made during the debate. Increased knowledge is one of the most important outcomes that has been documented from viewing presidential debates (Benoit et al., 2003; McKinney & Carlin, 2004). From a normative democratic perspective, an informed citizenry is ideal and watching debates can contribute to such a state. However, whether live-tweeting a debate can increase the knowledge gained by individuals has not yet been studied. It is possible that the posting and reading of tweets during debate viewing will result in increased learning for individuals beyond what is achieved from simply watching the debate. The exchange of opinions, analysis, and other information via Twitter may bolster what individuals learn and remember about the debate. Conversely, it is also possible that tweeting during a debate may be a distraction from learning about the debate, in that users may not necessarily be posting and reading Twitter content that is related to the event but may by exchanging snarky or irrelevant content that is ultimately a distraction from debate learning. These contrasting possibilities illustrate why study in this area is important. In positing a prediction, however, we take the optimistic view that tweeting while watching a political event will lead to increased engagement with the content and, thus, will result in more knowledge gain as a result of more tweeting during the debate.

Our predictions are explored using a sample of mostly young citizens from universities across the United States. Twitter users tend to be younger than the general population (Pew Research Center, 2013) and so studying tweeting effects among a sample of younger citizens is appropriate. We also conducted this research during the latter phase of the campaign, a time in which campaign attitudes and knowledge are well formed and less subject to influence (McKinney & Warner, 2013). Thus, this later campaign time period offers a more stringent test of Twitter's effects.

## Method

### Procedures

Participants were undergraduate students from several U.S. universities who received course or extra credit for voluntarily participating in this research project, which involved watching the second or third 2012 U.S. presidential general election debate and answering questions about the debate. Participants viewed the debate together at a location provided by each participating university. Participants were instructed to bring a laptop, smart phone, tablet computer, or some other form of mobile computing device with Internet access to the research session with them and were informed they must have a public Twitter account so their tweets about the debate could be collected.

Prior to the start of the debate, respondents completed an online pretest survey that included demographic information and other questions. The respondents then watched the entire 90-minute debate. Participants were provided a unique hashtag to use with their tweets during the debate so that these tweets could be tracked and collected. Immediately following the debate the respondents completed an online posttest questionnaire. The data reported here are part of a larger study on the effects of Twitter use during the 2012 primary and general election debates (Houston et al., 2013; McKinney et al., in press).

### Participants

One hundred and forty-one respondents participated in this portion of the study, with 43 participants viewing the second presidential debate on October 16, 2012, and 98 participants viewing the third and final presidential debate on October 22, 2012. Overall, 36% ($n = 50$) of the participants were Republican, 36% ($n = 50$) were Democrat, and 29% ($n = 41$) were Independent. Age of participants ranged from 18 to 54 but were mostly younger adults ($M = 20.22$, $SD = 2.89$). A majority (57%, $n = 80$) of participants were female.

### Predebate Variables

Prior to watching the debate, participants answered the questions about their political ideology, political information efficacy, and attention to the 2012 U.S. presidential campaign:

- Political ideology: Participants reported their political ideology by placing themselves on a scale from 1 (*extremely liberal*) to 10 (*extremely conservative*; $M = 5.07$, $SD = 2.36$).
- Political information efficacy: A four-item scale was used to measure political information efficacy, which represents an individuals' confidence in their own political knowledge (Kaid, McKinney, & Tedesco, 2007; McKinney & Rill, 2009). Participants indicated their level of agreement (using a 5-point scale from strongly

agree to strongly disagree) on four statements ("I consider myself well qualified to participate in politics," "I think that I am better informed about politics and government than most people," "I feel that I have a pretty good understanding of the important political issues facing our country," and "If a friend asked me about the presidential election, I feel I would have enough information to help my friend figure out who to vote for"; $M = 3.20$, $SD = 1.10$, $\alpha = .92$).

- Campaign attention: Four questions assessed participants' attention to the 2012 presidential campaign. Participants were asked how informed they were about the campaign on a scale ranging from 1 (*not very informed*) to 5 (*very informed*; $M = 2.47$, $SD = 1.05$), and how interested they were in the campaign on a scale ranging from 1 (*not very interested*) to 5 (*very interested*; $M = 2.91$, $SD = 1.11$). Participants were also asked how much media had they been exposed to during the campaign, with responses ranging from 1 (*not much*) to 5 (*a lot*; $M = 2.54$, $SD = 1.13$), and how often they had talked to others about the campaign, with responses ranging from 1 (*not often*) to 5 (*very often*; $M = 2.27$, $SD = 1.16$).

*Postdebate Variables*

After viewing the debate, participants answered questions about their debate attitudes and knowledge. Additionally, amount of debate tweeting was calculated.

