Tweeting Presidential Primary Debates: Debate Processing Through Motivated Twitter Instruction

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Abstract

Researchers have noted that an individual's processing of political media messages occurs through various filters including partisanship, interest, and cynicism. The phenomenon of motivated processing, however, is understudied particularly in the context of televised presidential debates. As major campaign events, presidential debates have been linked to increases in viewers' political knowledge, political information efficacy, and changes in candidate evaluation. Yet individual's information processing, largely unexplored in the extant debate literature, may well influence these outcomes. In the present study, we manipulate processing of a political debate and monitor the effects through participant engagement with social media. Researchers asked debate viewers to tweet while watching 2016 Democrat and Republican presidential primary debates following instructions designed to prime either directional motivated processing or accuracy motivated processing. The results demonstrate that the accuracy prompt reduced issue-based tweeting and therefore reduced knowledge acquisition. Conversely, the directional prompt increased issue-based tweeting and therefore increased knowledge acquisition.

Keywords

information processing, Twitter, presidential primary debates, elaboration, motivated reasoning

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The theory of motivated reasoning argues that individuals are motivated by directional or accuracy goals in the way they process and integrate information (Kunda, 1990). These motivations may drive the strategies employed to process information, and enhance or mitigate the impact of beliefs on the integration of new knowledge. When an individual encounters new information, they activate cognitive processes designed to account for that information relative to their existing knowledge. Building on the assumption that processing is complicated and contingent, Kunda (1990) hypothesizes two different "goal" orientations that can prompt individuals to process information in a particular way. First, Kunda (1990) argues that a directional goal, a motivation consistent with a predetermined outcome, will foster knowledge processing that will likely lead to a conclusion consistent with a person's predispositions and the nature of the directional goal. Comparatively, encouraging unbiased acquisition and processing of new information, called by Kunda (1990) an accuracy goal, may override biased reasoning to result in an outcome that could run counter to a person's predisposed attitudes toward new information. Lodge and Taber (2013) found strong evidence of confirmatory and disconfirmatory biases in which individuals employ motivated reasoning to bolster preexisting attitudes and beliefs while dismissing counterattitudinal messages. In the context of politics, motivated reasoning is significant because there are a number of normative democratic outcomes associated with the acquisition of new political information, including political knowledge, political efficacy, and political polarization (e.g., McKinney & Warner, 2013). The present study seeks to unify these questions of deliberation and the normative democratic outcome of a more informed electorate by employing a novel experimental design using new media as a proxy of information processing to demonstrate the impact of motivated reasoning.

The changing information environment in which the 2016 presidential primaries took place provides an ideal backdrop for investigations of televised debate effects and partisan information processing. A litany of scholars (e.g., Levendusky, 2013; Prior, 2013; Stroud, 2010; Wojcieszak, 2010) argue that the dynamic political information environment has exploded options for information acquisition, and an electorate that in turn uses technologies to expand (or contract) their political information exposure. Indeed, the question is not whether citizens receive political information; instead, scholars ought to concern themselves with questions of what happens to that information when it is received. Citizens encounter political messages every day, with a substantial uptick in frequency and volume during election seasons (Vraga, Thorson, Kligler-Vilenchik, & Gee, 2015), but the manner in which individuals process that information is still subject to debate.

Motivated processing, as explained by Redlawsk, Civettini, and Emmerson (2010), represents a unique conundrum for political communication scholars. There is substantial evidence that the American electorate has increasingly polarized evaluations of partisans (Iyengar, Sood, & Lelkes, 2012) and policy preferences (Abramowitz, 2010, though see Fiorina, Abrams, & Pope, 2011). This polarization may spawn different group attitudes (Sunstein, 2009) and media choices (Garrett, 2009). Polarization, according to Taber and Lodge (2006), should increase motivated processing

of information by making partisan affect a readily accessible filter applied to new information. Polarization can thus influence political information processing by encouraging biased processing, compared with processing which encourages accurate and comparatively objective assessment of information.

To test how these mechanisms influence the processing of televised presidential debates, we conducted an experiment designed to ascertain the extent to which different motivational goals influence the acquisition of political information in the context of the 2016 presidential primary debates. In what follows, we review the literature on motivated processing of political information and normatively desirable political outcomes. We then pose our research questions, outline the experimental method, and present results of tests of our hypotheses. We conclude with a discussion of findings and limitations.

Political Communication and Information Processing

Redlawsk (2004) suggests political information provides citizens with a unique challenge, as the information required to make an informed political decision often involves complicated and even technical issues of an ideological nature that are, individually, time consuming to evaluate. A number of scholars (Kunda, 1990; Lau, 1995; Redlawsk, 2002) have argued that we need a better understanding of the cognitive processes that contribute to political evaluation that does not assume that individuals are rational arbiters of all of these complex policy disputes. To that end, Taber and Lodge (2006) offer a "hot cognition" model of political deliberation whereby individuals engage in political evaluation not as rational, calculated beings, but instead display decision making with a tendency toward biased processing. A body of research highlighted by Kunda (1990) suggests that motivation, a person's goals and underlying desires, will affect the way one perceives, processes, and engages with information. This phenomenon, known as motivated processing, serves as the theoretical underpinning for the present investigation.

The theory of motivated reasoning, as forwarded by Kunda (1990) and developed by a number of other scholars (Chen, Duckworth, & Chaiken, 1999; Garrett, 2009; Redlawsk, 2002; Taber, Cann, & Kucsova, 2009), applies specifically to political messages within a polarized electorate. According to the theory of motivated reasoning, individuals do not assess information as cold, objective entities interested only in rational outcomes. Rather, a number of precognitive processes and post hoc rationalizations ensure that citizens are engaged in forms of information processing which privilege outcomes consistent with previously held beliefs (Taber & Lodge, 2006). Partisan polarization encourages motivated processing by providing readily accessible affective cues about in-group and out-group actors (Iyengar & Westwood, 2015). The relationship between polarization and motivated processing should be most evident when partisan motivations are activated with directional prompts (Kunda, 1990; Lodge & Taber, 2013). The present study uses presidential primary debates, events replete with opportunities for biased processing, as locations to test the notion of motivational priming, or the manipulation of forms of motivated processing.

