



Reactance to Uncivil Disagreement?

The Integral Effects of Disagreement, Incivility, and Social Endorsement

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Abstract: This study extends the psychological reactance theory by demonstrating that online political discussions, without explicit social influence attempts, can arouse psychological reactance by certain message features. Based on a 2 (stance: agreement vs. disagreement) × 2 (tone: civil vs. uncivil) × 2 (social endorsement: low vs. high) between-subjects online experiment in the United States ($N = 418$), the present study found that both disagreement and uncivil comments led to psychological reactance directly and indirectly via perceived threat to freedom. Unexpectedly, uncivil disagreement had smaller effects on psychological reactance than civil disagreement. In addition, although social endorsement cues did not show any independent effects on psychological reactance, they were found to exacerbate the direct effect of uncivil disagreement on psychological reactance. Overall, our study develops important theoretical connections between political deliberation and psychological reactance literatures. It also yields practical implications for fostering an inclusive and healthy environment for online political discussion.

Keywords: psychological reactance, online political discussion, disagreement, incivility, social endorsement

Social media have been widely celebrated for their democratic potential in enabling wide public discussions on a variety of issues and fostering both online and offline political participation (Gil de Zúñiga et al., 2014; Halpern & Gibbs, 2013). Yet, the informal political discussions emerging on these platforms differ sharply from the hope and the hype. On the one hand, online political discussions have been criticized for isolating disagreeing persons from engagement. Many people generally feel less favorable toward the other side of social and political issues in online discussions (Garrett et al., 2014). About 7 in 10 US social media users find it stressful and frustrating to discuss politics on social media with people they disagree with (Anderson & Quinn, 2020). On the other hand, online political discussions often turn out to be uncivil, unrespectful, and intolerant (Coe et al., 2014; Rossini, 2020). Research suggests that exposure to uncivil discourse could lead to anger (Chen & Lu, 2017), aggressive thinking (Rösner et al., 2016), and opinion polarization (Anderson et al., 2014).

To advance the growing literature on the effects of political disagreement and online incivility, we draw on psychological reactance theory and social endorsement literature to explore the underlying mechanisms of such effects. Psychological reactance theory (PRT) states that autonomous

individuals will experience reactance when they feel that their freedom is under threat (Brehm, 1966; Brehm & Brehm, 1981). Psychological reactance has been conceptualized as a common reaction in persuasive communication contexts, such as health campaigns (e.g., Dillard & Shen, 2005; Li & Sundar, 2021; Quick, 2012; Rains & Turner, 2007). Yet, research on psychological reactance in political communication remains scarce. Unlike the messages in strategic communication, political discussions online are usually less formal (Freelon, 2010). But some characteristics of online political discussions, such as disagreement and incivility, might lead people to perceive their freedom being threatened, because these undesirable attributes may challenge people's belief in their freedom of expression on the Internet. Therefore, we argue that informal discussions on the Internet featuring uncivil and disagreeing content can also cause psychological reactance. And these message features could be potentially intertwined with one another to induce psychological reactance.

Furthermore, this study addresses the role of social endorsement cues, also known as *bandwagon heuristics*, in the effects of disagreement and incivility on psychological reactance. In fact, political messages on social media are often accompanied by social endorsement cues such as

likes, shares, and comments. Studies show that social media users are increasingly using these cues as shortcuts to form perceptions and evaluations of the content (Metzger et al., 2010; Walther et al., 2010). What is more relevant, one recent study on PRT in the online environment has found that social endorsement cues could mitigate the threats imposed by persuasive messages and thus reduce reactance (Li & Sundar, 2021). Given these reasons, we incorporate social endorsement cues in our study.

Theoretical Framework

Psychological Reactance Theory

PRT stipulates that those individuals exposed to a threat or elimination of freedom will experience reactance and, as a result, they will be motivated to restore the freedom (Brehm, 1966). Under the framework, freedom is defined as a belief that one can do, feel, and hold a particular position without constraints (Brehm, 1966). A threat to freedom occurs when individuals perceive that they face increased difficulties in exercising this freedom due to some external or internal causes. Threat to freedom granted, one's state reactance would be aroused, which in turn prompts message derogation and behavioral changes (Miller et al., 2007; Rains & Turner, 2007). Although early research notes that reactance, as a motivational state, is hard to measure, recent scholarship contends that reactance consists of both a negative emotional state and an unfavorable cognition about the messages (Dillard & Shen, 2005). Research has documented the varying ways that these two constructs intersect, including serial, intertwined, and paralleled mechanisms (Dillard & Shen, 2005; Quick, 2012; Rains & Turner, 2007).

