

## **Social Capital as an Inhibitor of Online Political Incivility: An Analysis of Behavioral Patterns Among Politically Active Facebook Users**

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This study examines the relationship between social capital and uncivil political communication online using a sample of politically active Facebook users and their Facebook post data. Theory suggests that social capital, in both its bonded and bridged forms, may inhibit the frequency and severity of online political incivility. The results here indicate that bonded social capital is negatively associated with political incivility on Facebook. Bridged capital is not, however, statistically related to posting uncivil content on Facebook.

*Keywords: incivility, bonded social capital, bridged social capital, political discussion*

The question of whether social media meaningfully facilitates high-quality political communication is, in many ways, a case study in the collision of sociotechnological narratives. On one hand, social media platforms allow users to escape from the rigidity of physical colocation and therefore have the potential to widen the public sphere by making political discussion accessible to a larger and more diverse set of individuals. At the same time, some worry that the social and technical features of these platforms might encourage the spread of low-quality and uncivil political discourse, which has the cumulative effect of weakening democratic debate. In light of these concerns, scholars have increasingly focused on both the frequency and consequences of online political incivility (e.g., Coe, Kenski, & Rains, 2014; Rains, Kenski, Coe, & Harwood, 2017; Su, Xenos, Rose, Wirz, Scheufele, & Brossard, 2018).

Social capital describes the sum of social resources available on the basis of one's interpersonal relationships (Bourdieu & Wacquant, 1992). Social capital is critical to democratic performance. As Fukuyama (2001) noted, "Social capital is important to the efficient functioning of modern economies and is the *sine qua non* of stable liberal democracy" (p. 7). Given the concept's importance, researchers have investigated the causes and effects of social capital for more than three decades. In recent years, however, social capital has become an especially important theoretical tool for those seeking to understand contemporary political engagement (e.g., Gil de Zúñiga, Barnidge, & Scherman, 2017; Gil de Zúñiga, Jung, & Valenzuela, 2012). According to Gil de Zúñiga et al. (2017), this "reinvigoration" (p. 44) of the construct

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is due largely to the emergence of social media platforms, which have shifted the “conceptualization of community as entity described by geo-spatial structure to one defined by the structure of interpersonal relationships” (p. 45).

We suggest that social capital resources, accumulated on the individual level, may inhibit online political incivility. Specifically, we investigate the relationship between online political incivility and general levels of both bonded social capital (strong ties with close others) and bridged social capital (loose ties with social acquaintances and community members). This research contributes to the scholarly literature in at least three ways. First, although researchers have increasingly focused on political incivility in computer-mediated environments, the current body of literature does not, generally speaking, explore the sociopsychological factors that may act as antecedents to or correlates of political incivility. Research in this area tends to focus on the degree to which content or media attributes stimulate discursive incivility (e.g., Coe et al., 2014; Su et al., 2018) or on how the affordances associated with a given mediated space encourage or discourage uncivil communication (e.g., J. Kim & Park, 2017; Sydnor, 2018). This study builds on this area of research by examining the influence of social capital on incivility. Given that some level of social capital accumulation “is a precondition for civil society” (Sommerfeldt, 2013, p. 285) and that the dominant Habermasian (e.g., 1984) model of civil society places great importance on respectful and rational political discussion, it stands to reason that social capital will have critical implications for online political incivility and, more generally, for the enactment of democracy in an increasingly digital society.

Social capital is a complex and multifaceted concept that has been shown to have a sometimes-complicated relationship with political outcomes. Research frequently conceptualizes social capital as critical to a well-functioning civic sphere and empirically links accumulated social resources to a host of important democratic outcomes related to both speech and behavior (e.g., Ardèvol-Abreu, Diehl, & Gil de Zúñiga, 2018; Fukuyama, 2001; Gil de Zúñiga et al., 2012). But scholars have also observed situations and scenarios where social capital is associated with undesirable democratic outcomes (e.g., Vargo & Hopp, 2017). In this study, we propose a theoretical rationale that takes some of these divergent findings into account. Specifically, we argue that the bridged and bonded forms of social capital may both work to inhibit online political incivility but that such inhibition is associated with different social mechanisms and, as such, may have different implications for the democratic potential of political communication pursued on social networking websites. This study’s distinction between bonded and bridged social capital is especially important to pursue and consider because literature on democratic communications has tended to mostly focus on bridged social capital (e.g., Sommerfeldt, 2013). By examining both forms of social capital, we hope to contribute a richer and more comprehensive understanding of the ways that social capital influences online political interactions.

Finally, the current study employs a novel combination of survey data and digital trace data. As described in greater depth below, participants were asked to subjectively assess the degree to which they did, or did not, possess social capital resources in both bridged and bonded forms. Using computational techniques, we coded observed online user behavior for the presence of incivility. We then assessed the degree to which these measures were associated with one another. We adopted this approach because earlier research has indicated that incivility exists largely in the eyes of the beholder (Herbst, 2010)—a fact that could challenge the validity of self-report measures. That is, self-reported accounts of incivility might be unreliable because of differences in individual understandings of what is and is not uncivil. Moreover,

because incivility is generally seen as a negative communication mode, self-reported measures of incivility may be suboptimally influenced by social desirability biases. By computationally coding for online political incivility, we were able to apply a fixed definition to the construct and avoid issues pertaining to reporting biases. These analyses were conducted in the context of Facebook, the most widely used social media platform in the United States (Pew Research Center, 2019) and a central place for both learning about and discussing politics (Anderson, Toor, Rainie, & Smith, 2018; Barthel, 2016).