McKinney and Warner (2013) argue that debates, as a key form of campaign communication, have notable impacts on candidate evaluation and individual levels of knowledge, political information efficacy, and affective polarization. They found that presidential primary debates, in particular, have pronounced effects as a consequence of the relative lack of information about the candidates at this early campaign stage, and the nature of primary debate audiences. The present investigation builds on previous research on primary debate effects and examines the role motivated processing may play in debate viewers' live tweeting of a presidential debate. McKinney, Houston, and Hawthorne (2013) found a positive relationship between normatively desirable political traits (such as political information efficacy) and campaign debate "social watching" as represented by viewers' tweeting their candidate assessments and debate reactions during a televised primary debate. These authors argue that the substantial increase in political deliberation that has occurred on, and because of, Twitter may suggest that Twitter is a fundamentally new platform for political expression and political information processing. Twitter does not just represent a platform for comments and conversation. Indeed, the very act of authoring a tweet and expressing one's political opinion is an aspect of intellectual processing of messages, the synthesizing, analysis, and criticism of political arguments. Social media does not just, in this instance, serve as an echo chamber. Rather, user generated content can actually demonstrate salient issues of a campaign, and provide a snapshot of arguments and political topics of public concern (Hawthorne, Houston, & McKinney, 2013). For the current investigation, we suggest Twitter can act as a proxy of information processing in an experimental setting for two reasons. First, Twitter goes beyond acting as an open platform for witty political observations. Ausserhofer and Maireder (2013) have noted the increasing political importance of Twitter, suggesting the platform may play a role in fostering additional political discussion (see also Hawthorne et al., 2013), and that political talk via Twitter has been more successfully normalized than other social media such as Facebook and Instagram. Second, Twitter can demonstrate, in real time, the salience of political issues, the successes or failures of public sphere arguments, or even the logic and underlying reasoning of the tweet's authors. Twitter, then, can function as a sort of live diary of information processing within a live event. As such, we propose the following hypothesis:

> **Hypothesis 1:** Individuals who have been primed to engage in forms of motivated (accuracy or directional) processing while watching a presidential primary debate will tweet more frequently than individuals not prompted.

The amount of tweeting that an individual conducts throughout a debate may have important democratic implications. Presidential debates, especially primary debates, present an invaluable opportunity for voters to learn about the candidates and their issue stances. Houston, Hawthorne, Spialek, Greenwood, and McKinney (2013) found that greater "social watching" or Twitter activity during debate viewing actually enhances the learning potential of debates. The debate-related discussion on Twitter promotes elaboration of the debate message. An individual must first attune to and

process debate-related information in order to construct a Twitter response to the ongoing debate. At least one other study, however, has found that social media activity is a distraction that hampers learning from debates (Gottfried, Hardy, Holbert, Winneg, & Jamieson, 2016). These authors argue that individuals who simultaneously use social media while viewing a debate learn less from the experience; and with limited cognitive resources, a viewer may spend more time monitoring social media than actually watching and learning from the debate. To further explore this disagreement regarding the impact of social media use on debate viewers' knowledge acquisition, we pose the following research question:

Research Question 1: Does frequency of tweeting throughout a debate affect learning?

Though individuals may engage in biased processing of political information, that biased processing may be disrupted or enhanced through the use of message primes. Both frequency of tweeting and the type of content tweeted by users provides evidence of the type of information processing occurring. As a means of manipulation, researchers provided specific instructions to participants prior to viewing a presidential primary debate. The experimental conditions, described below in the method section, were meant to approximate two different types of motivated processing. The first, which we call *directional motivated processing*, primes a direction goal. This form of processing represents the highly polarized, affect driven reasoning outlined previously, and could cause elaboration which would result in an outcome consistent with an individual's preexisting assumptions. The second, *accuracy motivated processing*, would approximate the more normatively desirable, careful, and less biased reasoning often advocated by political communication scholars.

Tweeting, as we have argued, signifies more than a "social watching" outcome, but represents a process of information analysis as well. Increased tweeting in the context of the present study would represent increased attention to the debate and increased processing of the debate information. As Redlawsk (2004) notes, issue discussion requires a higher level of elaboration than discussion of a candidate's image. As such, we hypothesize directional goals will facilitate a greater number of image-based tweets, whereas accuracy goals will encourage greater elaboration, demonstrated by more issue-related tweets. Thus, we posit:

Hypothesis 2a: Accuracy primed participants will produce more issue-based tweets.
Hypothesis 2b: Directionally primed participants will produce more image-based tweets.

Elaboration and Learning

An informed electorate is fundamental to a deliberative democracy (Habermas, 1962), and presidential primaries are one mechanism to better inform voters. Many

normatively positive democratic outcomes are premised on the notion that voters need information about candidates and issues to make educated, rational voting decisions. However, early in presidential primaries, most voters know relatively little about the various candidates or their issue positions. Debates provide an opportunity for potential voters to form, change, or reinforce voting decisions. Individuals gain the information required to determine their candidate preferences, and debates also provide the candidates an opportunity to reach undecided voters. Because an individual may only have a strongly formed opinion of leading candidates, lesser known candidates also have the opportunity to generate positive assessments among the electorate through their debate performances.