Despite the bulk of research examining reactance aroused by persuasive messages in health and strategic communication (Dillard & Shen, 2005; Li & Sundar, 2021; Miller et al. 2007), the application of PRT in political communication remains scant. One pioneering study on political advertising has revealed that political ads supporting a candidate one opposes could induce psychological reactance and, in turn, lower the intention to vote for that candidate (Meirick & Nisbett, 2011). It is widely acknowledged that the Internet and social media could reinforce user autonomy and grant a sense of freedom regarding how one can access and redistribute online information (Benkler, 2008). Inadvertent exposure to online political information, for instance, has been found to cause reactance because such unwanted exposure to online political communication makes people feel their freedom is being restricted (Marcinkowski & Došenović, 2021). Another study in this vein shows that trait reactance, a predisposition referring to one's need for independence and autonomy, is linked to opinion withdrawal on social media (Wu, 2021).

In this study, we argue that the logic of psychological reactance can be applied to online political discussions. Assuming individuals generally believe that they have the freedom to hold certain beliefs about political issues and to discuss these issues with others, such freedom is not always guaranteed. On the one hand, discussing politics with others inevitably carries the risk of encountering disagreement. The Internet, in particular, has the potential to contribute to cross-cutting exposure, as it fosters weak ties and information sharing (Liang, 2018; Wojcieszak & Mutz, 2009). On the other hand, online discourse remains uncivil and intolerant (Coe et al., 2014; Rossini, 2020). These two factors may pose threats to those who want to exercise their attitudinal and behavioral freedom in online political discussions. Of note, online discussion may differ from persuasive communication in the way that the communicators in the former context do not necessarily have persuasive intent. Indeed, Brehm (1966) noted that the source of reactance arousal could be either intentional or perceived as such. In that sense, one may still perceive disagreement and insulting language as being intentional in constraining one's own free thoughts and behavior, even when the senders do not intend to do so. In what follows, we explicate political disagreement, online incivility, social endorsement cues, and the mechanisms of how these factors induce psychological reactance in online political discussions.

Political Disagreement and Reactance

Political disagreement, referring to exposure to viewpoints different from one's own, is a crucial concept in the deliberative theory. Normative theorists advocate for disagreement because encountering diverse political viewpoints forces people to reconsider initially held opinions or preferences and, therefore, enhances democracy (McPhee, 1963). Empirical research has yielded mixed results about the effects of political disagreement. Some shows that exposure to political disagreement can bring awareness of the rationales of the contrasting views, breed tolerance and open-mindedness, and enhance people's abilities to generate reasoning arguments (Mutz, 2006; Price et al., 2002). By contrast, others find that political disagreement dampens knowledge acquisition, voter turnout, and political participation (Feldman & Price, 2008; Lu et al., 2016). Despite these insights, the extent to which political disagreement could lead to reactance is less explored in the literature.

The PRT literature initially treated disagreement as an outcome of reactance. Studies show that when reactance is aroused, people tend to express disagreement by counter-arguing with the communicator for freedom restoration (Clayton et al., 2020; Rains & Turner, 2007). It is worth noting that disagreement can also serve as an antecedent of psychological reactance, because message receivers may hold discrepant views from the message senders.

According to Brehm and Brehm (1981), if one is committed to an attitudinal position, there will be a strong reactance to counter-attitudinal communication. Indeed, counter-attitudinal messages are found to cause belief boomerang, a typical manifestation of freedom restoration after reactance arousal, whereas pro-attitudinal messages do not (Zhao & Fink, 2021). The explanation is that counter-attitudinal communication makes one feel being imposed on by others to adopt discrepant views, which violates one's attitudinal freedom and engenders reactance.

What is the relationship, then, between political disagreement and psychological reactance? Disagreement, sometimes termed *cross-cutting* or *counter-attitudinal exposure*, evokes negative emotions including anger and anxiety (Chen & Lu, 2017; Lu, 2019) as well as negative cognitions such as negative evaluations of political candidates and deliberation experience (Stromer-Galley & Muhlberger, 2009). While both negative emotion and cognition are important components of psychological reactance, we do not have a clear idea of whether such consequences are a result of people perceiving disagreement as a freedom threat. PRT provides a theoretical lens to tease out this important but often missed mechanism. Based on the discussions, we expect that political disagreement, a type of counter-attitudinal communication, would make one perceive a threat to one's freedom and consequently cause reactance:

Hypothesis 1 (H1): Political disagreement, compared to agreement, will cause a higher level of (a) perceived threat to freedom and (b) psychological reactance.

