



Incivility on Facebook and political polarization: The mediating role of seeking further comments and negative emotion



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ABSTRACT

This study examined whether and how (in)civility and the presence of supporting evidence in disagreeing comments influence individuals' attitude polarization. The study used a 2 (civility vs. incivility) × 2 (evidence vs. no evidence) factorial design involving reading dissimilar viewpoints in Facebook comments. The results showed that exposure to uncivil opposing comments, compared to exposure to civil disagreeing comments, led to lower levels of willingness to read more comments and greater levels of negative emotions and attitude polarization. However, the presence or absence of supporting evidence in comments did not have any significant effect on the outcome variables. The findings suggest that it is the civility or incivility of information that influences whether exposure to dissimilar perspectives either mitigates or reinforces individuals' attitude polarization. This study also suggested willingness to read more comments and negative emotions as two mediating factors between exposure to uncivil/civil disagreeing comments and attitude polarization.

Political polarization is a growing concern in many countries and has drawn scholarly attention to discover the factors associated with it (Gramlich, 2017; Tsfat & Chotiner, 2016). As evidence shows that individuals' exposure to like-minded perspectives is significantly related to political polarization (Garrett, 2009; Stroud, 2011), examining what could reduce political polarization has become important. Deliberative democratic theorists and empirical studies have suggested that exposure to diverse perspectives plays a role in increasing understanding of the opposing side, which may in turn reduce extreme attitudes (Huckfeldt, Johnson, & Sprague, 2002; Huckfeldt, Mendez, & Osborn, 2004).

However, exposure to diverse or dissimilar information does not always work in the way deliberative democratic theorists have expected. Their expectation is that exposure to different perspectives makes individuals consider contrasting viewpoints, which leads them to understand the other side and develop greater levels of political tolerance; in this way, people's attitude polarization is reduced (Huckfeldt, Johnson, & Sprague, 2004; McPhee, Smith, & Ferguson, 1963; Mutz, 2002). On the other hand, some studies have shown that exposure to dissimilar views amplifies individuals' preexisting beliefs and produces more extreme attitudes, rather than mitigates them (Taber & Lodge, 2006). The latter argument is attributed to biased information processing or motivated skepticism, by which individuals tend to give more weight to information that supports their own position and reinforces

their viewpoints and consequently to scrutinize or counter-argue dissimilar information to protect their views (Ditto & Lopez, 1992; Taber & Lodge, 2006). These contrasting findings raise the question of why and when exposure to *dissimilar* perspectives differently influences individuals' attitude polarization. The current study, therefore, tests the consequences of exposure to disagreeing information in the process of attitude polarization. This study focuses on the interpersonal communication style or message factors in online settings (i.e., civility/incivility and presence of supporting evidence) because the comments section has increasingly become important part of online space for individuals to share their thoughts and form their attitude (Graf, Erba, & Harn, 2017). A social media environment, such as comment sections, provides people with opportunities to share their thoughts and discuss them with others, increasing the chances of being exposed to diverse or dissimilar viewpoints (Kim, Hsu, & Gil de Zúñiga, 2013). Given the increasing role of comments on social media as information sources and discussion spaces as well as growing concerns about incivility and the quality of content online and in the social media sphere (Hille & Bakker, 2014; Hmielowski, Hutchens, & Cicchirillo, 2014), this study examines how civility/incivility and the presence of supporting evidence in Facebook comments influence individuals' attitude polarization as well as their willingness to read more comments and negative emotion.

What is more, in order to better understand why and how the (in) civility and quality of disagreeing information matter in influencing

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individuals' attitude polarization, this study explores two potential mediating mechanisms by which the effects of exposure to disagreeing comments may indirectly influence participants' attitude polarization through further information-seeking intention and negative emotion. To this end, we utilize an online experiment in which the participants read Facebook news comments to examine whether they are influenced by (in)civility and quality in social media comments when they read dissimilar viewpoints.

1. Incivility and supporting evidence in a disagreement and attitude polarization

Selective exposure is a major feature of news/information consumption in the new media environment. Even so, only like-minded information exposure is almost impossible in the real-world online context. In terms of attitude polarization, [Karlsen, Steen-Johnsen, Wollebæk and Enjolras \(2017\)](#) experimental study revealed that not only confirming but also contradicting arguments in online debates lead to attitude reinforcement. Some other research has demonstrated that exposure to counter-attitudinal information either reduces or reinforces individuals' attitude ([Huckfeldt & Sprague, 1995](#); [Taber & Lodge, 2006](#)). Such mixed findings on attitude polarization indicate that there could be other factors that can explain under what circumstances exposure to disagreeing perspectives mitigates or reinforces one's attitude extremity. This study suggests that communication style or message factors—whether the message is civil or uncivil and whether supporting evidence is provided or not—would matter.

Civility does not just refer to interpersonal politeness, but also includes democratic merit ([Papacharissi, 2004](#)). Civil discussion has been considered to play a role in facilitating constructive deliberation, because it has deliberative potential by encouraging discussion participants to respect the justice of others' views and adopting others' point of view ([Hwang, Borah, Namkoong, & Veenstra, 2008](#); [Santana, 2014](#)). Since exposure to civil dissimilar views ameliorates conflict (see [Gutmann & Thompson, 1996](#)), civil comments may have some potential to reduce polarization.