Certainly, political debates result in a more educated and interested electorate (Pfau, Houston, & Semmler, 2005). However, individuals process political information and debate content differently. We have proposed an understanding of these differences by treating tweeting during a debate as a proxy of elaboration, as measured through both frequency and content of tweets. Debate viewers' "social watching" behaviors via Twitter allow us to draw conclusions regarding the types of elaboration conducted by participants. We can then interpret the effects of debate information processing on a number of normative democratic outcomes. Redlawsk (2004) suggests specific types of elaboration, isolated as issue-based considerations, would represent higher level, central processing. Petty and Cacioppo (1986) argue that central information processing has greater cognitive impact, likely leading to a number of normatively desirable democratic traits. For example, greater elaboration leads to more learning (Eveland & Dunwoody, 2002). Similarly, Kim and Vishak (2008) found memory-based processing of political information, which is associated with greater elaboration, leads to greater information acquisition. We therefore hypothesize that individuals who engage in greater elaboration of issues will achieve more knowledge acquisition:

> **Hypothesis 3:** Greater issue elaboration will have a positive affect on knowledge acquisition.
> **Hypothesis 4:** Accuracy primed participants will experience greater knowledge acquisition as a result of greater issue-based tweeting.

Our full hypothesized model is represented in Figure 1.

Method

Procedure

The experiment employed a three-cell design that directed participants to watch a presidential primary debate consistent with their political party affiliation, and where they were given one of three sets of instructions regarding how they should tweet throughout the debate. Participants were invited to a showing of a political debate and told they needed to bring a wireless-capable device and a publically accessible Twitter account. On arrival, they were given a two-item screening questionnaire to determine
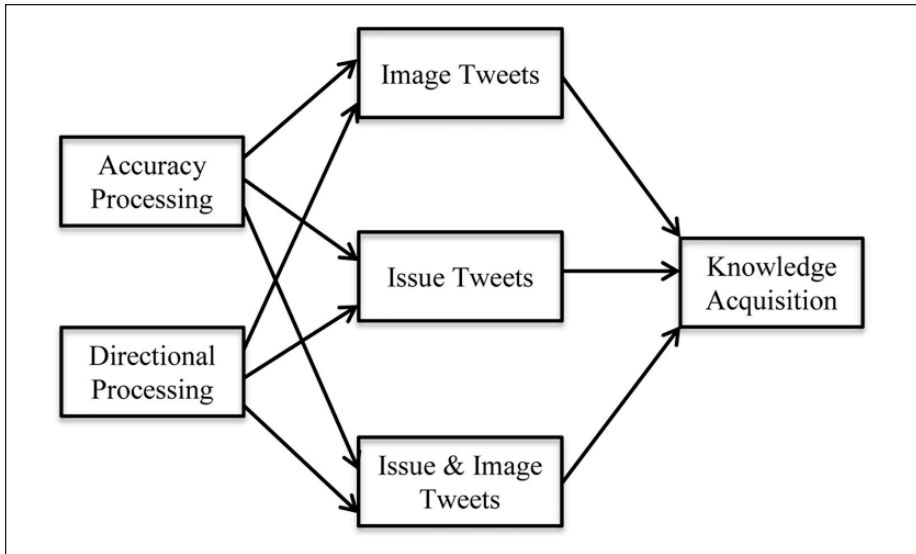
Figure 1. Hypothesized model.

their partisan leanings toward either the Republican or Democratic Party. Next, they were directed to a room where a debate consistent with their partisan preference would be shown. On being seated, proctors distributed URLs to a pretest survey.

Following the completion of the pretest survey and before viewing the debate, participants were given one of three possible sets of instructions. In the first (*control*) condition, debate viewers were simply told to tweet their thoughts during the debate as often as they had them.[1] In the second condition, the *directional* condition, participants were told that the contents of their tweets would be reviewed to determine a "winner" of the debate, and that the researchers would report the winner to the media. This motivational prompt proposed, in essence, that debate viewers filter the debate through a competitive lens with a predetermined goal in mind.[2] Finally, in the third condition, the *accuracy* condition, participants were told their tweets would be collected and analyzed by nonpartisan debate experts to determine the tweet's accuracy.[3] Each group was assigned a specific hashtag and participants were told to use the designated hashtag for each of their tweets to facilitate researcher access to their comments. Participants completed a posttest survey immediately following the conclusion of the debate.

Participants

A convenience sample of undergraduate students were recruited from introductory public-speaking courses, and a number of upper division communication and journalism courses. Of the participants ($N = 319$), 48.6% ($n = 155$) viewed a Democratic

primary debate and 51.4% ($n = 164$) viewed a Republican primary debate. Across the two different debates, 32.6% of the participants were given the control Twitter instructions ($n = 104$), 33.2% of the participants were given the *directional* Twitter instructions ($n = 106$), and 34.1% of the participants were given the *accuracy* Twitter instructions ($n = 109$). Of the 319 respondents, 11.3% reported they identified as African American ($n = 36$), 1.9% identified as Hispanic ($n = 6$), 4.4% identified as Asian ($n = 14$), 0.3% identified as Native American ($n = 1$), 79% identified as White ($n = 252$), and 3.1% ($n = 10$) identified as a racial category not listed. The sample was composed of 36.1% male identified individuals ($n = 115$) and 63.9% female identified individuals ($n = 204$). In terms of political ideology, 3.8% of participants identified as "extremely liberal" ($n = 12$), 12.5% identified as "liberal" ($n = 40$), 21.6% identified as "somewhat liberal" ($n = 69$), 22.3% expressed no preference ($n = 71$), 19.1% identified as "somewhat conservative" ($n = 61$), 18.8% identified as conservative ($n = 60$), and 1.9% identified as "extremely conservative" ($n = 6$).