Online Incivility and Reactance

Incivility is defined as offensive discussions that dampen the democratic ideal of public deliberation (Papacharissi, 2004). In the past few decades, incivility has increasingly appeared on television, news websites, and social media (Coe et al., 2014; Berry & Sobieraj, 2013). While traditional media is replete with political incivility among elites (Mutz & Reeves, 2005), incivility among ordinary citizens has gained traction in the online environment. Online incivility is a murky concept to define. Coe and associates (2014) develop five specific forms of online incivility, including name-calling, vulgarity, lying accusations, pejoratives for speech, and aspersion. Muddiman (2017) classifies public-level and personal-level incivility: The former refers to a lack of deliberativeness and reciprocity and the latter means impoliteness in interpersonal communication. Recently, Rossini (2020) argues that incivility should convey a rude or disrespectful tone and those that threaten democratic values should be instead labeled as political

intolerance. This study adopts this approach by conceptualizing incivility as an offensive tone instead of its derogatory substance.

The extant PRT literature has identified that certain language styles of the messages could prompt reactance. Forceful or high-controlling language that includes threatening information, or such imperatives as *must* and *ought to*, is found to induce feelings of a freedom threat and then cause reactance (Dillard & Shen, 2005; Miller et al. 2007; Reynolds-Tylus et al., 2021). In one recent study, Yuan and Lu (2020) show that aggressive communication style, referring to attacking the self-concepts of individuals, can trigger psychological reactance in discussing climate change issues. This aggressive communication style actually resembles Rossini's (2020) conceptualization of incivility as a tone, not a substance, of messages.

The present study seeks to understand the linkage between online incivility and reactance. Although no studies, to our best knowledge, have directly tackled this key dynamic, the attributes of uncivil languages, as discussed earlier, feature insulting and forceful language that can potentially threaten individual freedom. A plethora of literature demonstrates that online incivility elicits negative emotions such as anger and depression (Chen & Lu, 2017; Masullo, Lu, et al., 2021) and negative cognitions such as aggressive thinking and political bias (Anderson et al., 2014; Rösner et al., 2016). One explanation for this line of findings is the politeness theory (Brown et al., 1987). Accordingly, incivility causes negative feelings or cognitions because it impinges a threat to one's negative face, defined as one's freedom to act. This "threat to negative face" thesis draws parallels to the core argument of PRT that reactance occurs when one perceives a freedom threat. Taken together, we argue that incivility can be perceived as hindering one's attitudinal and behavioral freedom in online discussions, which in turn arouses psychological reactance. To explicitly investigate this mechanism, we posit:

Hypothesis 2 (H2): Uncivil messages, compared to civil ones, will lead to a higher level of (a) perceived threat to freedom and (b) psychological reactance.

More importantly, a number of studies show that the co-occurrence of disagreement and incivility can exert stronger effects on people's emotions and cognitions. For instance, studies identify that uncivil disagreement is more likely to arouse negative emotions as compared to civil disagreement in online discussions (Chen & Lu, 2017). Similarly, uncivil counter-attitudinal viewpoints lower the levels of open-mindedness and provoke defensiveness (Hwang et al., 2018). Hence, we propose the following research hypothesis to tap into the joint effects of political disagreement and online incivility on psychological reactance:

Hypothesis 3 (H3): Uncivil disagreement, compared to civil disagreement, will lead to a higher level of (a) perceived threat to freedom and (b) psychological reactance.

Social Endorsement Cues and Reactance

Social endorsement cues, such as likes and shares, on social media posts have been extensively studied in persuasion literature. Studies drawing on online information processing theory hold that these online metrics serve as salient cues and influence users by eliciting mental shortcuts (Metzger et al., 2010; Walther et al., 2010). As expected, social endorsement cues can shape how people perceive media sources and media content. For instance, a higher number of favorable social endorsement cues can produce more positive perceptions of media sources and content (Walther et al., 2010). More relevant to the current study, Li and Sundar (2021) show that higher social endorsement cues play an important role in decreasing reactance, such that the difference in perceived threat between high-threat and low-threat messages will be mitigated when strong bandwagon cues are used.