In contrast, discussion incivility is defined as disrespectful statements for the purpose of attacking. The target can be a person, party, policy, or institution. Uncivil expression involves words and phrases that clearly demonstrate disrespect or insult, including contempt, name-calling, harshness, stridency, mockery, derision, character assassination, and a confrontational and shrill manner ([Brooks & Geer, 2007](#); [Mutz & Reeves, 2005](#)). Typical disagreement criticizes others, but incivility moves beyond simple criticism by adding the disrespectful characteristics mentioned above.

In a digital media environment, the anonymity of online discussion lowers the barriers to expressing one's opinion and also results in widespread uncivil expression online compared with face-to-face interactions ([Coe, Kenski, & Rains, 2014](#); [Santana, 2014](#)). Encountering the pervasive uncivil comments online may cause readers to have a defensive motivation to reinforce their prior attitude, especially when it comes to a disagreeing opinion. In fact, scholars have found the effects of uncivil discussion on people's perceptual polarization ([Hwang, Kim, & Hub, 2014](#)), weaker message satisfaction ([Gervais, 2015](#)), and closed-mindedness ([Hwang, Kim, & Kim, 2018](#)). In this regard, it is likely that exposure to uncivilly expressed disagreeing information may reinforce individuals' attitude polarization rather than weakening it. Thus, this study proposes the following hypothesis:

H1a. Participants who are exposed to uncivil dissimilar comments, compared with people who are exposed to civil dissimilar comments, will show greater levels of attitude polarization.

In addition to how an opinion is expressed (i.e., discussion incivility), the quality of information may be a potential factor influencing attitude polarization. Basically, message/argument quality refers to the strength or plausibility of persuasive argumentation ([Eagly &](#)

[Chaiken, 1993](#)). A high-quality message has stronger persuasive power in general. Some scholars have defined message quality using a multi-dimensional construct including perceived informativeness and persuasiveness ([Zhang, Zhao, Cheung, & Lee, 2014](#)). From their perspective, arguments that are backed up by data provide informative grounds and reasons why one should accept the arguments. Persuasive messages commonly include evidence such as relevant facts, opinions, and information to support the persuader's arguments. The literature on persuasion has shown that citing the sources of evidence—as opposed to providing only vague documentation or no documentation at all—enhances the communicator's expertise and trustworthiness and the given message's perceived credibility (see [O'keefe, 2002](#) for reviews).

This study defines message quality as whether a message provides supporting evidence or not and predicts that exposure to counter-attitudinal information with relevant supporting evidence may lead to lower levels of extreme attitude compared to information without supporting evidence because related evidence may provide more opportunity to understand the other side or even to be persuaded. This also means that exposure to disagreeing information without supporting evidence might produce greater levels of attitude polarization. The following is posited:

H1b. Participants who are exposed to dissimilar comments without supporting evidence will show greater levels of attitude polarization compared to people who are exposed to dissimilar comments with supporting evidence.

2. Incivility, supporting evidence, and willingness to read more comments

In regard to John Rawls' public reasons in political discourse, [Morgan-Olsen \(2013\)](#) argued that the role of citizen as listener is as important as the role of citizen as speaker. According to Morgan-Olsen, the duty to listen supports or strengthens the deliberation standards and makeup of public political culture. Thus, listeners should be open-minded and willing to revise their views. Information seeking, defined as purposefully making an effort to change one's state of knowledge ([Borah, 2014](#); [Cho & Lee, 2008](#)), is related to the open-mindedness of a listener who has the motivation to seek further information related to certain issues or events.

Uncivil discussion causes low levels of media trust and leads to avoidance of that media outlet ([Ladd, 2013](#); [Mutz & Reeves, 2005](#)). As such, uncivil comments can hinder open-mindedness and cause audiences to avoid further information seeking. Previous studies have shown that having uncivil discussion is related to close-mindedness and political cynicism, and exposure to uncivil messages has been linked to hiding and unfriending of contacts on Facebook ([Peña & Brody, 2014](#)). Some even considered reading/writing comments to be a waste of time when they were frustrated by the low quality of discussion ([Springer, Engelmann, & Pfaffinger, 2015](#)). In addition, [Minich, Mendoza, and Brown \(2018\)](#) revealed that participants who were exposed to uncivil framing of a message were less likely to click on hyperlinks and to seek further information compared to those who were exposed to civil framing. Given these considerations, it would be expected that uncivil comments on social media can lead to avoiding further reading of others' comments. Thus, we propose:

H2a. Participants who are exposed to uncivil dissimilar comments show lower levels of willingness to read more comments compared with people who are exposed to civil dissimilar comments.

In terms of the quality of information, a high-quality message may encourage people to pay attention to others' opinion. For example, [Syn and Kim \(2013\)](#) found that when health information was provided by perceived credible sources, respondents showed significantly higher intention to read postings on Facebook as well as post questions and answers. Similarly, [Zhang et al. \(2014\)](#) found that argument quality and

source credibility are key antecedents of intention to read more messages and forward messages on the microblogging site *Weibo.com*. Based on the elaboration likelihood model (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986), people tend to elaborate more on high-quality information compared to a low-quality message. Exposure to a message with high quality will motivate the audience to perform a high level of issue-relevant thinking (Sussman & Siegal, 2003) and to read more related messages (Zhang et al., 2014). From this perspective, it is expected that if people are exposed to an argument with supporting evidence, they are more likely to read more comments to elaborate their thoughts about a given issue. As such:

H2b. Participants who are exposed to dissimilar comments without supporting evidence will show lower levels of willingness to read more comments compared to people who are exposed to dissimilar comments with supporting evidence.