Stimuli

The experimental stimuli were presidential primary debates. Republican participants viewed a 40-minute video of the third Republican presidential primary debate that was held October 28, 2015, and originally aired on CNBC. The debate included businessman Donald Trump, neurosurgeon Ben Carson, former Hewlett-Packard CEO Carly Fiorina, former Governor of Arkansas Mike Huckabee, former Governor of New Jersey Chris Christie, former Governor of Florida Jeb Bush, Governor of Ohio John Kasich, Sen. Rand Paul (R-KY), Sen. Ted Cruz (R-TX), and Sen. Marco Rubio (R-FL). The 2-hour debate was edited both for time, and to ensure that candidates appeared in equal proportion to each other. Given that post hoc media analysis of the debates indicated a disparity between the candidate with the greatest speaking time (Fiorina at 10:32) and the least (Paul at 6:15), special care was given to ensure that no candidate was significantly underrepresented or overrepresented (Spunt & Mutnick, 2015). Democratic participants viewed a 40-minute video of the first Democratic presidential primary debate that was held October 13, 2015, and originally aired on CNN. The 2-hour debate was, again, edited for time, but also edited to remove former Senator Jim Web (D-WV) and former Rhode Island Governor Lincoln Chafee from the debate. As both Webb and Chafee dropped from the presidential race shortly following the first debate, their exclusion from the stimuli was chosen to allow for more relevant content. The debate included Sen. Bernie Sanders (D-VT), former Secretary of State Hillary Clinton, and former Governor of Maryland Martin O'Malley.

Measure

Knowledge Acquisition. Debates represent an information rich source of political communication and contain much information about the candidates and their policy positions. To measure how much of this issue information participants acquired from their debate viewing, six multiple-choice questions were asked in the postdebate survey.

The knowledge questions were specific to each debate (e.g., Democratic debate: "In the debate you just watched, which candidate or candidates voted five times against the Brady Bill that required federal background checks on firearm purchases?" [correct answer = Bernie Sanders]; Republican debate: "In the debate you just watched, Ben Carson claimed that his proposed income tax rate, based on a 'tithing' model, would be": [correct answer = Close to 15%]). See the appendix for a complete list of knowledge acquisition questions and answers. Correct answers were scored 1, while incorrect answers were scored 0. A knowledge acquisition score for each individual was calculated by summing the number of correct answers (range of possible scores was 0-6). The mean score for postdebate knowledge acquisition was 4.08 ($SD = 1.34$).

Content Analysis

To assess and measure elaboration of the debate messages, a content analysis was conducted of the tweets authored during the experiment. Following their collection and coding, tweets were paired with survey data for the purpose of analysis.

Tweet Sample. Using the DataSift web program, tweets using designated hashtags were collected during the windows of data collection, and for 24 hours following. A total of 1,184 tweets were collected with the hashtags #mizred, #mizblue, #pcideb, #debpci, #mizdebr, and #mizdebd. During the data pairing process, researchers were able to determine that 102 tweets were retweets from users in the participants' social groups who did not participate in the experiment, and those tweets were subsequently removed from the sample prior to analysis. A total of 1,082 tweets were analyzed, with 39.4% of the sample ($n = 426$) originating from the Republican debate condition, and 61.6% ($n = 666$) originating from the Democrat condition.

Coder Training. Two graduate students not otherwise involved in this study were trained as coders; and training took place in multiple, in-person sessions over the span of 4 days, with each training session lasting approximately 2 hours. Coders were familiar with the theoretical underpinnings and practical aspects of content analysis, having read Krippendorff's (2012) text on the subject. After coders familiarized themselves with the codebook, they were asked to code a number of tweets not included in the present investigation as part of their training. Disagreements regarding specific coding decisions were discussed among the coders, and consensus was reached prior to each new attempt at reliability. Following acceptable trial reliability on the included categories, coders were given their respective data sets for coding. The graduate students coded the sample independently for the reported categories over the course of 3 weeks, with each coder responsible for 60% of the tweets. A 10% overlap of coded tweets was used to calculate reliability using Krippendorf's alpha.

Coding Categories. *Candidate Mention* ($\alpha = .96$) referred to whether a given candidate was mentioned by name, nickname, or clear pronoun reference in a given tweet. As a total of 14 candidates were present in the debates for both stimuli, multiple candidates

could be mentioned in the same tweet. *Image/Issue* (α = .77) referred to whether a given tweet mentioned a candidate's (or candidates') image, a campaign issue, both image and issue, or neither. Guided by past research (Banwart & McKinney, 2005; Kaid & Davidson, 1986), image was conceptualized as the attributes of a given candidate related to their physical or mental being (e.g., "Donald trump is ugly #mizred"). Issue referred to a meaningful policy consideration present in the campaign (e.g., "Donald Trump has a good idea on regulating immigrants. . . . But his ideas for who is going to pay for the wall is problematic #debpci"). A tweet could also be coded as image and issue if the author referred to both characteristics of the speaker, and a meaningful issue (e.g., "#pcideb damn emails: smart move by Sanders. looking kind, but in replay of this clip Clinton will be associated with emails again and again"). Finally, a tweet could refer to neither issue nor image (e.g., "Not interested in politics what so ever #pcideb").

Tweet Type Proportion. Each tweet was coded as an issue tweet, an image tweet, an issue/image combination tweet, or neither issue/image. The number of issue, image, and issue/image tweets was counted for each individual. Issue tweet proportion was calculated by dividing the total number of tweets for an individual by the number of issue tweets for that individual. Image tweet proportion and combination tweet proportion were calculated in a similar manner.

Results

The first hypothesis predicted individuals in treatment conditions would tweet more frequently than individuals in the control condition. A one-way analysis of variance was conducted to determine if there was a significant difference in tweet frequency between conditions. The omnibus test revealed significant differences between conditions, $F(2, 316) = 8.249$, $p < .001$. The post hoc least significant difference test revealed significant differences between the Directional Condition ($M = 4.38$, $SD = 4.29$) and the Control Condition ($M = 2.39$, $SD = 2.57$; $p < .001$), and significant differences between the Directional Condition and the Accuracy Condition ($M = 3.15$, $SD = 3.64$; $p < .05$), but not between the Accuracy Condition and the Control Condition. Therefore, Hypothesis 1 is partially supported. The first research question inquired about the impact of the amount of tweeting on learning. A linear regression revealed that individuals who tweeted more frequently during the debate acquired more knowledge, $F(1, 318) = 7.864$, $R^2 = .024$, B = .363 ($SE = .202$), $p < .01$. Twitter engagement, thus, enhances the learning potential of primary presidential debate watching.