However, social endorsement cues are not a panacea, as they might be useful in some contexts but not others. Bond and associates (2016) find that the effectiveness of social endorsement cues is contingent upon the types of political behaviors (e.g., political expression, information seeking, and voting) as well as the kinds of people (e.g., demographics and predispositions). In considering the role of social endorsement cues, it is possible that people may just resist or act counter to attempted social influence. Hilverda et al. (2018) reveal that the number of likes did not have a significant effect on people's benefit perception of organic food, and the effect of comments would occur only when those comments were perceived as useful. Given that the results of social endorsement cues on the message effects are not clear, we ask the following two research questions:

Research Question 1 (RQ1): To what extent will social endorsement cues moderate the effect of disagreement on (a) perceived threat to freedom and (b) psychological reactance?

Research Question 2 (RQ2): To what extent will social endorsement cues moderate the effect of uncivil messages on (a) perceived threat to freedom and (b) psychological reactance?

Method

The study obtained institutional review board (IRB) approval from North Dakota State University in September 2021. A priori power analysis suggests a sample size of 327

is needed to detect a small effect size ($\alpha = 0.20$) and power = 0.95. Participants at least 18 years old and residing in the United States ($N = 458$) were recruited from Prolific, a crowdsourcing platform. After consenting, each participant proceeded to the survey experiment and was paid US\$1.00 as compensation for completion. After removing those who failed the attention check ($n = 24$) and held neutral attitudes toward immigrant issues ($n = 16$), 418 participants were retained in the final sample, wherein 34.4% were male, 63.6% were female, and 2% identified themselves as *other* sex. The median age of the sample was 35–44 years. Most participants were White (56.7%), followed by Hispanic (15.8%), Black (13.6%), Asian/Pacific Islanders (10.0%), and other ethnicities (3.8%). The median educational level was associate's/2-year college degree, with a median household income of \$50,000–\$74,999. More than half of the participants (60.5%) identified themselves as left-leaning, followed by 23.2% right-leaning and 16.3% independent. Compared to the US adult Internet population (Pew Research Center, 2019), females, young, wealthy, and left-leaning people were over-represented in the sample. This limits our ability to generalize findings outside of this particular sample. The generalizability of the causality established in the current experiment could be enhanced with replications with a more representative sample.

Procedure and Materials

A 2 (stance: agreement vs. disagreement) \times 2 (tone: civil vs. uncivil) \times 2 (social endorsement: low vs. high) between-subjects experimental design was adopted. After answering demographic information and attitudes toward immigrants, participants were randomly assigned to one of the eight conditions. In each condition, participants read a user comment posted under a news story about immigrant issues on a social news website. They were then required to answer a few questions measuring the key constructs of PRT. The agreement versus disagreement conditions were created based on whether the stance of the user comment matched the participant's stance toward immigrants, as indicated in the screening question. A pro-immigrant participant reading a pro-immigrant user comment was coded as the agreement condition; a pro-immigrant participant reading an anti-immigrant user comment was the disagreement condition. The same rationale applied to those with an anti-immigrant stance.

To construct the stimuli, we employed a multistep process. First, one researcher collected a total of 10 comments under stories about COVID-19 from Reddit.com's immigrant subreddit. Among them, five comments expressed pro-immigrant stances and the other five represented anti-immigrant stances. Then, each of the 10 comments

Table 1. Stimuli material for the experiment

| | Anti-immigrant | | Pro-immigrant | |
|----------------------|--|--|---|---|
| | Uncivil | Civil | Uncivil | Civil |
| | SHUT THE F8CK UP! Thats their whoooooole strategy right now. Let Covid get as bad as possible and kill as many Americans as possible and destroy United States!! IMMIGRAnTs are F#KINg MORONN! SHUT THE F8CK UP! | Thats their whole strategy right now. Let Covid get as bad as possible and kill as many Americans as possible and destroy United States. | SHUT THE F8CK UP! It is not immigrants' fault! It's DAMN funny how these asshole hypocrites hate immigrants and scape goat them. They are F8cking MORONS! | It is not immigrants' fault. It's funny how these hypocrites hate immigrants and scape goat them. |
| Perceived incivility | $M = 6.06_a, SD = 1.60$ | $M = 4.93_b, SD = 1.59$ | $M = 4.82_a, SD = 1.58$ | $M = 3.20_b, SD = 1.30$ |
| Immigration stance | $M = 5.74^{***}, SD = 1.93$ | $M = 5.30^{***}, SD = 1.75$ | $M = 2.57^{***}, SD = 1.83$ | $M = 2.23^{***}, SD = 1.27$ |