## Literature Review

### *A Theoretical Rendering of Discursive Political Incivility*

Civility is a foundational attribute of democratic deliberation (Herbst, 2010; Papacharissi, 2004; Su et al., 2018). The management of political disagreement is a crucial part of democratic communications (Barabas, 2004; Mutz, 2006). When disagreement is confronted civilly, there is reason to believe that its negative consequences can be mitigated and, in some situations, that disagreement can facilitate democratically constructive results (Mutz, 2002). However, when disagreement is accompanied by incivility, the result can include negative outcomes such as trust degradation, the emergence of negative attitudes toward others, and the development of negative affect among discussants and observers (e.g., Brooks & Geer, 2007).

While it is clear that civil democratic discussion is an important part of democratic society (Su et al., 2018), an exact and consistent definition of uncivil political communication has not been established (Herbst, 2010; Muddiman, 2017; Su et al., 2018). To some degree, incivility exists in the eyes of the beholder (Herbst, 2010). In the current communication sciences literature, Muddiman (2017) notes the existence of "multiple and often contradictory conceptualizations" (p. 3183) of the variable. Incivility's exact definition notwithstanding, there is reason to believe that incivility is something that extends beyond spontaneous impoliteness (Papacharissi, 2004). Prior research on online incivility indicates that it is a complex, multifaceted construct that can be described by various online behaviors (e.g., Coe et al., 2014; Gervais, 2015a; Santana, 2014) that congeal around the habitual disregard for democratic norms of inclusivity and respect, especially as they relate to acknowledgement of the legitimacy of out-group members in political participation (Papacharissi, 2004; Rains et al., 2017; Stryker & Danielson, 2013).

Studies exploring the language attributes found in uncivil speech online tend to focus on features such as profanity, vulgarity, name-calling, and identity-based stereotypes. Santana (2014) posits that incivility can assume the following forms: (1) name-calling, (2) threats, (3) vulgarity, (4) abusive/foul language, (5) xenophobia, (6) hateful language, (7) racist or bigoted language, (8) disparaging comments on the basis of ethnicity, and (9) use of stereotypes. Coe et al. (2014) similarly argue that incivility can be understood as commentary that includes name-calling, aspersion, lying, vulgarity, and/or negative commentary about others' communication style. Summarizing the various approaches to defining incivility, Gervais (2015a, 2015b) proposes four general categories: invectives and ridicule, hyperbole and distortion, histrionics and obscenity, and conspiracy theory. These categories broadly conform to Sobieraj and Berry's (2011) conceptualization of incivility as outrage speech. Recent work by Su et al. (2018) builds on some of

these findings to offer a two-tiered definition of incivility that conceptualizes incivility in terms of both severity of language and the degree to which offending comments are personal (or impersonal) in nature.

Building on this previous research, we define online political incivility as the use of profane language (e.g., Coe et al., 2014; Santana, 2014; Vargo & Hopp, 2017), disrespectful language (Gervais, 2015a; Santana, 2014), threats (Papacharissi, 2004; Santana, 2014), and negative or hateful stereotypes (Papacharissi, 2004; Rowe, 2015; Santana, 2014; Vargo & Hopp, 2017). Profanity refers to crude, noxious, or vulgar language outside the norms of polite conversation. Disrespectful language is abusive in nature and relies on features such as name-calling and ridicule to convey disrespect for other individuals either involved in or pertinent to the discussion at hand. Use of threat is represented in the deployment of threatening language. Invocation of negative or hateful stereotypes refers to the use of negative group-based generalizations. Whereas disrespectful language is based on individual attributes, negative stereotypes involve disparaging language employed on the basis of an individual's membership in a larger social group.

### ***Social Capital***

The notion that a thriving public sphere is contingent on individual networks of shared norms and trust has been around since at least the 18th century (Adam & Rončević, 2003). As an explicitly identifiable construct, however, social capital is generally attributed to the relatively recent works of Bourdieu (e.g., 1986), Coleman (e.g., 1988), and Putnam (e.g., 2000). Contemporary definitions of the construct usually suggest that it refers to the "sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu & Wacquant, 1992, p. 14). Considered at the aggregate level, social cohesion becomes increasingly possible when a large number of citizens have access to network-based ties defined by goodwill, reciprocal support, and trust and share a sense of mutual obligation (Putnam, 2000).

Social capital exists in bonded and bridged forms. Bonded social capital describes the extent to which an individual holds intimate or strong ties with others. Bonded ties are primarily formed on the basis of similarity (Putnam, 2000). These similarities include experiences, expectations, and beliefs. Indeed, as Skoric, Ying, and Ng (2009) note, bonded social capital is derived and maintained via interactions involving family members, neighbors, church members, or members of the same political group. Social networks defined by bonded resources tend to be relatively small and characterized by "frequent contacts that almost invariably have affective, often friendly, overtones and may include reciprocal factors" (Nelson, 1989, p. 380). Bonded relationships are also marked by high levels of intimate trust (Putnam, 2000), which facilitates the sharing of emotional and material support, strong feelings of mutual regard, and the reinforcement of ideas (Kenny, 1994).

In contrast to bonded social capital, bridged social capital refers to weak ties among social actors. Those with high accumulations of bridged social capital often have individual tendencies toward the assembly and maintenance of social constellations characterized by the inclusion of diverse people and perspectives (Kavanaugh, Reese, Carroll, & Rosson, 2005). According to Hampton, Lee, and Her (2011), when people have access to diverse others, they can "access more support and are exposed to more diverse information."