The remaining hypotheses were examined through a path analysis using Lavaan, developed by Rosseel (2012) for the R ecosystem. The structural model with all significant pathways is displayed in Figure 2. Unstandardized path estimates, standard error, standardized coefficients, χ^2 change, and confidence intervals are displayed in Table 1. The second hypothesis predicted processing type would affect the type of tweets. Though the hypothesis predicted accuracy processing would result in more issue-based tweeting and directional processing would result in more image tweets,
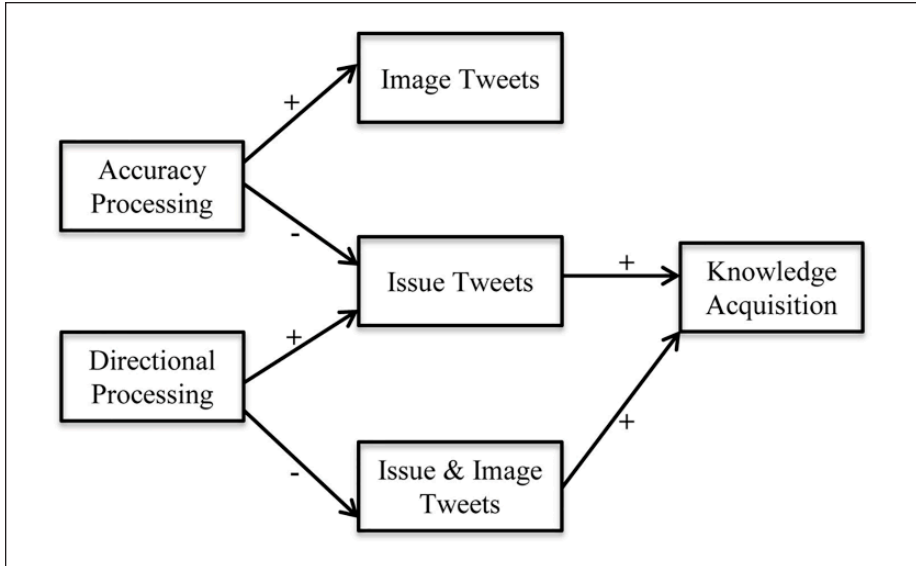
Figure 2. Final model.

we found the opposite. Accuracy processing predicted a higher proportion of image tweets and fewer issue tweets. Directional processing, on the other hand, predicted a greater proportion of issue tweets, yet resulted in fewer combination tweets containing both issue and image content. Therefore, the second hypothesis was not supported.

The third hypothesis predicted that those who tweeted more about issues would learn more from the debate. The results reveal that issue-based tweets (issue only and issue/image combination) lead to more knowledge acquisition. Image tweets, however, did not significantly influence the amount of learning. Thus, the third hypothesis was supported. The final hypothesis predicted an indirect effect of form of processing on learning through tweet type. The results reveal three significant pathways (see Table 1); however, because the impact of form of processing on tweet type was opposite of the hypothesized direction, these significant pathways do not support the hypothesis that accuracy processing will be indirectly related to greater knowledge acquisition. Therefore, the fourth hypothesis was not supported.

Discussion

The results of our experiment indicate that motivational prompts can indeed alter the way that individuals process debate content as measured through live tweeting and postdebate knowledge acquisition. Additionally, our results confirm the notion that issue tweeting, as a representation of greater elaboration of the debate message, is positively associated with greater knowledge acquisition, where image tweeting has no association with that same outcome. Our discussion will, first, offer an explanation

Table 1. Direct and Indirect Effects.

	1,000 Bootstrap samples				
	B (SE)	β	Δχ²	LLCI	ULCI
Direct pathways					
Accuracy processing > Issue tweets	−.093 (.038)	−.133*	6.119	−0.168	−0.014
Directional processing > Issue tweets	.177 (.046)	.251*	17.595	0.087	0.273
Accuracy processing > Image tweets	.191 (.048)	.27*	17.202	0.098	0.287
Directional processing > Image tweets	−.019 (.039)	−.027	0.184	−0.095	0.057
Accuracy processing > Combo tweets	−.022 (.039)	−.042	0.37	−0.098	0.052
Directional processing > Combo tweets	−.081 (.034)	−.149*	7.8	−0.153	−0.018
Issue tweets > Knowledge	.599 (.238)	.149*	5.175	0.128	1.065
Image tweets > Knowledge	.154 (.256)	.039	0.363	−0.371	0.635
Combo tweets > Knowledge	.642 (.276)	.122*	4.815	0.113	1.261
Accuracy processing > Knowledge	.217 (.190)	.077	1.017	−0.161	0.575
Directional processing > Knowledge	.186 (.190)	.066	0.959	−0.199	0.563
Indirect pathways					
Accuracy > Issue tweets > Knowledge	−.056 (.036)	—	—	−0.150	−0.003
Directional > Issue tweets > Knowledge	.106 (.053)	—	—	0.018	0.232
Directional > Combo tweets > Knowledge	−.052 (.031)	—	—	−0.123	−0.003

Note. SE = standard error; LLCI = lower limit confidence interval; ULCI = upper limit confidence interval. Model was analyzed with a robust maximum likelihood estimator. Model fit: $\chi^2(5) = 2.94$, $p > .05$.
*Indicates that the 95% confidence interval does not contain zero.

for the finding that directional processing was associated with more frequent issue tweeting, a finding which runs counter to established theory regarding elaboration of political information. We speculate that the answer lies in the nuanced nature of biased processing and "hot" cognition. Though Abramowitz (2010) proposes a number of negative outcomes associated with extreme political divisiveness, he also suggests that one benefit of polarization is that the perception of greater electoral consequences results in increased political attention, a perspective which helps explain our results. Second, we explore the findings that increased tweeting is related to greater learning and that issue-based tweeting, but not image-based tweeting, is associated with knowledge acquisition.