- Debate attitudes: Participants were asked how much attention they paid to the debate, with responses ranging from 1 (*I didn't watch the debate at all*) to 7 (*I watched the debate very closely*; $M = 4.91$, $SD = 1.02$). Participants were also asked whether they enjoyed watching the debate, with responses ranging from 1 (*I hated watching tonight's debate*) to 7 (*I very much enjoyed watching tonight's debate*; $M = 4.49$, $SD = 1.33$). Finally, participants were asked how important they thought it was to watch a presidential debate, with responses ranging from 1 (*very unimportant*) to 7 (*very important*; $M = 4.89$, $SD = 1.26$).
- Debate knowledge: Debate knowledge questions were developed based on the content of each debate. During both debates, one of the authors watched the entire debate and developed knowledge questions based on statements made by the candidates during the debate. The questions were uploaded to the online survey program so that participants could answer the questions as part of the postdebate questionnaire. Participants answered six knowledge questions for the debate they viewed. For both debates, potential answers to all questions were Barack Obama, Mitt Romney, Both Candidates, and Neither Candidate.

For the second presidential debate, the knowledge questions (with correct answers in parentheses) asked, "In tonight's debate which candidate or candidates argued we need to expand and keep Pell grants going" (Both Candidates), "Which candidate or candidates claimed the United States has lowered its oil imports to the lowest levels in 20 years" (Obama), "Which candidate or candidates claimed that the flow of undocumented workers coming across our borders is at the lowest levels of any time in the past 40 years" (Obama), "Which candidate or candidates said he was not in favor of new gun control legislation" (Romney), "Which candidate or

candidates claimed women have lost 585,000 jobs in the last four years'' (Romney), and ''Which candidate or candidates called for an immediate withdrawal of U.S. troops from Afghanistan'' (Neither Candidate)?

For the third presidential debate, the knowledge questions (with correct answers in parentheses) asked, ''In tonight's debate which candidate or candidates argued we should not give heavy weapons to the Syrian opposition'' (Obama), ''Which candidate or candidates argued the Syrian leader Assad must go'' (Both Candidates), ''Which candidate or candidates argued that we should have our military involved in the Syrian conflict'' (Neither Candidate), Which candidate or candidates argued that our trade deficit with China is growing larger every year'' (Romney), ''Which candidate or candidates argued half of graduates coming out of college today can't find a job'' (Romney), and ''Which candidate or candidates argued that we spend more on our military than the next ten countries combined'' (Obama)?

For analysis, a summative scale of the correct answers ranging from 0 (*no correct answers*) to 6 (*all correct answers*) was computed ($M = 3.32$, $SD = 1.34$)

- Tweet frequency: Using the specialized hashtag provided to participants prior to the debate, participants' debate tweets were captured and counted. Participants tweeted between 1 and 45 times during the debate ($M = 12.56$, $SD = 7.11$). For multivariate analysis, a tweet frequency dummy variable was constructed and included three levels of tweet frequency: low (1–10 tweets, $n = 52$, 37%), medium (11–12 tweets, $n = 41$, 29%), and high (13 or more tweets, $n = 48$, 34%).

### Analysis

Pearson correlation coefficients were used to examine correlations between predebate variables and tweet frequency. Multivariate analysis of variance (MANOVA) was used to test for effect of tweet frequency on debate attitudes and knowledge. Omnibus results for tweet frequency was followed by univariate tests. Multiple comparison tests with Bonferroni adjustment were then used to compare differences in estimated means for variables with significant univariate results.

### Results

See Table 1 for the correlation matrix of predebate variables and tweet frequency. Bivariate results indicate that tweet frequency was related to being male ($r = -.14$, $p < .05$) and to being informed about ($r = .22$, $p < .01$) and interested in ($r = .15$, $p < .05$) the campaign. Tweet frequency was marginally related to participants' level of political information efficacy ($r = .12$, $p < .10$) and amount of interpersonal discussion about the campaign ($r = .13$, $p < .10$). Tweet frequency was not related to political ideology or amount of campaign media use.