This, in turn, is associated with outcomes related to “trust, health, autonomy, knowledge, and deliberation” (p. 1033). Like bonded social capital, trust is an important aspect of bridged social capital. However, whereas bonded resources are marked by the high-intensity allocation of trust to a small number of homogeneous others, bridged social capital is associated with generalized feelings of trust toward many others who may not share similar attributes.

When it comes to social capital and the Internet, research has shown that online networks, and the social needs motivating connection on these networks, tend to both complement and be similar to off-line social networks (e.g., Requena & Ayuso, 2018; Sajuria, vanHeerde-Hudson, Hudson, Dasandi, & Theocharis, 2015). This does not mean that online and off-line social networks are identical or that bonded and bridged social relations necessarily self-replicate across contexts; rather, it means that social capital resources derived from off-line interactions both provide opportunities for and shape interactions that occur online and vice versa (e.g., Abbas & Mesch, 2018; Gil de Zúñiga et al., 2017; B. Kim & Kim, 2017). For instance, the rich-get-richer hypothesis (e.g., Kraut et al., 2002) posits that the ability to create online social capital and the types of social capital that are generated online reflect “the stock of offline resources already available to the individual” (Abbas & Mesch, 2018, p. 64). At the same time, research also suggests that online interactions have implications for how people see both themselves and their off-line social contexts. The social compensation hypothesis (Valkenburg & Peter, 2009) indicates that people can and do use digital media to obtain social resources that are unavailable to them off-line. Thus, while some recent studies have distinguished between online and off-line forms of capital (Abbas & Mech, 2018; Gil de Zúñiga et al., 2017), the approach taken here conceptualizes social capital resources, however developed, in their comprehensive whole. In other words, we build on research that shows that on- and off-line interactions collectively contribute to one’s overall level of perceived social capital and that these resource accumulations in both bonded and bridged forms are related in tangible ways to online behavior.

Turning to the current research context—political discussion on Facebook—we suggest that both bonded and bridged social capital resources will inhibit the use of discursive incivility. Although we predict that the effects of bonded and bridged social capital will function in the same direction, we argue that the theoretical mechanisms guiding these associations are markedly different. The following paragraphs describe our theorizing in support of this contention.

Bonded social capital is fundamentally concerned with interactions among individuals who share “overlapping information” (Valenzuela, Correa, & Gil de Zúñiga, 2018, p. 120). When people share important attributes, they are likely to communicate with one another more frequently and do so in a way that is respectful and considerate. In fact, the principle of homophily holds that people “who are more structurally similar to one another are more likely to have issue-related interpersonal communication and to attend to each other’s issue positions” (McPherson, Smith-Lovin, & Cook, 2001, p. 428). In situations marked by homophily, disagreement and argumentation are less likely to occur (e.g., Boutyline & Willer, 2016; McPherson et al., 2001; Valera-Ordaz, Calvo, & López-García, 2018). This is because birds of feather (McPherson et al., 2001) tend to have similar backgrounds, experiences, and preferences—factors that can inhibit affectively negative interactions. And when disagreement does occur, discussants’ can draw on their overlapping qualities (Valenzuela et al., 2018) to productively work toward solutions.

Based on this literature, we predict that people with high levels of bonded social capital will be less likely to engage in uncivil political communication on Facebook for two specific reasons. First, given the homogeneous nature of pursued social contacts, it is less likely that issues of inclusion will arise. In other words, because people with high levels of bonded social capital pursue online relationships with others who have similar personal and group identity characteristics, questions of out-group legitimacy will be less likely to arise (McPherson et al., 2001; Nelson, 1989; Rains et al., 2017). Second, given that communication between like-minded people tends to be affectively friendly (Nelson, 1989), reciprocal (Valera-Ordaz et al., 2018), and free from systematic ideological conflict (Boutyline & Willer, 2016), we predict that on-site communication will be less likely to feature vulgarity, insult, threat, and hatred.

*H1: Bonded social capital will be negatively associated with political incivility on Facebook.*

Like bonded social capital, we predict that bridged social capital will be negatively related to political incivility on Facebook. The rationale here is, however, different. Bridged social capital has long been associated with higher levels of generalized trust (Sommerfeldt, 2013), which, according to Himelboim, Lariscy, Tinkjam, and Sweetser (2012), results in “a ‘standing decision’ to give most people—even acquaintances or complete strangers—the benefit of the doubt” (p. 96). This idea of giving people the benefit of the doubt is likely to elicit an avoidance of out-group antagonism (Putnam, 2000) and an aversion to intolerance (Sullivan & Transue, 1999)—two fundamental components of civility (e.g., Gervais, 2015a; Santana, 2014). In short, the presence of generalized trust in others makes deliberation increasingly possible (Paxton, 2002; Sommerfeldt, 2013). Long held as a marker of high-quality political engagement (e.g., Habermas, 1984), deliberative exchanges are characterized as respectful and logically situated exchanges between heterogeneous communicators (Steenbergen, Bächtiger, Spörndli, & Steiner, 2003).