Our results indicate that, contrary to expectations, directional prompts generated more frequent tweeting about issue, and accuracy prompts generated more frequent image-based tweeting. Kunda (1990, 1996) proposes accuracy-based processing as a mechanism to cut against biased engagement of information. Accuracy-based processing is viewed by a number of scholars as normatively desirable, compared with directional processing which would facilitate biased integration of information (see Redlawsk et al., 2010). Redlawsk (2004) suggests issue-based deliberation is evidence of higher order elaboration on a given political topic when compared with image-based deliberation. As such, it is curious to find the prompt designed to generate substantive, nonbiased elaboration encouraged a normatively inferior form of processing. We propose two explanations for this discrepancy.

First, biased processing can be based in individual biases, a consequence of Taber and Lodge's (2006) model of "hot cognition" which suggests that the normal way individuals perceive information is through their own bias. This model is consistent with the assumptions of motivated processing, which states that individuals often assimilate information in a way consistent with their own biases. In the context of our experiment, however, we are able to test the extent to which a resting, unprompted processing of the debate compares with processing which has been manipulated to be either more directional or more accurate. As our results show, accurate processing appears to generate no more or less Twitter activity than the control condition. This may suggest that individuals, in their normal acquisition of political information, may assume they are operating as rational agents who are motivated to acquire and integrate the most accurate information possible, and integrate this information with their existing knowledge base in the least biased way possible. Our results indicate, however, that a resting state of accuracy does not exist; rather, biased, low-level elaboration (as indicated by image tweeting) may be the norm. Only by prompting individuals to pay closer attention to the debate content, with an outcome in mind, were we able to generate deeper elaboration.

A second, and more likely, explanation may lie in the nature of directional processing for political messages. Directional processing, the so-called "biased" processing, has been tied to increased partisan polarization, represented by those individuals with strong, well-formed political identities (Iyengar et al., 2012). Though normally considered a negative process, our results indicate directional processing may actually yield greater elaboration. That directional processing leads to greater information elaboration may be related to the way individuals perceive political knowledge and the stakes of political events.

Abramowitz (2010) cautions against the negative impacts of extreme political divisiveness, such as intransigence and hatred toward the political other, while still maintaining that high levels of partisanship may also have positive consequences. For example, high levels of division between political parties should increase political interest because the stakes of electoral outcomes are greater. This heightened state of interest may result in the acquisition of additional political knowledge and development of political efficacy. Partisan polarization may represent actual, significant cleavages between different political ideologies, cleavages that are not without material consequences for

governance. Increasing the political stakes, therefore, would likely result in a population which is more attuned to the importance of having a governing individual or political party in line with one's own interests. We theorize that directional processing may generate a competitive frame by which debate viewers can evaluate candidates. That competition, in turn, influences the way debate messages are processed.

Directional processing may attune individuals to process information through a self-interested lens in which primary candidate preference influences the way they receive and interpret information from the debate. The determination of which candidate is most aligned with an individual's self-interest is certainly emblematic of higher order processing; this process requires significant engagement with a number of complicated ideological and technical issues. Therefore, prompting an individual to engage in biased processing may actually force them to assign importance to the information they are presented with, and subsequently process that information centrally rather than peripherally.

In response to the disagreement within the current presidential debate literature regarding the influence of social media multitasking while watching a televised debate, our results indicate that greater engagement with Twitter enhances learning. However, not all tweeting is created equal. Issue-based tweeting, but not image tweeting, was related to knowledge acquisition. Our results confirm the desirability of issue-based elaboration of political messages. Redlawsk (2004) suggests issue-based processing represents greater elaboration and engagement with political material, as a consequence of the complexity of the technical and ideological components of issue-based messages. Notably, increased frequency of issue-based tweets in our experiment was related to increased knowledge, whereas image-based processing was not. Consistent with previous research, our results suggest issue-based processing requires more cognitive resources compared with image-based processing. The additional elaboration that goes into issue-based processing creates additional attention to the message. Comparatively, an image-based tweet does not represent a significant cognitive tax when compared with an issue-based tweet, and subsequently the gains of additional elaboration are not present in those individuals more inclined to engage in image-based tweeting. Ultimately, greater issue tweeting does appear to facilitate greater political knowledge acquisition when viewing a presidential debate.

Limitations and Concluding Thoughts

Two significant limitations exist for this study. First, the differences between the motivated processing conditions may be artificially exacerbated by the nature of the prompt and its impact on the student population. The language used for our prompts is modeled after Kunda's (1990) study on motivated reasoning, and asked participants to tweet about who they believed to be winning the debate (with a postdebate announcement of the winner), or to tweet accurately, with their tweets subject to independent review after the debate. It is possible that the threat of external review of their tweets dissuaded individuals from fully engaging, such that those with low political knowledge, or merely those who did not wish to have their Twitter comments viewed, would abstain from tweeting. Post hoc analysis revealed that political knowledge did, in fact,

significantly affect the amount of tweeting in the accuracy condition, B = .798 (*SE* = .291), *p* < .01, but not in the directional or control condition. In the accuracy condition, individuals with lower predebate political knowledge, as measured by responses to a series of civics-based knowledge questions, tweeted significantly less than those with greater political knowledge. Similarly, the threat of external review could have primed individuals to tweet about nonfalsifiable aspects of candidate appearance or image, which we have taken here to represent lower order processing. We do not believe the differences, which were marked and pronounced, were entirely an artifact of the design; the removal of the suggestion of external review in a replication of the experiment would likely produce similar, if less pronounced, effects. Future research should investigate the role that prompt wording can play on participant engagement.