3. Incivility, supporting evidence, and negative emotion

Attacking another person using hostile language that fails to comply with politeness norms or justice norms usually induces moral anger (Brown & Levinson, 1987). If a discussion is uncivil, negative emotions such as anger are aroused (Phillips & Smith, 2004; Smith, Phillips, & King, 2010). Even if the uncivil attack is not targeted directly toward an individual, it can cause negative emotions. According to the intergroup emotion theory (Smith, 1993), a person's aroused emotions in an intergroup situation are related to the group. In other words, according to Smith and Mackie (2008), "the individual who identifies with an in-group may feel that *they* are threatening *us*; *we* feel angry at *them*; *we* support policies designed to keep *them*" (p. 430). This concept applies to the context of social media. An experimental virtual online debate on a controversial issue showed that uncivil attacks during the discussion induce negative intergroup emotions (Hwang et al., 2018). Similarly, the current study also predicts that exposure to uncivil disagreement comments will arouse negative emotion, as follows:

H3a. Participants who are exposed to uncivil dissimilar comments will show greater levels of negative emotion compared with people who are exposed to civil dissimilar comments.

Compared with the cognitive consequences of message quality (e.g., message credibility, level of persuasion, behavioral intention), the emotional effects of message quality remain unknown. However, some previous studies offer clues about the relationship between message quality and emotion. Kim and Lennon (2013) found that website reputation and website quality have positive effects on users' emotion. Website reputation and website quality reflects users' collective experiences, which is directly related with users' positive or negative emotions. Yoo, Park, and MacInnis (1998) found that salespersons' knowledge affects customers' positive emotion, whereas negative emotion was induced when customers received incompetent service. These relationships between service quality or website quality and emotions can be applied to the effects of message/argument quality as well. As weak arguments elicit more negative thoughts than strong arguments (Das, de Wit, & Stroebe, 2003), if someone opposes one's opinion without any reason, it can be expected to elicit more negative emotion. However, even if someone has a dissimilar opinion, if he/she opposes one's opinion with valid evidence, it might reduce negative emotion. The following is proposed:

H3b. Participants who are exposed to dissimilar comments without supporting evidence will show greater levels of negative emotion compared to people who are exposed to dissimilar comments with supporting evidence.

4. Mediating role of willingness to read more comments and negative emotion

In addition to the main effects of uncivil comments and supporting evidence on attitude polarization, this study focuses on investigating *how* these two factors contribute to attitude polarization. In order to answer this question, this study attempts to examine two different aspects of possible mediating routes: cognitive aspect (i.e., willingness to read more comments) and emotional aspect (i.e., negative emotion).

First, exposure to others' opinion, which includes reading other people's comments on social media, can contribute to understanding various perspectives and serve as a foundation for desirable outcomes in the democratic process. Perspective-taking and empathy may require correction, adjustment, and careful consideration of how one differs from others (Kruglanski, 2013), but both are based on the idea that one listens to others' views first. In particular, listening to dissimilar views provides people with opportunities to view an issue as not a dichotomy and to understand the other side, thereby making their attitude more moderate (Barker & Hansen, 2005; Meffert, Guge, & Lodge, 2004). Usually, exposure to diverse or dissimilar perspectives enhances ambivalence, which relates to belief complexity (Gastil & Dillard, 1999; Meffert et al., 2004). Therefore, listening to or reading the opposite side's view with an open mind may increase the chance of depolarization.

However, this works under the condition of civil opinion exchanges. As negative political advertisements or advertising attacks increase cynicism about politics (Ansolabehere & Iyengar, 1995; Yoon, Pinkleton, & Ko, 2005), uncivil comments that disrespectfully attack people with opposing views can lead audiences to disengage from critical scrutiny of other people's arguments; in other words, the situation may lead to uncritical or automatic conviction of their prior belief (cf. the relationship between motivated skepticism and belief polarization, Taber & Lodge, 2006). People are generally motivated to listen to other citizens' views and prefer their discussions to be civil in tone in everyday political talk (Conover & Searing, 2005), but if dissimilar comments are expressed uncivilly, the intention to read more comments will be decreased (see H2a), which can result in more polarized attitudes.

Furthermore, message quality still positively affects people's attitudes and decision-making process online (Rieh, 2002; Zhang et al., 2014). When people are exposed to dissimilar comments that contain supporting evidence, they would be more likely to read more comments, and therefore people have more chances to read the other side's views and have a wider range of acceptance of them. Nevertheless, given the lack of empirical evidence and sufficient grounds to propose directional hypotheses regarding the mediating paths, the following research question is proposed:

RQ1. Are the effects of uncivil dissimilar comments and supporting evidence on attitude polarization mediated through willingness to read more comments?

Emotion shapes the way individuals deal with an issue (MacKuen, Wolak, Keele, & Marcus, 2010). The tone of the users' comments, located below a news article, can situationally affect people's emotion, which influences people's perceptions, attitudes, and behaviors. Previous research has indicated that intergroup conflict triggers emotional responses, and negative emotions targeted specifically at the out-group are related to prejudiced attitudes and discriminatory behaviors (e.g., Leach & Iyer, 2006; Mackie & Smith, 2002). Considering the widespread use of an angry and a disrespectful tone in social media discussions on politics between two political groups (Duggan & Smith, 2016) and the evidence that emotions affect policy attitudes (Huddy, Feldman, & Cassese, 2007) and political participation (Kim, Kim, & Wang, 2016; Valentino, Brader, Groenendyk, Gregorowicz, & Hutchings, 2011), we propose a mediation mechanism by which exposure to uncivil dissimilar comments relates to individuals' levels of

negative emotion, which, in turn, is associated with attitude polarization.