Accordingly, we propose that people with high levels of bridged capital will tend to maintain Facebook networks that are both diverse (Kavanaugh et al., 2005) and characterized by general levels of trust and tolerance for heterogeneous others, including those who have different political views (e.g., Hampton et al., 2011; Putnam, 2000). Regular exposure to dissimilar others enhances tolerance for difference and inhibits the formation of particularized trust (i.e., trusting in only one’s in-group; Uslaner, 1999). And, because bridged social capital has been shown to act as a lubricant of good-faith deliberation and perspective taking (Paxton, 2002; Sullivan & Transue, 1999), we hypothesize that the presence of bridged social capital will help communicators productively and civilly manage political disagreement when it does occur.

*H2: Bridged social capital will be negatively associated with political incivility on Facebook.*

## **Method**

This study combined survey and digital trace data collected from Facebook. We recruited participants using the Qualtrics data service. To qualify for the study, respondents had to be U.S. citizens, 18 years or older, and active users of Facebook and Twitter. A quota was employed to ensure approximately equal numbers of men and women in the sample. The recruitment materials requested that participants talk about political/social issues online at least monthly to ensure that the sample included people who were

politically engaged to some degree; a sample of politically apathetic respondents would be of little use relative to our research goals. Because the study involved the collection of social media data, respondents were provided with the following statement:

At the start of the survey you will be asked to link your Facebook and Twitter account to our survey application. This application will be used to gather posts (e.g., wall posts and tweets) that you have made on the respective services. These messages will be collected anonymously, and at no time will the researchers know your identity, or the identities of your friends.

After agreeing to participate in the study, respondents were asked to authorize an application that was used to harvest their social media data. The application confirmed that respondents were active users of both platforms by verifying that they had at least 50 posted bits of content. If they did not meet this criterion, participation was discontinued and their social media information was discarded. If respondents qualified, their social media data were retained and they were piped into the survey environment. The application collected the following data from the Facebook API: *mobile\_status\_update*, *created\_note*, *shared\_story*, *created\_event*, *wall\_post*, *app\_created\_story*, and *published\_story*. Self-report and social media data were joined using an anonymous identification code assigned by the Web application. Data were downloaded on June 6, 2017. User data was collected from the date of their first post on the site through the download date. All study procedures were vetted and approved by our institution's institutional review board. All data collection procedures conformed to Facebook data acquisition policies at the time of study execution. The application used in this study was reviewed and approved by Facebook.

### ***Sample***

A total of 783 valid responses were collected. The goal of this study was to examine behavioral patterns among those who talk about politics on Facebook; as such, to be included in the analytic sample, respondents were required to have posted at least one piece of political commentary on Facebook. The procedures used to identify political talk/commentary are described below.

### ***Measures***

#### *Political Talk*

Because our interest was in how incivility manifests in political contexts, it was important to first identify posts that were of a political nature. To distinguish between political and nonpolitical posts, we employed a supervised machine learning approach. This approach first involved the manual annotation of 100 random messages. Two coders examined each message and coded it as either political or nonpolitical.<sup>1</sup> Of the 100 decisions, the two coders disagreed once. After establishing definitional consistency, a random

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<sup>1</sup> Political posts were defined as those that mention a political figure; refer to public policy; or discuss legislation or legislative actions, local or municipal issues, high-profile social issues, elections or voting, or high-profile judiciary proceedings with political ramifications.

sample of 1,000 additional posts was assembled from the corpus. This sample was distributed to two coders, who examined the posts to identify political talk. These annotations formed the basis of the subsequent machine learning algorithm, which was built using the DataRobot platform. Of the available algorithms, we selected the AVG Blender, a neural network ensemble model that had the best overall performance score.

After building the initial model, subsequent rounds of messages were randomly chosen, stratifying across both highly scored predictions, middle predictions, and low predictions to reinforce learning across both classes. In all, 3,937 unique (5,006 total) annotations were made by the two researchers. Performance metrics were subject to a tenfold cross-validation, each time training on a randomly selected 64% of the data. The final machine model for political talk demonstrated area under the curve (AUC) and F1 scores of 0.98 and 0.88 (respectively), indicating acceptable precision and recall for the algorithm. An accuracy of 94.7%, a false positive score of 3.7%, and a Matthews correlation coefficient of 0.85 all indicate that the algorithm is not prone to a specific type of error. In all, 9,838 political posts were identified from 443 respondents. Respondents who did not engage in any political discussion on Facebook were excluded from further analysis.

#### *Political Incivility*

Using the messages identified as political in nature, we next annotated user content for incivility.<sup>2</sup> Four subattribute models in Google's Perspective Application Programming Interface (API) that conformed to this study's definition of incivility were used. The profane language dimension of incivility was assessed using the subattribute model that targeted obscene language, vulgar language, and cursing. The disrespect/name-calling dimension of incivility was captured using the model that evaluated content on the basis of insulting language. The use of threatening language was coded using the attribute model that assessed the degree to which content contained the use of targeted threat. Finally, invocation of negative stereotypes was assessed using the algorithm that evaluated content on the basis of hateful and negatively stereotypical language.<sup>3</sup>

Each post was assigned four probability scores (ranging from 0 to 1) that described the likelihood that the post contained the four incivility attributes of primary interest.<sup>4</sup> To assess the accuracy of the

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<sup>2</sup> Because of an issue with the characters used in one message, we were only able to computationally annotate 9,837 messages.

<sup>3</sup> Specifically, the following subattribute models/versions were used: OBSCENE@2, THREAT@2, INSULT@2, and IDENTITY\_ATTACK@2. The API sub-attribute models can be found on the Perspective API's (2019) GitHub page.