Second, the experiment used a convenience sample of students. We do not feel, however, that the use of a convenience sample substantively affects the results of the study, for two reasons. First, Benoit, Hansen, and Verser (2003) found in their meta-analysis of debate effects that there were not significant differences in terms of debate effects on student populations relative to adult populations. Though there are small differences between student age and nationally representative samples, as they relate to education and relative political interest, the pre–post design ensures we capture processing changes that occur throughout the debate that would, very likely, exist in the broader population under similar conditions. Second, the nature of the design merits the use of Twitter as a proxy of motivated processing. As individuals aged 18 to 29 years use Twitter more than any other age group (see Duggan, Ellison, Lampe, Lenhart, & Madden, 2015), our experimental design was well suited for a college-age population. With Twitter as a proxy, researchers removed the risk of technological malfunctions in the context of data collection, and noise related to participant inability to perform the tasks of the experiment.

Political information processing raises a number of meaningful questions and considerations for researchers of political communication (see Kim & Garrett, 2012). Our results indicate the need to contextualize and further study motivated processing, specifically as it relates to different types of political information elaboration. Additionally, within this experiment, a positive relationship was detected between Twitter use and political learning. Finally, we provide support for the conclusion that issue-based elaboration, which is related to greater knowledge acquisition, is a more desirable form of processing.

Appendix

Knowledge Acquisition Items

Democrat Primary Questions
In the debate you just watched, which candidate or candidates voted five times against the Brady Bill that required federal background checks on firearm purchases?
   Hillary Clinton
   Martin O'Malley

[X] Bernie Sanders
All three candidates voted for this bill

In the debate you just watched, which candidate or candidates argued that the cost of attending public colleges should be free for everyone?

Hillary Clinton
Martin O'Malley
[X] Bernie Sanders
None of the candidates argued that public college should be free for everyone

In the debate you just watched, which candidate or candidates claimed they had a plan that would have the U.S. achieve a 100% clean electric grid by the year 2050?

Hillary Clinton
[X] Martin O'Malley
Bernie Sanders
All three candidates agreed we could achieve 100% clean electric by 2050

In the debate you just watched, which candidate refused to take a position on legalizing recreational marijuana?

[X] Hillary Clinton
Martin O'Malley
Bernie Sanders
All three candidates agreed that we should legalize recreational marijuana

In the debate you just watched, which candidate claimed that donations to their campaign averaged $30?

Hillary Clinton
Martin O'Malley
[X] Bernie Sanders
None of the candidates made this claim

In the debate you just watched, which candidate or candidates argued that we should provide paid family leave for all American families?

[X] Hillary Clinton
Martin O'Malley
Bernie Sanders
None of the candidates argued that we should provide paid family leave

Republican Primary Questions

In the debate you just watched, Ben Carson claimed that his proposed income tax rate, based on a "tithing" model, would be:

Close to 5%
Close to 10%
[X] Close to 15%
Ben Carson did not mention a specific income tax rate

In the debate you just watched, which of the presidential candidates served as a managing general partner at Lehman Brothers investment company when it went bankrupt?

Carly Fiorina
[X] John Kasich
Marco Rubio
Ben Carson

In the debate you just watched, which candidate was fired as the CEO of a company they once headed?

Donald Trump
[X] Carly Fiorina
Jeb Bush
Chris Christie

In the debate you just watched, which candidate argued that we should build a 1,000 mile wall to prevent illegal Mexican immigrants from entering the U.S.?

Rand Paul
Ted Cruz
[X] Donald Trump
Ben Carson

In the debate you just watched, which candidate argued that we must raise the retirement age for senior citizens in order to save social security?

[X] Chris Christie
Mike Huckabee
Rand Paul
John Kasich

In the debate you just watched, which candidate claimed they were paying $1,000 per month to Sallie Mae for their student loans?

Mike Huckabee
[X] Marco Rubio
Donald Trump
Carly Fiorina

Declaration of Conflicting Interests

Funding

Notes

1. Control Prompt: During the debate you will be asked to tweet your thoughts as often as you have them. We are interested in how you feel about the debate and its participants as those feelings occur.
2. Directional Prompt: During the debate you will be asked to tweet your evaluations of the candidates and their performance. Your tweets will be evaluated to determine how the

candidates performed. Your evaluations will be used to help assess which candidate performed the best. We will publish and widely publicize the results of our analysis so you need to take this task seriously.

3. Accuracy Prompt: During the debate you will be asked to tweet your honest, nonpartisan, unbiased views about how the candidates are performing. You can admit that a good candidate is having a bad performance or that a bad candidate is performing well, but you cannot let your partisan biases prejudice your judgment. Your tweets will be evaluated by argument critics who are trained experts in presidential debates.

References

Abramowitz, A. I. (2010). *The disappearing center: Engaged citizens, polarization, and American democracy*. New Haven, CT: Yale University Press.

Ausserhofer, J., & Maireder, A. (2013). National politics on Twitter: Structures and topics of a networked public sphere. *Information, Communication & Society*, *16*, 291-314.

Banwart, M. C., & McKinney, M. S. (2005). A gendered influence in campaign debates? Analysis of mixed-gender United States senate and gubernatorial debates. *Communication Studies*, *56*, 353-373.

Benoit, W. L., Hansen, G. J., & Verser, R. M. (2003). A meta-analysis of the effects of viewing U.S. presidential debates. *Communication Monographs*, *70*, 335-350. doi:10.1080/0363775032000179133

Chen, S., Duckworth, K., & Chaiken, S. (1999). Motivated heuristic and systematic processing. *Psychological Inquiry*, *10*, 44-49.

Duggan, M., Ellison, N. B., Lampe, C., Lenhart, A., & Madden, M. (2015). *Social media update 2014*. Retrieved from http://www.pewinternet.org/2015/01/09/social-media-update-2014/

Eveland, W., & Dunwoody, S. (2002). An investigation of elaboration and selective scanning as mediators of learning from the Web versus print. *Journal of Broadcasting & Electronic Media*, *46*, 34-53.