As intergroup emotion theory suggests, emotions are unstable depending on the intergroup context. In the case of uncivil comments, empirical findings from Hwang et al. (2008) showed that individuals who were exposed to a blogger's uncivil comments had increased negative emotions, especially when the comments are opposed to the participants' position; moreover, the negative emotions reinforced the participants' prior attitude. From this perspective, if people are exposed to uncivil comments between two different ideological groups, ideological group-based negative emotion emerges, resulting in attitude polarization. In contrast, the reverse effects of civil discussion on depolarization would also be possible.

In addition, high-quality comments which include supporting evidence may reduce the level of negative emotion and increase tolerance of dissimilar opinions. Meanwhile, dissimilar comments without any supporting evidence may cause negative emotion (see H3b) and strengthen the original issue position rather than moderate attitude because there is no valid evidence to change their opinion. It is hard to arouse positive emotions toward the opposing argument, but if people express their opposing opinion in a civil manner or with evidence, the level of negative emotion will decrease, which in turn reduces attitude polarization. Based on these explanations, the second research question is proposed:

RQ2. Are the effects of uncivil dissimilar comments and supporting evidence on attitude polarization mediated through negative emotion?

5. Methods

5.1. Participants

A web-based experiment was conducted through Qualtrics. The participants were recruited from Mechanical Turk (MTurk), a crowdsourcing service run by Amazon.com. Many studies that used M-Turk have indicated the advantages of using its data, which includes greater diversity of subjects compared with most college student subject pools (Buhrmester, Kwang, & Gosling, 2011; Sprouse, 2011). As noted above, the main purpose of this study is to examine whether and how exposure to “cross-cutting” comments influence one's attitude polarization, willingness to read more comments, and negative emotion. For this purpose, those who were exposed to comments with which they disagree were included in the analysis ($N = 192$), while the participants who were exposed to comments that supported their prior attitude toward the issue and had a neutral position were excluded in the analysis. This screening procedure was employed by matching participants' attitude toward gun control law measured in the pre-survey questionnaire (i.e., whether they support or oppose the gun control legislation) with manipulated comments' direction (i.e., comments supporting or opposing the gun control legislation).¹

¹ Additional comments on the partial use of data are warranted. Again, the reason we focus on disagreeing comments is that exposure to dissimilar information does not always work in the way deliberative democracy hopes to foster understanding of the other side and mitigate polarized attitudes among citizens. Given the fact that the literature has demonstrated that exposure to dissimilar information could either reduce or reinforce political polarization (e.g., Mutz, 2002; Taber & Lodge, 2006), we acknowledge that message factors (i.e., whether disagreeing information is civil or uncivil) would matter in order for exposure to dissimilar information to positively or negatively influence attitude polarization. However, this topic has been little examined in the current literature. For this reason, those who were exposed to comments with which they disagree were included in the analysis ($N = 192$), while the 454 subjects originally participated in this experiment and the participants who were exposed to comments that supported their prior attitude toward the issue and had a neutral position were excluded. One might wonder what would be the results

5.2. Design and procedure

The study used a 2 (civility vs. incivility) \times 2 (evidence vs. no evidence) factorial design. Before reading a manipulated Facebook news page, the participants answered demographic questions and reported their prior attitudes toward the topic. After answering the pretest questions, they were prompted to read a Facebook news post in which comments were manipulated. They were assigned randomly to each condition: civil comments with evidence ($N = 44$); civil comments without evidence ($N = 43$); uncivil comments with evidence ($N = 50$); uncivil comments without evidence ($N = 55$). After reading the comments, they were asked to answer a series of questions concerning the topic.

The stimuli were a Facebook news post and comments. The Facebook news page used in the experiment was designed to look like the real *New York Times* Facebook page. The instruction page noted that participants will see a Facebook page of the *New York Times* and asked them to read the content. Participants were informed that it was a manipulated Facebook page on the debrief page at the end of the experiment. The content of the experiment focused on the gun control issue, which is a controversial issue in the United States that clearly divides the Democrats (or liberals) and Republicans (or conservatives). The goal of this study is to examine whether and how characteristics of disagreeing comments on Facebook (e.g., incivility and existence of evidence in comments) are associated with political polarization. Thus, a controversial or sensitive issue must be selected for the purpose of the study. Gun control is one such issue facing Americans (Gallup, 2016). In addition, this issue was selected because stories about gun control were frequently covered in the news during the study period. Considering this point, the Facebook news post covered both sides of the gun control issue: one was that President Obama wanted to pass tougher gun-control legislation, and the other was that Republican representatives

(footnote continued)

if the agreement condition was included in the analysis. We conducted additional analyses that included both the disagreement and agreement conditions as well as the agreement condition only to see what the results would be. Apparently, these two additional analyses turned out to be not significant. In terms of the data for both the disagreement and agreement conditions, there was no significant difference in attitude polarization between the groups that read the uncivil and civil comments. In addition, the results with the agreement only condition also showed that there was no significant difference in attitude polarization between groups that read uncivil and civil comments. We think this makes sense because of the social categorization process in which individuals positively perceive themselves as members of an ingroup while having a negative perception of outgroup members (Tajfel & Turner, 1986). Social categorization, which is the psychological classification of people into ingroups and outgroups, provides a theoretical mechanism for how people differently perceive ingroup and outgroup members (Campbell, 1958). People process information and perceive others' opinions and behaviors in different ways depending on, for example, whether socially desirable or undesirable behaviors are performed by ingroup or outgroup members (Maass, Salvi, Arcuri, & Semin, 1989). They tend to have more positive affect toward ingroup members than outgroup members, and people are more trusting of ingroup members than members of other groups (Foddy, Platow, & Yamagishi, 2009; Otten & Moskowitz, 2000). Given this process, exposure to uncivil comments from ingroup members (i.e., agreeing information) and outgroup members (i.e., disagreeing information) should differently influence individuals' information processing and responses, including attitude formation, willingness to seek further information, negative emotion, etc. Furthermore, exposure to uncivil or rude comments from ingroup members would produce different types of outcomes such as *ingroup love*, a cooperative desire to help the ingroup (Weisel & Böhm, 2015), or *black-sheep effect*, which refers to a propensity to express more negative attitudes toward ingroup members who engage in devaluated behavior than toward a member of an outgroup who does similar behavior (Bègue, 2001). We believe that these phenomena are out of the scope of this study, so these questions (e.g., related to the agreement condition) are not explored in this article.