<sup>4</sup> To further illustrate how the API assigned scores to each message, consider the following example: "Republicans don't engage in voter fraud. Only those stupid Gawd damned MORON libertards do this sort of thing." This message received scores of .94, .91, .24, and .72 on the profane, insult, threat, and stereotypical negative language dimensions, respectively. Alternatively, the more civil example of "More reasons why Direct Democracy just can't work in a big country, and why even Representative Democracy has significant issues. IOW, get ready for a fun ride again this year" received scores of .01, .13, .17, and .11 on the respective incivility

computational annotations, two coders manually coded a random subset of 500 messages. Because the vast majority of posts were civil, agreement was assessed via the use of pairwise agreement and Gwet's AC1, a chance-adjusted measure where values close to 1 suggest higher levels of agreement among the coders. Research has shown that Gwet's AC1 outperforms more traditional chance-adjusted measures when feature prevalence is low (Wongpakaran, Wongpakaran, Wedding, & Gwet, 2013).

First, we compared the degree to which the human coders agreed with each other. Of the 500 decisions, the human coders disagreed 22 times (pairwise agreement = 95.6%; AC1 = .94). Disagreements were solved via discussion. Next, we assessed conformity between the human and computer-derived annotations. To a certain extent, these analyses were complicated by the fact that the computationally derived annotations for each post were continuous values, while the human-coded outcomes were binary. In light of this challenge, we examined conformity between the human- and computer-coded samples using several different cut points for the continuous data.

To start, we classified as uncivil any post with a probability score  $> .50$  on any of the four attributes. Here, pairwise agreement between the human and computer annotations was 79.0% (AC1 = .67). Next, we classified as uncivil any post with a computer-derived attribute probability score  $> .75$ . Pairwise agreement between human and computer was 87.4% (AC1 = .84). Finally, we categorized as uncivil any post with averaged cross-attribute probability scores  $> .50$ . Pairwise agreement between the human- and computer-coded outcomes was 88.4% (AC1 = .86). Having generally determined that the Perspective API was able to accurately assess user posts for incivility, we subsequently averaged post-level probabilities at the user level.

Notably, users were active for different periods of time. Even among users who had held site memberships for about the same amount of time, users posted substantially different amounts of content. Because the annotation procedure described in the previous paragraph simply returned the average probability that any given political post emanating from a given user contained the incivility attribute under consideration and the fact that the theoretical properties of incivility suggest that it is a purposeful and habitual mode of political discussion, we deemed it necessary to also account for the frequency with which users employ uncivil language. This was accomplished by generating a weight ( $w$ ) variable to adjust for frequency of political communication. This variable was calculated as  $w = \log(1 + p)$ , where  $p$  is the average number of political posts created by each user per year of user platform activity (i.e., the number of years between a user's first and last on-site post of any type). The  $p$  component of the variable was log transformed to account for extreme outliers. To avoid applying a log transformation to a number below 1, a constant value was first added to the average number of political posts generated per year of site activity. The weight variable was then used as a multiplicative term, resulting in  $IA_k = a \times w$ , where  $IA_k$  is the final indicator for each of the four ( $k$ ) trace incivility attributes,  $a$  is the average probability that a political post created by the user contains an incivility attribute of interest, and  $w$  is the weight variable. Conceptually, these procedures resulted in the creation of incivility indicators where users who frequently post uncivil

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dimensions. Interested readers can further evaluate the API's performance using an example dataset provided as part of the Perspective API's (2018) documentation materials.

content receive higher scores than users who post frequent civil content and users who post infrequent uncivil content. The individual measures of incivility were indexed into a single averaged composite measure ( $M = 0.17$ ,  $SD = 0.23$ ;  $\alpha = .98$ ).<sup>5</sup>

#### *Bonded Social Capital*

A measure of general bonded social capital was developed from Williams (2006). Three items were measured on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*): (1) "I have strong personal relationships with my family members"; (2) "I have strong personal relationships with my close friends"; and (3) "I have people in life who would help me if I needed it, no matter what" ( $M = 5.69$ ,  $SD = 1.29$ ;  $\alpha = .79$ ). Consistent with our theoretical rationale, these questions addressed general levels of bonded social capital rather than capital specifically incurred or linked to off-line or via online interactions.

#### *Bridged Social Capital*

Generalized bridged social capital was also measured using three items developed from Williams (2006): "I like to keep a large network of acquaintances"; "I have a large network of people with whom I am friendly with"; and "I feel like I am part of my community." All items were measured on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) ( $M = 4.81$ ,  $SD = 1.38$ ;  $\alpha = .81$ ). Again, these questions were general in nature and not explicitly linked to online or off-line environments.

#### *Control Variables*

We assessed three categories of control/covariate factors: demographics, political beliefs and behaviors, and media use. For demographics, we captured biological sex (female = 53.5%) and age as of the respondent's last birthday ( $M = 41.28$ ,  $SD = 13.15$ ). For political beliefs and behaviors, we assessed overall political interest using four items, all measured on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). For example, one item read, "I'm interested in politics" ( $M = 5.46$ ,  $SD = 1.36$ ;  $\alpha = .93$ ). To measure party identification, respondents were asked to select the option that best represented their party affiliation (Democratic, Republican, Independent, other party). This measure was subsequently dummy-coded with Democratic set as the reference group (Democrat = 40.6%, Republican = 21.9%, Independent = 32.6%, other party = 5.0%). Ideological conservatism was addressed using three questions, all measured on 7-point scales where higher values indicate higher levels of conservatism. For example, "Generally speaking, what is your political ideology?" ( $M = 3.59$ ,  $SD = 1.88$ ;  $\alpha = .98$ ). To compute a measure of ideological extremity, the conservatism items were recoded on a 4-point scale, where those who selected options at the scale poles were assigned higher numbers (i.e., a 1 or 7 was coded as 4, a 2 or 6 was coded as 3) and collapsed into a single index ( $M = 2.60$ ,  $SD = 1.09$ ;  $\alpha = .95$ ). Respondents were also asked whether they voted in the 2016 presidential election (86.3% voted).