Multivariate analysis examined the level of tweet frequency (low, medium, or high) on debate attitudes and knowledge. While MANOVA results did not indicate a significant main effect for tweet frequency, $F(8, 268) = 1.58$, $p = .13$, univariate results did indicate a significant effect for tweeting frequency on debate knowledge,

**Table 1** Correlation Matrix of Predebate Variables and Tweet Frequency

| | Political ideology (Conservative) | Political information efficacy | Informed about campaign | Campaign interest | Campaign media use | Campaign talk | Tweet frequency |
|---|---|---|---|---|---|---|---|
| Gender (Female) | −.07 | −.13+ | −.24** | −.17* | −.19* | −.07 | −.14* |
| Political Ideology (Conservative) | – | −.03 | .12+ | .12+ | .11 | .09 | .00 |
| Political Information Efficacy | | – | .81*** | .58*** | .49*** | .56*** | .12+ |
| Informed about Campaign | | | – | .60*** | .50*** | .59*** | .22** |
| Campaign Interest | | | | – | .48*** | .56*** | .15* |
| Campaign Media Use | | | | | – | .66*** | −.09 |
| Campaign Talk | | | | | | – | .13+ |

*Note.* Variable entries are standardized beta coefficients from linear regression.
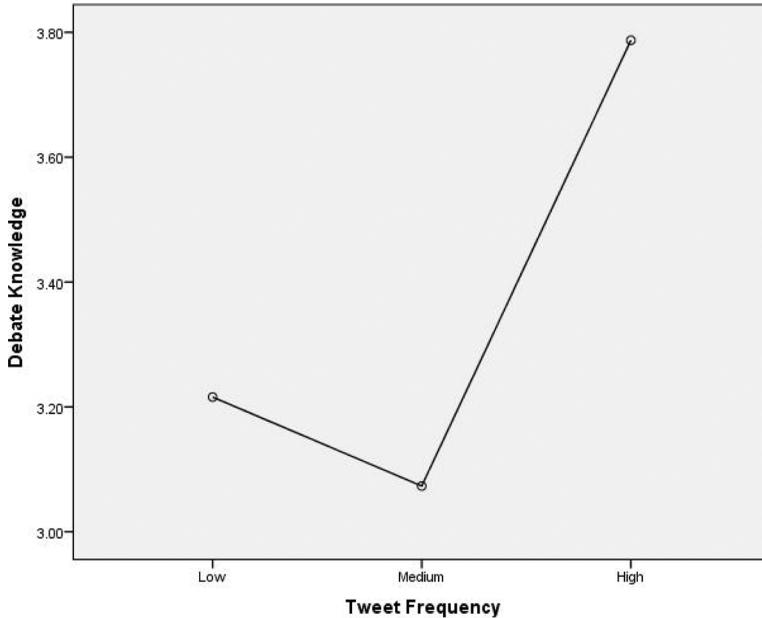+$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

**Figure 1**   Postdebate Knowledge Based on Frequency of Debate Tweets.

$F(2, 136) = 4.07$, $p = .02$, partial $\eta^2 = .06$. Univariate results for debate attention, enjoyment, and perceived importance were not significant.

Multiple comparison tests with Bonferroni adjustment were used to compare differences in estimated means for debate knowledge based on tweet-frequency group (see Figure 1). High tweeters ($M = 3.79$, $SE = 0.18$) exhibited significantly more debate knowledge than medium tweeters ($M = 3.07$, $SE = 0.20$, $p = .03$), and high tweeters also exhibited marginally more debate knowledge than low tweeters ($M = 3.22$, $SE = 0.18$, $p = .08$).

## Discussion

This study examined the effects of live-tweeting a political debate during the latter stages of the 2012 U.S. presidential campaign. Building on some of the earliest research in this area (Houston et al., 2013; McKinney et al., in press), we examined the influence of sociodemographics and existing political and campaign characteristics on amount of tweeting during a presidential debate and also the effect of frequency of tweeting on debate attitudes and knowledge.

Similar to previous research (McKinney et al., in press), we found that male participants tweeted more frequently than female participants. Many of the other political and campaign variables in this study (e.g., political information efficacy, campaign interest) were also significantly or marginally associated with being male, thus we observe an overall pattern in which male participants (primarily younger citizens in this study) are more interested in the campaign, more confident of their knowledge about politics, and more likely to tweet about a political event while watching it.

Unlike McKinney and colleagues' (in press) previous study that found more frequent debate tweeting was associated with being more liberal, we did not find a relationship between political ideology and frequency of tweeting. McKinney and colleague's study focused on a primary debate that only included Republican candidates who were vying for their party's nomination, whereas the current study examined a general election in which both a Democratic and Republican candidate were participating. Therefore, the context of the debate (primary versus general election) may influence whether conservatives or liberals tweet more during a debate. This illustrates the importance of studying both types of debates as the patterns of behaviors and effects may not always be consistent across both primary and general election debates.