quickly rejected the president's call for action. Except for the comments, other parts of the Facebook page were identical in both conditions.

In the civil condition, the comments were in a respectful tone, addressing the issue (e.g., “I listen to what they are saying, and respect some points. But I think possessing guns is not a good way to solve mass killings.”). In contrast, in the uncivil condition, the comments contained swearing and insulting terms (e.g., “Dumb ass Republicans! I think possessing a gun is not a good way to solve mass killings. Does a gun protect you? Huh? Bullsh*t Republicans!!”). The comments differed in terms of evidence versus no evidence, with supporting evidence provided in some conditions (“Guns are banned in Chicago, but there have been 6000 shootings and 1500 gun homicides so far this year and counting. See the FBI evidence here: <https://www.fbi.gov/cjis/ucr/crime-in-the-u.s/2014/crime-in-the-u.s.-2014/tables/>”) and not provided in others.

In general, only a couple of Facebook comments are presented on the computer screen or the mobile phone screen; more comments can be seen if the reader scrolls down. Considering ecological validity in terms of the number of comments being presented to users on the device screen, there were four comments for each condition. The names and images of the commenters were the same across the conditions. As this study focused on the effects of exposure to opposing comments, each condition of the stimuli had two different directions of comments: supporting and opposing gun control. Those who were exposed to comments with which the participants disagree were included in the analysis ($N = 192$). For instance, those who reported supporting gun control law in the pre-survey questionnaire were exposed to manipulated comments that opposed the gun control legislation, and vice versa.

5.3. Measures

Willingness to read more comments. The participants were asked to what extent (from 1 = strongly disagree to 7 = strongly agree) they were willing to read more comments after they had read the comments presented in the stimulus with two items: “I would like to read more comments to gain a better understanding of the issue,” and “I would like to read more comments to understand how other people think of the issue.” The scores were then averaged to form a measure of willingness to read more comments (inter-item $r = 0.77$, $p < .001$, $M = 3.88$, $SD = 1.77$).

Negative emotions. To measure negative emotions, the participants were asked to what degree (from 1 = not at all to 5 = very much) the comments they had read made them feel angry and anxious. Anger and anxiety are common indicators of negative emotions. Similar approaches to measuring negative emotions have been used in prior research (Gross, 2008; Lecheler, Bos, & Vliegenthart, 2015). The two items were averaged to form a scale of negative emotions (inter-item $r = 0.66$, $p < .001$, $M = 3.51$, $SD = 1.71$).

Attitude polarization. Attitude polarization is typically conceptualized in terms of the absolute position of individuals' attitudes. Previous studies have used a folded measure of unfavorability/favorability ratings with higher values corresponding to more polarized attitudes (Stroud, 2010; Wojcieszak & Rojas, 2011). To measure attitude polarization about the gun control issue, participants were asked to indicate on a 7-point scale the extent to which they agree or disagree with four items on gun control legislation: “How strongly do you support or oppose gun control? (1 = strongly oppose to 7 = strongly support),” “What do you think about gun control law? (1 = very unfavorable to 7 = very strongly favorable),” “How strongly do you agree or disagree with the necessity for gun control law? (1 = strongly disagree to 7 = strongly agree)” and “Gun control law should be encouraged (1 = strongly disagree to 7 = strongly agree).” An index of attitude polarization was created by folding the scores of the four scales (i.e., the mid-score of the attitude scale represents the low end of the polarization scale, while the two ends represent the high end; see Dvir-

Gvirsman, 2017 and Kim, 2015) and averaging them (Cronbach's alpha = .98, $M = 2.94$, $SD = 0.85$; range = 1–4; higher values indicate greater attitude polarization).

Political ideology. Because political ideology is related to individuals' attitude toward political issues as well as how people process information about politics (Graham, Haidt, & Nosek, 2009), it is controlled in the analysis. On a 7-point scale (1 = very conservative to 7 = very liberal), respondents were asked to report their political ideology ($M = 4.51$, $SD = 1.69$).

6. Results

To test hypotheses 1, 2, and 3 (i.e., the direct effects of each factor on attitude polarization, willingness to read more comments, and negative emotion), analysis of covariance (ANCOVA), which controls for respondents' political ideology, was used. To test the proposed potential indirect effects (RQ1 and RQ2), we used Hayes' PROCESS, which allows multiple mediation paths to be tested simultaneously (Hayes, 2013).