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<sup>5</sup> To more fully articulate the need for weighting, consider the following example: User 1 posts a single, very uncivil political comment (probability score = .90). User 2 posts 100 political comments containing high levels of incivility (average probability score = .85). If we employ user-level averages, User 1 would be assessed as more uncivil than User 2, despite the fact that User 2 likely exerts a more uncivil influence on her or his discussion environment(s).

For the media use variables, we created an index of political news consumption by combining three measures of political news use that asked respondents to indicate how often they read the newspaper (online or in hard copy), watched the news on network television, and watched the news on cable television. Responses were measured on a 7-point scale ranging from 1 (*never*) to 7 (*frequently*) ( $M = 4.14$ ,  $SD = 1.62$ ;  $\alpha = .69$ ). Finally, to measure overall Facebook usage intensity, a single item asked respondents to estimate the frequency with which they use Facebook. Responses were measured on a 7-point scale ranging from 1 (*never*) to 7 (*frequently*) ( $M = 6.54$ ,  $SD = 0.98$ ).<sup>6</sup>

### **Missing Data Analysis**

Patterns of missingness in the data were examined using Little's Missing Completely at Random test. This test indicated that patterns of missingness were nonsystematic ( $\chi^2 = 106.33$ ,  $df = 101$ ,  $p > .05$ ). Given the trivial nature of the missing data, we only analyzed those cases that provided complete data on the variables of interest ( $n = 424$ ).

### **Analytic Approach**

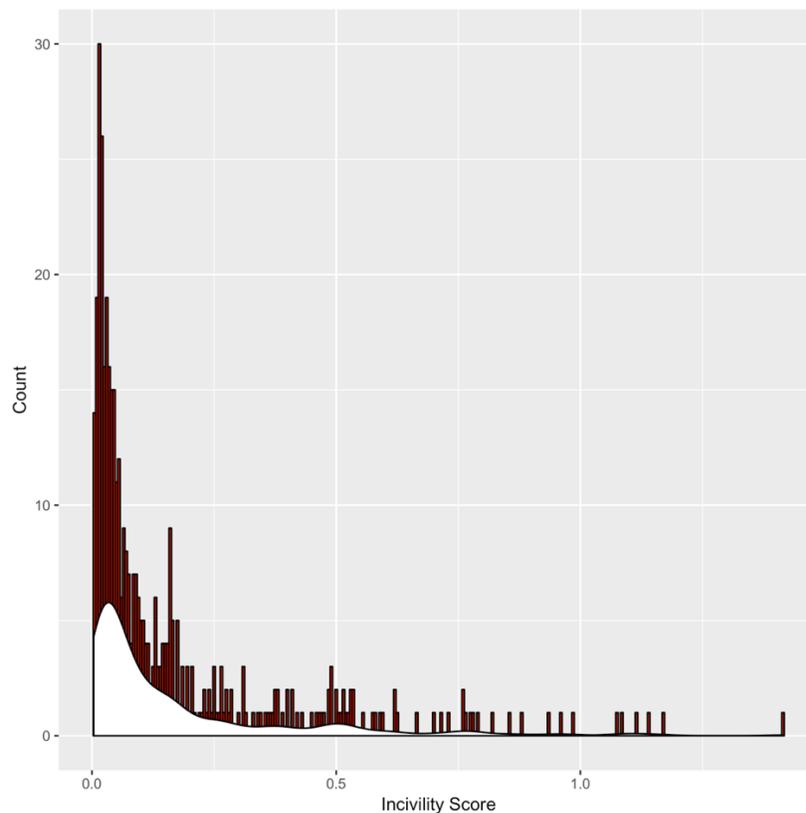
The composite measure of incivility was continuous, nonnegative, and, as seen in Figure 1, substantially skewed. To account for these distributional characteristics, we employed a gamma regression model with log link function. Gamma regression models present an efficient means of obtaining unbiased coefficients in positively skewed data comprising nonnegative and nonzero values. Robust standard errors were used. This model accounted for all the control variables. For the model, we report both the logged coefficients ( $b$ ) and the exponentiated coefficients ( $\exp[b]$ ). The latter coefficient is a multiplicative term that describes the degree of change in the criterion variable given a one-unit change in the independent variable.

### **Results**

H1 predicted that bonded social capital would be negatively associated with uncivil political discussion on Facebook. The data supported this prediction,  $b = -0.11$ ,  $p < .05$ ;  $\exp(b) = 0.89$ . H2 predicted a negative relationship between bridged social capital and online political incivility. Although the coefficient's sign was negative, the estimate was not significantly different from 0,  $b = -0.02$ ,  $p > .05$ ;  $\exp(b) = 0.98$ . Thus, H2 was not supported.

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<sup>6</sup> All reported descriptive statistics are from the analytic sample ( $n = 424$ ). This group of respondents created a total of 9,704 political comments on Facebook.