Note. For perceived incivility, paired sample t -test for anti-immigrant comments shows that pretest participants perceived the uncivil comment significantly more uncivil than the civil one, $t(52) = 2.61, p = .012$. For pro-immigrant comments, a paired sample t -test shows that pretest participants perceived the uncivil comment significantly more uncivil than the civil one, $t(51) = 4.82, p < .001$. Mean differences within comment conditions marked with different subscripts. For immigration stance measures, a series of one-sample t -tests show that pretest participants rated uncivil anti-immigrant ($t(26) = 4.68, p < .001$) and civil anti-immigrant comments ($t(26) = 3.85, p < .001$) each as significantly higher than mid-point 4, indicating anti-immigrant stance. The test results also show that participants rated uncivil pro-immigrant ($t(27) = -4.12, p < .001$) and civil pro-immigrant comments ($t(25) = -7.08, p < .001$) significantly lower than mid-point 4, indicating pro-immigrant stance. Significance level marked with asterisks.

was edited into two versions to represent civil and uncivil tones. Uncivil comments contained attributes such as name-calling, profanity, and words in all capital letters (Chen & Lu, 2017; Coe et al., 2014), while civil comments did not have these attributes. We retained all the spelling and grammatical errors in the original comments to maintain realism. A total of 20 user comments were constructed.

Before the main experiment, these 20 comments were pretested with participants from Prolific who were not involved in the main experiment. The pretest aimed to ensure the comments were perceived as civil and uncivil and at the same time, represented clear stances towards immigrants. Pretest participants rated one version of each comment (a total of 10 comments) on a 4-item 7-point scale on perceived incivility (Kenski et al., 2020). Reliability analyses of the incivility indices for all 20 comments yielded high scores ($\alpha = 0.89 \sim 0.99$). They were also asked to rate the comment on a single-item bipolar scale measuring stances toward immigrants, in which 1 indicated pro-immigrant and 7 represented anti-immigrant stances.

To select the most reliable and valid user comments, we ran paired sample t tests to see whether the two versions of the same comment (civil vs. uncivil) had a statistically significant difference in perceived incivility. We also conducted a series of one-sample t tests to gauge whether the participants' ratings of the comment stance toward immigrants were significantly different from mid-level 4 (neutral). On the basis of the test results, we selected one pair of civil and uncivil user comments for each of the two pro- and anti-immigrant stances (Table 1).

To mimic the experience of reading comments on social news websites, we added those comments under a news story entitled, "Is the surge in coronavirus cases the fault of immigrants?" published by AP News on Reddit's

immigrant subreddit. To avoid possible confounding factors, we used a landscape photo accompanying the news story. We also adopted random combinations of letters for usernames and default photos for user profiles. In addition, identical timestamps were added to the main post and user comments across conditions. Finally, we randomized the endorsement cues (i.e., number of upvotes: 20 vs. 500) for the comments to represent low vs. high endorsement conditions.

Measures

Immigrant Attitudes

Following prior research (Matthes & Schmuck, 2017), we measured attitudes toward immigrants by asking participants how much they agreed or disagreed with the following statements on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*): "I think the proportion of immigrants in the United States is too high"; "I agree that immigration to the United States should be restricted"; "Too many immigrants harm the United States." We averaged the item scores, with higher scores indicating anti-immigrant attitudes (Cronbach's $\alpha = .90, M = 2.87, SD = 1.73$).

Perceived Threat to Freedom

We adapted Dillard and Shen's (2005) scale and asked participants to indicate how much they agreed or disagreed (1 = *strongly disagree* to 7 = *strongly agree*) with the following statements after they read the user comments: "The comment on the site tried to pressure me"; "I felt pressure to think a certain way about immigration"; "I felt the user was trying to force their opinions on me about immigration"; and "I felt being manipulated to form a certain view." We created a composite index, with higher scores

indicating a greater perceived threat to freedom (Cronbach's $\alpha = .87$, $M = 3.47$, $SD = 1.74$).

Negative Cognition

The literature in psychological reactance has adopted both open-ended questions and the Likert-scale to measure negative cognition (Dillard & Shen, 2005; Quick, 2012). Recent research shows that the Likert scale measure has consistent advantages in terms of model fit, variance explained, and factor loading (Reynolds-Tylus et al., 2021). Thus, we measured negative cognition with the Likert scale by asking participants to indicate how much they had the following thoughts about the user comment they read on a 7-point scale (1 = *not at all* to 7 = *a great deal*): “unfavorable,” “negative,” and “bad.” The composite index of the three items yielded high reliability (Cronbach's $\alpha = .96$, $M = 4.39$, $SD = 2.20$).