6.1. Manipulation checks

To ensure that the manipulated comments were perceived as intended, manipulation checks were conducted. For the civility/incivility of comments, the participants were asked to evaluate to what extent the comments they had read were *uncivil* and *impolite*, on a scale from 1 = strongly disagree to 7 = strongly agree ($r = 0.93$, $p < .001$). An independent sample *t*-test showed that uncivil comments were perceived as significantly more uncivil ($M = 6.18$, $SD = 0.96$) than the civil ones ($M = 2.36$, $SD = 1.30$), $t = 23.22$, $p < .001$. The manipulation check for the presence of evidence in comments was conducted using two items asking if commenters provided “evidence for their arguments” and “reasons along with their opinions” on a 7-point scale where 1 = strongly disagree to 7 = strongly agree ($r = 0.86$, $p < .001$). An independent sample *t*-test confirmed a successful manipulation, showing a significant difference between the evidence condition ($M = 5.02$, $SD = 1.39$) and the no-evidence condition ($M = 3.01$, $SD = 1.66$), $t = 9.07$, $p < .001$.

6.2. Hypothesis tests

To examine how the civility and incivility of Facebook comments affect the participants' attitude polarization (H1a), an analysis of covariance (ANCOVA) was employed. The results showed that there was a significant difference in attitude polarization between groups that read civil and uncivil disagreeing comments ($F(1, 187) = 7.14$, $p < .01$), while controlling for respondents' political ideology (see Table 1). As presented in Table 2, compared with participants who were exposed to civil comments ($M = 2.79$, $SD = 0.86$), those exposed to uncivil

Table 1
Analysis of covariance for three dependent variables.

Dependent Variables	Independent Variables	df	F	p	η^2
Attitude polarization	Political ideology	1	11.21	.001	.06
	Incivility	1	7.14	.008	.04
	Evidence	1	.26	.610	.01
	Incivility × Evidence	1	.05	.813	.00
Willingness to read more comments	Political ideology	1	1.97	.162	.01
	Incivility	1	12.34	.001	.06
	Evidence	1	.96	.328	.01
	Incivility × Evidence	1	.31	.576	.01
Negative emotion	Political ideology	1	.019	.891	.01
	Incivility	1	95.79	.000	.34
	Evidence	1	.87	.353	.01
	Incivility × Evidence	1	.01	.930	.00

Note. The results are based on three ANCOVA analyses in which respondents' political ideology was controlled as a covariate.

Table 2
Means and standard deviations from 2 × 2 ANCOVAs.

Manipulations		Attitude Polarization	Willingness to Read More Comments	Negative Emotion
Civil	No Evidence (N = 43)	2.82 (.87)	4.31 (1.65)	2.33 (1.25)
	Evidence (N = 44)	2.76 (.86)	4.39 (1.67)	2.51 (1.39)
	TOTAL (N = 87)	2.79 (.86) ^a	4.35 (1.65) ^b	2.42 (1.32) ^c
Uncivil	No Evidence (N = 55)	3.06 (.79)	3.33 (1.73)	4.31 (1.54)
	Evidence (N = 50)	3.08 (.86)	3.68 (1.84)	4.53 (1.34)
	TOTAL (N = 105)	3.07 (.82) ^a	3.50 (1.78) ^b	4.41 (1.44) ^c

Note. Numbers present mean scores for each condition; standard deviations are in parenthesis.
^{a,b,c} Significant main effects of civility/incivility of comments found for each dependent variables from ANCOVA models.

Table 3
Indirect effect of civility/incivility of facebook comments on attitude polarization through willingness to read more comments and negative emotions.

Mediator	Effect	SE	LLCI	ULCI
Willingness to read more comments	.11	.04	.03	.20
Negative emotion	.16	.08	.01	.33

Note. Bootstrap resample size = 5000. SE = bootstrap standard errors; LL = lower limit; UL = upper limit; CI = bias corrected 95% bootstrap confidence interval.

comments demonstrated greater levels of attitude polarization ($M = 3.07$, $SD = 0.82$). In other words, participants exposed to civil comments showed lower levels of attitude polarization compared with those who were exposed to uncivil comments. Therefore, **H1a** was supported. However, **H1b** was not supported. The ANCOVA model did not find a significant main effect of evidence on attitude polarization ($F(1, 187) = 0.26$, $p = n.s.$, $M_{no\ evidence} = 2.95$, $SD_{no\ evidence} = 0.83$; $M_{evidence} = 2.93$, $SD_{evidence} = 0.87$). In addition, there was no significant interaction effect between incivility and evidence on attitude polarization ($F(1, 187) = 0.05$, $p = n.s.$).

H2a proposes the direct effects of (in)civility of comments on participants' willingness to read more comments, stating that participants who are exposed to uncivil dissimilar comments will show lower levels of willingness to read more comments compared with people who are exposed to civil dissimilar comments. The findings supported **H2a**. The results of ANCOVA showed that those who were exposed to uncivil comments ($M = 3.50$, $SD = 1.78$) reported lower levels of willingness to read more comments ($F(1, 187) = 12.34$, $p < .001$) compared with participants who were exposed to civil comments ($M = 4.35$, $SD = 1.65$). These results also indicate that participants who were exposed to civil comments that contradict their opinion were more willing to read more comments than those who were exposed to uncivil disagreeing comments. However, **H2b**, proposing a main effect of presence

of evidence in comments on willingness to read more comments, was not supported ($F(1, 187) = 0.96$, $p = n.s.$, $M_{no\ evidence} = 3.76$, $SD_{no\ evidence} = 1.75$; $M_{evidence} = 4.01$, $SD_{evidence} = 1.79$). The results also showed that the interaction between incivility and evidence factors was not significant ($F(1, 187) = 0.31$, $p = n.s.$).