**Figure 1. Histogram with density overlay for Facebook political incivility measure. Bin width = 0.005; observed range = 0.003–1.00.**

Turning next to the covariates, we observed a statistically significant parameter estimate for sex,  $b = -0.32$ ,  $p < .01$ ;  $\exp(b) = 0.73$ , suggesting that men were more likely than women to post uncivil political content on Facebook. We observed positive associations between incivility and age,  $b = 0.02$ ,  $p < .001$ ;  $\exp(b) = 1.02$ , political interest,  $b = 0.32$ ,  $p < .001$ ;  $\exp(b) = 1.38$ , and ideological extremity,  $b = 0.16$ ,  $p < .05$ ;  $\exp(b) = 1.18$ . A negative association was found between ideological conservatism and posting uncivil political content on Facebook,  $b = -0.10$ ,  $p < .01$ ;  $\exp(b) = 0.90$ . Complete model results are provided in Table 1.<sup>7</sup>

<sup>7</sup> Because bonded social capital sometimes can be associated with a withdrawal from political life and because our incivility measure accounts for political communication frequency, we assessed the possibility that people with high levels of bonded social capital were less likely to engage in political discussion on Facebook. A zero-truncated negative binomial model indicated that neither bonded nor bridged social capital is associated with number of political Facebook posts. Similarly, gamma regression models with the average number of political posts generated per year set as the criterion variable failed to indicate significant parameter estimates for either bonded or bridged social capital. Finally, gamma regression

**Table 1. Results of a Gamma Regression Model Investigating the Relationship Between the Social Capital Measures and Political Incivility on Facebook.**

	<i>b</i>	<i>SE<sub>r</sub></i>	<i>t</i> value	<i>p</i> value	<i>b</i> <sub>LL95%CI</sub>	<i>b</i> <sub>UL 95% CI</sub>	exp( <i>b</i> )
<b>Sex (1 = female)</b>	<b>-0.32</b>	<b>0.11</b>	<b>2.88</b>	<b>**</b>	<b>-0.53</b>	<b>-0.10</b>	<b>0.73</b>
<b>Age</b>	<b>0.02</b>	<b>0.00</b>	<b>5.29</b>	<b>***</b>	<b>0.01</b>	<b>0.03</b>	<b>1.02</b>
<b>Political interest</b>	<b>0.32</b>	<b>0.07</b>	<b>4.80</b>	<b>***</b>	<b>0.19</b>	<b>0.45</b>	<b>1.38</b>
<b>Conservatism</b>	<b>-0.10</b>	<b>0.03</b>	<b>3.07</b>	<b>**</b>	<b>-0.17</b>	<b>-0.04</b>	<b>0.90</b>
<b>Ideological extremity</b>	<b>0.16</b>	<b>0.07</b>	<b>2.44</b>	<b>*</b>	<b>0.03</b>	<b>0.29</b>	<b>1.18</b>
Democrat (0) – Republican (1) contrast	-0.09	0.18	0.50	<i>ns</i>	-0.44	0.26	0.91
Democrat (0) – Independent (1) contrast	0.01	0.15	0.09	<i>ns</i>	-0.27	0.30	1.01
Democrat (0) – other party (1) contrast	-0.11	0.28	0.40	<i>ns</i>	-0.65	0.43	0.89
Vote in 2016 (1 = yes)	0.23	0.16	1.46	<i>ns</i>	-0.08	0.53	1.26
Political news consumption	-0.08	0.05	1.77	†	-0.18	0.01	0.92
Facebook usage intensity	0.06	0.07	0.83	<i>ns</i>	-0.08	0.19	1.06
<b>Bonded social capital</b>	<b>-0.11</b>	<b>0.05</b>	<b>2.29</b>	<b>*</b>	<b>-0.21</b>	<b>-0.02</b>	<b>0.89</b>
Bridged social capital	-0.02	0.04	0.43	<i>ns</i>	-0.10	0.07	0.98
Null deviance ( <i>df</i> )	683.22 (423)						
Residual deviance ( <i>df</i> )	481.37 (410)						
Likelihood ratio	$\chi^2 = 179.19, df = 13, p > .001.$						
Cox & Snell pseudo <i>R</i> <sup>2</sup>	.34						

Note. Dispersion parameter = 1.37; CI = confidence interval; *ns* = not statistically significant. Bold type indicates parameter estimates with *p* values < .05. Reported standard errors (*SEs*) are robust in nature. All variance inflation factors < 2.03.

† *p* < .10. \* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.

models predicting incivility that controlled for (1) number of political posts and (2) average number political posts created per year of platform activity yield results essentially identical to those shown in Table 1. These results indicate that the relationship between bonded social capital and online political incivility is not confounded by posting frequency.

A gamma regression model indicated that an interaction term comprising the product of the bonded social capital scores was not significantly associated with online political incivility. Moreover, a gamma regression using a social capital differential score (bonded social capital<sub>i</sub> – bridged social capital<sub>i</sub>) failed to indicate the existence of a significant parameter estimate. These analyses broadly support our contention that the bonded and bridged social capital dimensions function independently of online political incivility.

## Discussion

This study set out to understand the relationship between individuals' social capital and the civility of their political discourse on Facebook. We proposed that bonded and bridged forms of social capital would—for different theoretical reasons—inhibit the occurrence of incivility in Facebook-based political talk. The results suggested that bonded capital was negatively associated with engaging in uncivil political talk on Facebook (supporting H1). Although the relationship between bridged social capital and incivility was negative, H2 was not supported because we did not find a statistically significant relationship between bridged social capital and uncivil Facebook discussion. The implications of these findings are discussed below.