Negative Emotion

We measured negative emotion (i.e., anger) by asking participants to assess their emotions after reading the user comment on a 7-point scale (1 = *not at all* to 7 = *a great deal*). The four items include “irritated,” “angry,” “annoyed,” and “aggravated” (Dillard & Shen, 2005). We averaged the four items into an index with high reliability (Cronbach's $\alpha = .97$, $M = 3.78$, $SD = 2.11$).

Manipulation Check

Participants exposed to uncivil comments perceived the comment to be more uncivil ($M = 5.71$, $SD = 1.62$) than those in the civil condition ($M = 4.84$, $SD = 1.98$), $t(397) = 4.91$, $p < .001$. Participants who read comments with anti-immigrant stances rated the comment to be more anti-immigrant ($M = 6.19$, $SD = 1.67$) than those who read comments with pro-immigrant stances ($M = 2.06$, $SD = 1.57$), $t(416) = 26.04$, $p < .001$. In addition, participants perceived a greater threat to freedom when reading an uncivil comment ($M = 3.68$, $SD = 1.75$) than a civil comment ($M = 3.26$, $SD = 1.71$), $t(416) = 2.60$, $p = .012$. They also perceived more threats to freedom when exposed to disagreeing comments ($M = 4.00$, $SD = 1.61$) than agreeing comments ($M = 2.89$, $SD = 1.69$), $t(416) = 6.91$, $p < .001$. Overall, the manipulation of the experiment was successful. Note that this study treated social endorsement cues as intrinsic message features instead of an effect-based message property that requires a manipulation check to ensure the desired psychological states to be aroused (O'Keefe, 2003). In other words, we theorized that social endorsement itself did not exert any direct effects on psychological reactance; instead, it could condition the effects of incivility and disagreement on psychological reactance. Thus, a manipulation check for social endorsement cues was not performed.

Data Analysis

To test our hypotheses, we followed two steps. First, for hypothesis testing of the main effects (H1 and H2) and simple interaction effects (H3, RQs), we estimated a series of linear regression models in predicting perceived threat to freedom, negative cognition, and negative emotion separately using disagreement, incivility, and endorsement. Second, given the extant literature holds that psychological reactance should be considered a latent construct of negative cognition and negative emotion (see Dillard & Shen, 2005), we conducted structural equation modeling (SEM) using R's “lavaan” package. In addition to the main and simple moderation effects listed in the hypotheses, SEM could help explore more complicated relationships, such as the indirect effects on psychological reactance through perceived threat to freedom, which are the core components of PRT.

Results

Main Effects

In terms of H1 and H2, either disagreement or incivility in the discussion comments could lead to perceived threat to freedom and then psychological reactance. As shown in Table 2, disagreement, compared to agreement, led to a higher level of perceived threat to freedom ($B = 1.11$, $SE = 0.16$, $p < .001$), negative cognition ($B = 1.97$, $SE = 0.19$, $p < .001$), and negative emotion ($B = 2.08$, $SE = 0.18$, $p < .001$). Therefore, H1 is fully supported. Similarly, the result also suggests that uncivil messages, compared to civil ones, led to a higher level of perceived threat to freedom ($B = 0.43$, $SE = 0.16$, $p < .01$) and negative cognition ($B = 0.42$, $SE = 0.19$, $p < .05$). However, the effect of incivility on negative emotion is not statistically significant, which is unexpected as stated in H2. Therefore, H2 is partially supported. Finally, there is no evidence that social endorsement cues had direct effects on any of the dependent variables.

Moderation Effects

H3 predicts interaction effects between disagreement and incivility on perceived threat to freedom and then psychological reactance. As presented in Table 2, all the interaction terms between disagreement and incivility are significantly negative, indicating that uncivil disagreement, compared to civil disagreement, led to a lower level of perceived threat to freedom ($B = -0.90$, $SE = 0.45$, $p < .05$), negative cognition ($B = -1.38$, $SE = 0.54$, $p < .05$), and negative emotion ($B = -1.18$, $SE = 0.51$, $p < .05$). These findings