H3a predicted the effects of exposure to civil/uncivil disagreeing comments on negative emotion, stating that participants who are exposed to uncivil dissimilar comments will show greater levels of negative emotion than people who are exposed to civil dissimilar comments. The results confirmed this is the case. Participants who were exposed to uncivil disagreeing comments ($M = 4.41$, $SD = 1.44$) reported greater levels of negative emotion ($F(1, 187) = 95.79$, $p < .001$) compared with people who are exposed to civil disagreeing comments ($M = 2.42$, $SD = 1.32$). The results also mean that those who were exposed to civil dissimilar comments showed lower levels of negative emotion than participants who were exposed to uncivil dissimilar comments. The ANCOVA model demonstrated that whether comments have supporting evidence or not did not have any influence on negative emotion ($F(1, 187) = 0.87$, $p = n.s.$, $M_{no\ evidence} = 3.44$, $SD_{no\ evidence} = 1.72$; $M_{evidence} = 3.58$, $SD_{evidence} = 1.69$). Thus, **H3b** was not supported. The results also found no interaction effect between the two factors on negative emotion ($F(1, 187) = 0.01$, $p = n.s.$).

RQ1 and **RQ2** asked whether exposure to civil/uncivil disagreeing comments and disagreeing comments with evidence/without evidence would indirectly influence participants' attitude polarization through willingness to read more comments (**RQ1**) and negative emotion (**RQ2**). A multiple-mediator model was used to examine the potential mediating role of willingness to read more comments and negative emotion using Hayes' PROCESS macro with 5000 bias-corrected bootstrap samples and 95% confidence intervals. In a mediation model, the independent variable is a categorical variable for which the civil comments condition was coded "1" and the uncivil comments condition was coded "2". As **Table 3** presents, the results showed that the indirect effect of civil/uncivil comments on attitude polarization through willingness to read more comments was significant (effect = 0.11, SE = 0.04, 95% CIs = 0.03 to 0.20). As shown in **Fig. 1**,

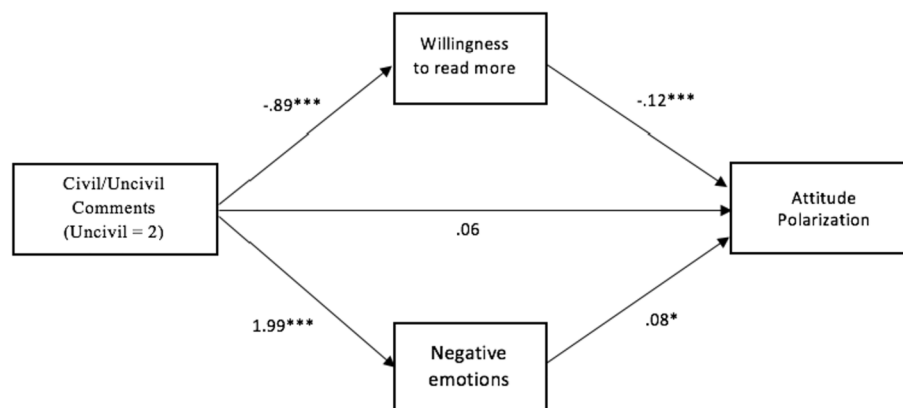


Fig. 1. Indirect effects of incivility of comments on attitude polarization via willingness to read more comments and negative emotions. Note. Civil condition coded "1" and uncivil condition coded "2" in the model. * $p < .06$; *** $p < .001$.

participants who were exposed to dissonant uncivil comments were less likely than people exposed to civil comments to be willing to read more comments to understand how other people think of the issue, which in turn led to greater levels of attitude polarization. The findings also indicate that compared to those who read uncivil disagreeing comments, participants who read civil dissimilar comments reported greater levels of willingness to read more comments about the issue, which in turn led to lower levels of attitude polarization.

The results also answered RQ2 in that the civility/incivility of comments had a significant indirect effect on attitude polarization via negative emotion with a coefficient of 0.16, SE = 0.08, 95% CIs = 0.01 to 0.33 (see Table 3). Fig. 1 also demonstrates this mediating path. Participants who were exposed to disagreeing uncivil comments were more likely show greater levels of negative emotion than people exposed to civil disagreeing comments, which in turn showed greater levels of attitude polarization; participants who were exposed to civil dissimilar comments reported lower levels of negative emotion than those who were exposed to uncivil disagreeing comments and in turn showed lower levels of attitude polarization.

7. Discussion

In light of the contrasting findings in the literature that exposure to disagreement either mitigates or reinforces individuals' attitude polarization, the present experiment addressed questions of how (in)civility and the presence of supporting evidence in comments on a Facebook news post affect individuals' further information-seeking intention, emotional reaction, and attitude polarization. Overall, the results indicated that compared to exposure to civil disagreeing information, exposure to uncivil opposing comments reduces one's willingness to read more comments and induces negative emotions and attitude polarization. On the other hand, exposure to civil opposing comments on Facebook leads to one's greater levels of willingness to read more comments along with lower levels of negative emotions and attitude polarization.

Inconsistent with the expectations, whether supporting evidence is provided or not in comments did not have any significant effect on respondents' levels of willingness to read more comments, negative emotion, and attitude polarization. Given the lack of a direct effect of the presence of supporting evidence on the outcome variables, no mediating mechanisms were observed for the impact of evidence on attitude polarization.