Fiorina, M., Abrams, S., & Pope, J. (2011). *Culture war? The myth of a polarized America*. Boston, MA: Longman.

Garrett, R. K. (2009). Politically motivated reinforcement seeking: Reframing the selective exposure debate. *Journal of Communication*, *59*, 676-699.

Gottfried, J. A., Hardy, B. W., Holbert, R. L., Winneg, K. M., & Jamieson, K. H. (2016). The changing nature of political debate consumption: Social media, multitasking, and knowledge acquisition. *Political Communication*. Advance online publication. doi:10.1080/10584609.2016.1154120

Habermas, J. (1962). *The structural transformation of the public sphere: An inquiry into a category of bourgeois society*. Cambridge: MIT Press.

Hawthorne, J., Houston, J. B., & McKinney, M. S. (2013). Live-tweeting a presidential primary debate: Exploring new political conversations. *Social Science Computer Review*, *31*, 552-562. doi:10.1177/0894439313490643

Houston, J. B., Hawthorne, J., Spialek, M. L., Greenwood, M., & McKinney, M. S. (2013). Tweeting during presidential debates: Effect on candidate evaluations and debate attitudes. *Argumentation and Advocacy*, *49*, 301-311.

Iyengar, S., Sood, G., & Lelkes, Y. (2012). Affect, not ideology: A social identity perspective on polarization. *Public Opinion Quarterly*, *76*, 405-431. doi:10.1093/poq/nfs038

Iyengar, S., & Westwood, S. J. (2015). Fear and loathing across party lines: New evidence on group polarization. *American Journal of Political Science*, *59*, 690-707. doi:10.1111/ajps.12152

Kaid, L. L., & Davidson, D. K. (1986). Elements of videostyle. In L. L. Kaid & D. Nimmo (Eds.), *New perspectives on political advertising* (pp. 184-209). Carbondale: Southern Illinois University.

Kim, Y. M., & Garrett, K. (2012). On-line and memory-based: Revisiting the relationship between candidate evaluation processing models. *Political Behavior*, *34*, 345-368. doi:10.1007/s11109-011-9158-9

Kim, Y. M., & Vishak, J. (2008). Just laugh! You don't need to remember: The effects of entertainment media on political information acquisition and information processing in political judgment. *Journal of Communication*, *58*, 338-360. doi:10.1111/j.1460-2466.2008.00388.x

Krippendorff, K. (2012). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*, 480-498. doi:10.1037/0033-2909.108.3.480

Kunda, Z. (1996). *Social cognition: Making sense of people*. London: MIT Press.

Lau, R. R. (1995). Information search during an election campaign: Introducing a process-tracing methodology for political scientists. In M. Lodge & K. M. McGraw (Eds.), *Political judgment: Structure and process* (pp. 179-205). Ann Arbor: University of Michigan Press.

Levendusky, M. (2013). Partisan media exposure and attitudes toward the opposition. *Political Communication*, *30*, 565-581. doi:10.1080/10584609.2012.737435

Lodge, M., & Taber, C. S. (2013). *The rationalizing voter*. New York, NY: Cambridge University Press.

McKinney, M. S., Houston, J. B., & Hawthorne, J. (2013). Social watching a 2012 Republican presidential primary debate. *American Behavioral Scientist*, *58*, 556-573. doi:10.1177/0002764213506211

McKinney, M. S., & Warner, B. R. (2013). Do presidential debates matter? Examining a decade of campaign debate effects. *Argumentation and Advocacy*, *49*, 238-258.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123-205). New York, NY: Academic Press.

Pfau, M., Houston, J. B., & Semmler, S. M. (2005). Presidential election campaigns and American democracy: The relationship between communication use and normative outcomes. *American Behavioral Scientist*, *49*, 48-62. doi:10.1177/0002764205279429

Prior, M. (2013). Media and political polarization. *Annual Review of Political Science*, *16*, 101-127. doi:10.1146/annurev-polisci-100711-135242

Redlawsk, D. P. (2002). Hot cognition or cool consideration? Testing the effects of motivated reasoning on political decision making. *Journal of Politics*, *64*, 1021-1044.

Redlawsk, D. P. (2004). What voters do: Information search during election campaigns. *Political Psychology*, *25*, 595-610. doi:10.1111/j.1467-9221.2004.00389.x

Redlawsk, D. P., Civettini, A. J., & Emmerson, K. M. (2010). The affective tipping point: Do motivated reasoners ever "get it"? *Political Psychology*, *31*, 563-593.

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*, 1-36.

Spunt, B., & Mutnick, A. (2015, October 28). The GOP debate clock: Fiorina spoke the most. *National Public Radio*. Retrieved from http://www.npr.org/sections/itsallpolitics/2015/10/28/452651556/the-debate-clock-who-spoke-the-longest

Stroud, N. J. (2010). Polarization and partisan selective exposure. *Journal of Communication*, *60*, 556-576. doi:10.1111/j.1460-2466.2010.01497.x

Sunstein, C. R. (2009). *Going to extremes: How like minds unite and divide*. New York, NY: Oxford University Press.

Taber, C. S., Cann, D., & Kucsova, S. (2009). The motivated processing of political arguments. *Political Behavior*, *31*, 137-155. doi:10.1007/s11109-008-9075-8

Taber, C. S., & Lodge, M. (2006). Motivated skepticism in the evaluation of political beliefs. *American Journal of Political Science*, *50*, 755-769.

Vraga, E. K., Thorson, K., Kligler-Vilenchik, N., & Gee, E. (2015). How individual sensitivities to disagreement shape youth political expression on Facebook. *Computers in Human Behavior*, *45*, 281-289. doi:10.1016/j.chb.2014.12.025

Wojcieszak, M. (2010). "Don't talk to me": Effects of ideologically homogeneous online groups and politically dissimilar offline ties on extremism. *New Media & Society*, *12*, 637-655. doi:10.1177/1461444809342775

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