Table 2. Regression models in predicting threat to freedom, negative cognition, and negative emotion

| | Threat to freedom | | Negative cognition | | Negative emotion | |
|---------------------------------------|-------------------|----------------|--------------------|----------------|------------------|----------------|
| | Main | Interaction | Main | Interaction | Main | Interaction |
| Disagree vs. Agree | 1.11*** (0.16) | 1.67*** (0.32) | 1.97*** (0.19) | 2.66*** (0.38) | 2.08*** (0.18) | 2.36*** (0.36) |
| Uncivil vs. Civil | 0.43** (0.16) | 0.81* (0.33) | 0.42* (0.19) | 1.12** (0.39) | 0.16 (0.18) | 0.89* (0.37) |
| High vs. Low endorsement | -0.31 (0.16) | 0.05 (0.33) | 0.28 (0.19) | 0.65 (0.39) | 0.07 (0.18) | 0.37 (0.37) |
| Disagree × Uncivil | | -0.90* (0.46) | | -1.38* (0.54) | | -1.18* (0.51) |
| Disagree × High endorsement | | -0.86 (0.45) | | -0.72 (0.54) | | -0.28 (0.51) |
| Uncivil × High endorsement | | -0.46 (0.46) | | -0.68 (0.55) | | -1.24* (0.52) |
| Disagree × Uncivil × High endorsement | | 1.27* (0.64) | | 1.42 (0.77) | | 1.83* (0.72) |
| Intercept | 2.83*** (0.16) | 2.56*** (0.24) | 3.00*** (0.19) | 2.63*** (0.28) | 2.58*** (0.18) | 2.36*** (0.27) |
| R ² | 12.6% | 13.8% | 21.5% | 22.8% | 24.3% | 26.3% |
| N | 418 | | | | | |

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

are contrary to H3, suggesting that uncivil tones actually mitigated the positive effects of disagreement on perceived threat to freedom and psychological reactance. Hence, H3 is not supported.

Regarding the two research questions, the results show that social endorsement cues did not moderate the effects of disagreement or incivility on perceived threat to freedom or psychological reactance directly. Nearly all two-way interactions are not significant (except uncivil × high on reactance), whereas the three-way interactions are significant in predicting perceived threat to freedom and negative emotion. It implies that social endorsement cues only work in certain incivility conditions. As the two coefficients are both positive (perceived threat to freedom: $B = 1.27$, $SE = 0.64$, $p < .05$; negative emotion: $B = 1.84$, $SE = 0.72$, $p < .05$), it indicates that disagreement with high endorsement, compared to disagreement with low endorsement, caused a high level of threat to freedom and negative cognition only under the uncivil conditions.

The Integral Effects on Reactance

According to the PRT literature, regression models in Table 2 are not sufficient to capture the intertwined relationships of these focal variables. First, as suggested by Dillard and Shen (2005), negative emotion and negative cognition should be combined into one construct – psychological reactance. Using SEM to combine the two variables may also resolve some inconsistencies between negative cognition and negative emotion. Second, perceived threat to freedom should be a mediator between the message attributes and psychological reactance. Therefore, it is essential to test the mediation effect of perceived threat to freedom. Furthermore, as the three-way interactions are significant in the regression analyses, the mediation effect might be moderated by the combinations of disagreement, incivility, and social endorsement cues. We, therefore, estimated an SEM model,

which reached a good fit, $\chi^2(7, N = 418) = 12.595$, $p = 0.083$, CFI = 0.998, TLI = 0.959. The relationships are summarized in Figure 1.

As presented in Figure 1, disagreement shows both direct and indirect effects (via perceived threat to freedom) on psychological reactance. The same patterns are observed for the effects of uncivil comments; however, all effects are not significant for social endorsement cues (gray lines in Figure 1).

Table 3 summarizes various direct and indirect effects based on the SEM results in Figure 1. First, consistent with H1, disagreement led to a higher level of psychological reactance than agreement. In addition, disagreement led to psychological reactance through perceived threat to freedom ($\beta = 0.33$, $SE = 0.10$). While the regression model only partially supports H2, the SEM result, which treats psychological reactance as a construct of negative cognition and emotion, clearly shows that both direct and indirect effects of incivility are statistically significant ($\beta = 0.55$, $SE = 0.23$ and $\beta = 0.16$, $SE = 0.08$). The total effect on psychological reactance is 0.71 ($SE = 0.26$, $p = .006$). Taken together, H2 is supported according to the SEM estimation.

Regarding the research questions, Table 3 explicates the three-way interaction effects on psychological reactance. The direct effect of uncivil disagreement on psychological reactance is smaller in the low endorsement conditions than the effect in the high endorsement conditions (low uncivil vs. high uncivil; $\beta = -1.18$, $SE = .40$, $p = .003$). However, this difference between low and high endorsement conditions for civil disagreement is not significant (low civil vs. high civil; $\beta = -0.19$, $SE = 0.28$, $p = .502$).