This study's distinction between bonded and bridged forms of social capital offers important insights into the varied ways that people's accumulated social resources can influence political communication processes. The finding that bonded social capital is negatively associated with incivility conforms to previous research finding that discussion-based civility norms are easier to enforce in homogeneous social environments (Vargo & Hopp, 2017). Similarity breeds durable connections (McPherson et al., 2001) that, for various reasons, can impede the manifestation of communication behaviors such as name-calling, flaming, and trolling. Extrapolated, this finding speaks to the notion that strong, largely homogeneous connections carry both costs and benefits for political discussion quality. On one hand, the suppression of uncivil communicative practices may increase the likelihood that discussion participants engage with one another in good faith and that online talk spaces are governed by principles of mutual respect. On the other hand, high levels of communicator homogeneity have been shown to result in the formation of highly normative discussion that suppresses opposing views (Lev-On & Manin, 2009). Such homogeneous discussion bubbles discourage cross-cutting exposure and may result in attitudinal polarization by encouraging motivated reasoning (Levendusky, 2013) and the formation of partisan media bubbles (Anspach, 2017).

The support for H1 can be contrasted against the null result observed for H2, which suggested that bridged social capital would be associated with diminished levels of uncivil political communication on Facebook. Similar nonsignificant findings have been observed in several recent studies seeking to understand the relationship between bridged social capital and political communication behaviors. For example, Valenzuela et al.'s (2018) study of Chilean young adults finds no connection between the use of Facebook to pursue weak ties and engagement in protest behaviors. They did, however, find that the use of Twitter for weak ties was positively associated with protest behavior. Although our study explores a different behavioral outcome, such findings indicate that social capital resources could differentially relate to online incivility on the basis of platform affordances. The affordances associated with Facebook may make the platform distinctly valuable for maintaining strong ties (e.g., Valenzuela et al., 2018). Therefore, in the current study, it may be the case that the inhibitory effects of bonded capital are more pronounced because they conform to typical uses of Facebook. Following this logic, it would not be surprising to see bridged social capital play a stronger role in preventing the outbreak of incivility on Twitter.

Another contribution of this research pertains to our development of an algorithmic means of identifying online political incivility. The measure appeared to show criterion validity. As shown in Table

1, the incivility measure was positively associated with age, maleness, political interest, and ideological extremity and is negatively associated with conservatism. Many of these relationships are in line with existing research. For instance, verbal aggression has been shown to be higher among men (e.g., Buss & Perry, 1992). Incivility has been shown to occur more frequently in extreme attitude environments (Suhay, Blackwell, Roche, & Bruggeman, 2015) and may be less frequently employed by Republicans (Rains et al., 2017).

Finally, we did not observe extensive amounts of political incivility at the user level. Our measure of the concept was clustered toward the lower end of the observed range (see Figure 1). Looking directly at the post-level annotations for the 443 respondents who created at least one political post on Facebook, only 30.5% of the coded posts had at least one attribute score greater than .50, only 17.3% had at least one attribute score greater than .75, and only 8.6% had averaged attribute scores above .50. On a frequency basis, these findings broadly comport with incivility-based studies done on larger sets of social media data (Su et al., 2018). People tend to perceive social media as featuring substantial levels of political disagreement (Barnidge, 2017). Given obvious measurement-based limitations, it is unclear whether more affectively negative disagreement takes place on social media than in the off-line world. That said, the viral nature of platforms like Facebook and Twitter may make it easier for uncivil instances to become amplified. It may be comforting to learn that political incivility emanates from a relatively small number of platform users. At the same time, it is certainly concerning that this small number of users is able to generate the perception that social media are a haven for disrespectful communication.

The findings presented here are subject to limitations. First, because this study was cross-sectional, all observed relationships should be considered correlational. Second, the sample was representative of neither the U.S. population nor the population of U.S.-based Facebook users, therefore restricting the generalizability of the observed results. Third, it is likely that communicative behaviors vary across social media platforms; as such, the relationships observed in this study may not be apparent in other technological or social contexts. Fourth, the measure of incivility incorporated elements of impoliteness; some prior works (e.g., Papacharissi, 2004) make a distinction between incivility and impoliteness. Relatedly, because our measure of incivility was constrained to the set of language features addressed by the Perspective API, it should not be considered unimpeachable or exhaustive. Finally, this study conceptualized social capital in general terms and is unable to speak to the degree to which on- and off-line forms of the variable may disproportionately affect uncivil political communication outcomes.

There are a number of important directions that future research might take. It may be worthwhile for scholars to better define the conditions under which civil political discourse is and is not valuable. Civility in homogeneous discussion environments is, from a deliberative perspective, of limited value and can, in some instances, actually serve to further polarize. We also suggest that scholars interested in the relationship between social capital and political communication functions assess both forms of the construct. Such inquiry, if pursued systematically over time, may result in a more comprehensive understanding of the ways in which social capital does and does not contribute to a functioning public sphere. Future research should also explore the degree to which social capital accumulations incurred specifically from on- and off-line sources differentially affect the manifestation of incivility online. Finally, a large part of this work's

theoretical formulation concerned the nature of trust in social others. Future work might explicitly explore how factors such as interpersonal trust and institutional trust affect uncivil communication outcomes online.

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