Amount of political information efficacy was only marginally associated with frequency of tweeting the debate, though the extent to which participants reported being informed about and interested in the campaign were significantly associated with debate tweeting. These associations were expected and fit with the pattern that tweeting a debate is related to overall political and campaign interest and engagement. Surprisingly, campaign media use was not associated with frequency of debate tweeting. Thus, tweeting a debate is not simply another form of campaign media use but is instead a distinct process. The finding that conventional campaign media use was not associated with how much participants tweet about a debate indicates there is something inherently *new* about the evolving social media landscape. Additionally, the amount that participants reported talking about the campaign was marginally associated with frequency of tweeting the debate. Though this was only a marginal finding, the pattern lends some support to the notion that tweeting a debate is more similar to talking to others about a political event than it is to engaging traditional media coverage of the event. While new online technologies have been recognized as incorporating interpersonal and traditional media characteristics (Walther et al., 2011), these dimensions may be more or less dominant depending on the technology platform and communication context, illustrating the continued need for study of emerging communication technologies.

In terms of the effects of tweeting a debate on debate attitudes and knowledge, we found that amount of debate tweeting was not related to any of the debate attitudes we assessed (debate attention, enjoyment, or perceived importance). This was surprising as previous studies have found that tweeting a debate (compared to not tweeting a debate) was related to individuals reporting that they paid more attention to the debate and to indicating that watching debates is important (Houston et al., 2013) and that retrospective self-report of tweeting during a debate was correlated with individuals reporting that they enjoyed viewing the debates more (Thorson et al.). In the current study, we collected and counted tweets directly from participants' live-tweeting, and this may be the more accurate measure of tweet frequency compared to previous work. However, more work is needed to understand what motivates individuals to live-tweet an event. If attention, enjoyment, and perceived importance of the event do not motivate individuals to tweet more often while watching an event, then other factors are likely important.

Finally, we did find that amount of tweeting during a debate was positively related to learning more from the debate. Given that an informed citizenry is preferred from a normative democratic perspective, the finding that those who tweet more frequently during the debate also learn more is encouraging. Specifically, we found that those in the high-tweet group learned significantly more than those in the medium-tweet group and marginally more than those in the low-tweet group. Therefore, there appears to be a threshold effect for tweeting an event in that once individuals reach a level of frequent tweeting, increased learning occurs. Twitter use, it appears, essentially results in more engagement with the content of the televised event. This effect might be due to the fact that reading and posting tweets about what is taking place during an event results in more central or elaborative processing of the event which in turn results in more learning (Petty & Cacioppo, 1996). Or it may be that Twitter provides a mechanism for repeated exposure to content that in turn makes it more memorable. For example, if during a debate a candidate states that one supports a new tax, and a Twitter user then composes a tweet commenting on that tax statement and/or reads several tweets about that tax from other users, then perhaps because of this repeated exposure the individual will be more likely to remember the statement (Cacioppo & Petty, 1989). Thus, instead of watching a debate alone and hearing a statement once, Twitter users may be exposed to ongoing reverberations of statements made by debate participants that in turn make those proclamations more memorable. These reverberations may also include a significant amount of variety that helps increase recall (Burnkrant & Unnava, 1987). That is, different comments, reactions, and approaches to a debate statement on Twitter may ultimately mean that Twitter users remember the core content better than simply hearing the statement a single time. Much more research on Twitter use and learning is needed, both in political and nonpolitical contexts. The potential for a social media channel to provide repeated exposure to and reinforcement of content could be of benefit in domains such as public information and education, as well as in the current context of politics.

### Limitations

This study has two main limitations that should be noted when considering the results. The first is that we utilized a convenience sample of undergraduate students. Thus, we used a nonprobability sample of young adults that did not include individuals who were not college students. We utilized college students as participants because they are the demographic group that is most likely to use social media while watching television (Rainie et al., 2012), so as an initial attempt to examine Twitter effects, conducting research with this population was appropriate. However, future research should replicate our study with other samples. A second limitation is that we required participants to come to classrooms or other university space to watch the debates and thereby created some artificiality in the research setting. If participants were watching the debates in a more naturalistic location (e.g., at their homes), then the results might differ.

## Conclusion

This study examined the effects of live-tweeting a political debate during the latter stages of the 2012 U.S. presidential campaign. We assessed the influence of socio-demographics and existing political and campaign characteristics on amount of tweeting during a presidential debate and also the effect of frequency of tweeting on debate attitudes and knowledge. Results indicate that males tweeted more frequently than females during the debate, that political and campaign interest and engagement were largely related to more debate live-tweeting, that campaign media use was not related to frequency of live-tweeting, and that political talk was related to tweeting, but only marginally. In terms of live-tweeting effects, we found that amount of live-tweeting was not related to attitudes about presidential debates; however, we did find that individuals who tweeted most frequently learned more from the debate compared to individuals who tweeted less. Overall, our results indicate that live-tweeting political events is a distinct process that may be more like talking to others about politics than it is similar to using traditional political media, and that live-tweeting political events may be associated with improved learning, which, from the normative ideal of an informed citizenry, is potentially positive for a democracy.

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