The study findings suggest important implications. First, this study confirms the role of comments on social media. Consistent with previous studies that have shown that comments have effects on individuals' news evaluation and attitudes (e.g., Lee & Jang, 2010), this study showed the significant roles of reading others' comments in social media platforms on various outcomes such as willingness to read further comments, negative emotion, and attitude polarization, depending on the communication style in social media. In particular, this study acknowledges the conflicting findings in the previous literature, indicating that exposure to dissimilar opinions does not necessarily attenuate individuals' attitude polarization, which warrants further research on what factors would influence the effects of exposure to disagreement on political polarization. The study provides empirical evidence that the way one presents his/her opinions (i.e., civility/incivility of comments) matters for others when disagreeing perspectives are considered although the presence of supporting evidence doesn't matter. This finding suggests that message factors (e.g., to what extent the message is polite or respectful of others' thoughts) must be taken into account when it comes to understanding the effects of exposure to dissimilar perspectives on political polarization.

Given that uncivil comments and expressions are frequently made in online spheres such as social media as well as online news websites (Blom, Carpenter, Bowe, & Lange, 2014; Coe et al., 2014; Santana, 2014; Su et al., 2018), the findings of this study are meaningful. The

findings provide evidence that uncivil communication may make less likely that individuals will be exposed to diverse perspectives of their fellow citizens on social media.

More importantly, the results of this study suggest two mediating processes of willingness to read more comments and negative emotion in order to provide an explanation of why and how message factors of disagreeing information may influence individuals' attitude polarization. Previous studies on attitude polarization have investigated how media factors (e.g., partisan media/media fragmentation; Levendusky, 2013) and audience factors (e.g., selective exposure; Garrett et al., 2014; Stroud, 2010) influence polarization. Adding to these previous studies, this study tried to figure out the mechanism of the effects of comment incivility on attitude polarization. First, reading others' comments on social media can be understood in terms of its potential contribution to the normative desirable outcomes of political elaboration and engagement. As a reasoning process, reading others' thoughts has positive effects on issue elaboration (Barker & Hansen, 2005; Meffert et al., 2004), and reading others' comments on social media can play a significant role in widening various perspectives and understanding dissimilar ideas. Therefore, if disagreeable opinions are expressed with a civil tone, audiences can take this as a positive implication of deliberation. However, as the findings of the study suggest, exposure to uncivil disagreeable comments discourages one's further reading of others' thoughts, resulting in attitude polarization.

In addition, the level of negative emotions resulting from the tone of comments, either civil or uncivil, mediates the relationship between exposure to dissimilar comments and attitude polarization. Recently, many social media users have expressed that the political conversations on social media are angrier, less respectful, and less civil between different political groups (Duggan & Smith, 2016). The manipulated uncivil comments in this study did not attack an individual and or a certain argument/reason; rather, they attacked a group in the form of a political party, namely Republicans and Democrats, as many debates on social issues in the U.S. follow the dichotomy of political parties. That is, the aroused negative emotions are group-based emotions, which lead to group-based attitude polarization. The findings suggest that if disagreement is made civilly, unnecessary negative emotions between the two parties will decrease and as a result, group-based attitude polarization can be attenuated.

Although this study has strengths, certain limitations must be mentioned. The results of one-shot experimental research like this study should be interpreted with caution. First, this study used only one news article and a single issue, presenting only a headline and a summary of the article on Facebook along with other readers' opposing comments, which limits the generalizability of the findings. Although this study ensured that the Facebook news pages used as experiment stimuli were identical in each condition except for the manipulation of the (in)civility and presence of supporting evidence in the comments, there is still a possibility that individuals might show different responses when presented with a different issue or comments, as individuals adopt different message processing depending on the message (e.g., value-discrepant vs. value congruent information, quality of comments, etc.) or issue characteristics. Gun policy is already a highly polarized issue area in the United States, so the finding that the experiment treatment actually increased attitude polarization is quite significant. A wider range of issues, including less controversial issues, can be tested in future research to understand the extent to which the findings of this study can be generalized as well as how issue characteristics come into play when it comes to attitudinal polarization.

Although the current study provides strong evidence for the effects of uncivil opposing comments on short-term immediate attitude polarization, the findings do not directly suggest that the comments have similar long-term effects on attitude. In this regard, one might be right to suspect whether these findings can be generalized to real world attitude polarization phenomenon which is generally considered as a cumulative process of exposure to information or viewpoints over a

long period of time. But in general, given the current findings that a one-shot exposure to uncivil comments led to attitude polarization, coupling with widespread uncivil online comments, we believe that cumulative and repeated exposure to uncivil online comments may be one of the important factors contributing to citizens' long-term attitude polarization. Future researchers should explore a more cumulative process of attitude polarization over a long period of time by considering panel survey research or repeated experiment designs.

In addition, the range of measurement for “willingness to read more comments” was limited to “comments” reading. This was useful to examine the intention to read more opinions under the same experimental setting on Facebook, but it might limit the boundary of information-seeking intention in general. Therefore, to make the study more broadly applicable, the measurement for willingness to read more comments must include more items which cover information-seeking intention via online and offline platforms.

Notably, there have been mixed results regarding the effects of uncivil online discussion on attitude polarization. For example, Hwang et al. (2014) found that exposure to an uncivil online intergroup debate had a significant influence on the perception of mass polarization, but not on attitude polarization. One possible explanation for this mixed finding on attitude polarization is that Hwang et al.'s experiment provided uncivil comments that comprised both opposing and supporting comments on the health care reform issue. However, the present study provided only uncivil comments that were inconsistent with the participants' position on the gun control issue. Therefore, future researchers must investigate the characteristics of comments (e.g., position-consistency of comments, argument quality) and of readers (e.g., need for cognition, party identity strength) that influence the effects of uncivil/civil comments on attitude polarization.

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