By contrast, the indirect effect of uncivil disagreement on psychological reactance is greater in the low endorsement conditions than the effect in the high endorsement conditions (low uncivil vs. high uncivil; $\beta = 0.16$, $SE = 0.07$, $p = .021$). Similar to the direct effect, there is no significant difference in civil disagreement comments (low civil vs. high

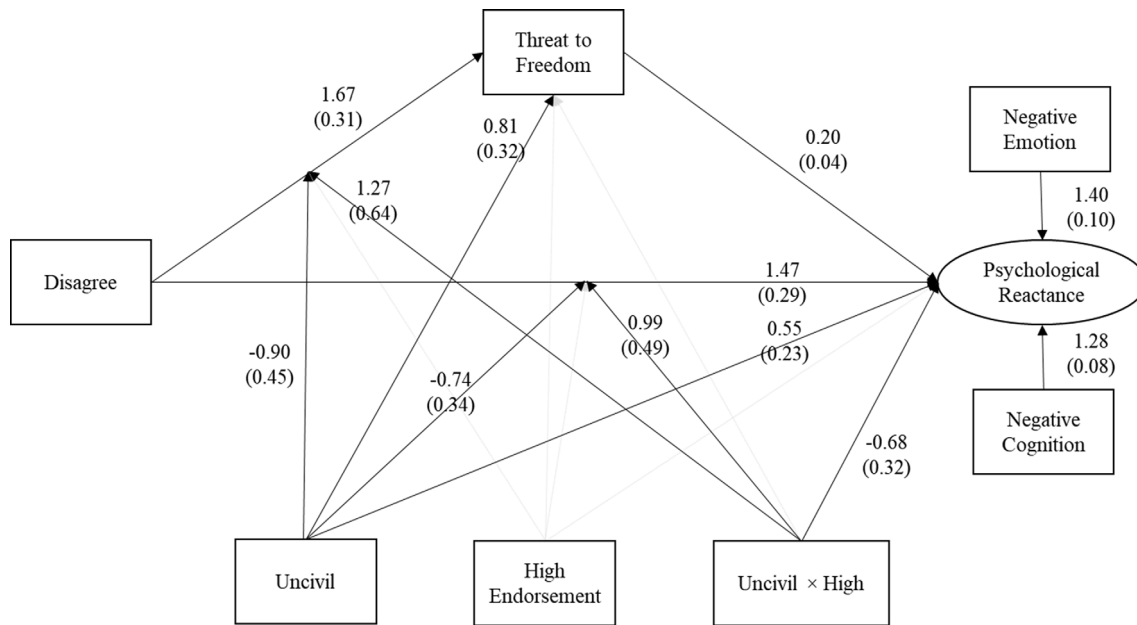


Figure 1. A moderated mediation model in predicting psychological reactance. Dark lines indicate significant paths, whereas gray lines indicate insignificant paths. Significant standardized coefficients (standard errors) are reported.

civil; $\beta = 0.002$, $SE = 0.07$, $p = .981$). The relationships are represented in Figure 2. In summary, social endorsement cues moderated the direct and indirect effects of political disagreement in opposite ways and only in uncivil conditions. For civil comments, social endorsement cues had no significant moderation effect on psychological reactance.

Discussion

To reiterate our findings: Both disagreement and uncivil comments could lead to psychological reactance directly and indirectly via perceived threat to freedom, while the effect sizes of indirect effects of message attributes through perceived threat to freedom are smaller than direct effects. However, contrary to our expectations, the co-occurrence of incivility and disagreement attenuated the effects on psychological reactance. This unexpected effect implies that messages including multiple negative message features might decrease their impact. According to PRT, the characteristics of freedom and threat could influence the amount of reactance aroused. Generally speaking, more severe threats perceived lead to greater reactance (Brehm, 1966; Rains & Turner, 2007). It is very unlikely a severe threat will be perceived if individuals do not consider the message serious. As one previous study has demonstrated that incivility can decrease credibility judgment (Masullo, Tenenboim, et al., 2021), it is reasonable to state that people might disregard the disagreement messages with an uncivil

tone. Therefore, in this situation, people may perceive little threat to freedom or negative emotions.

Social endorsement cues, as expected, did not show any independent effects, whereas high social endorsement could amplify the direct effect (and attenuate the indirect effect) of uncivil disagreement on psychological reactance. Given that the moderation effect on the direct effect is greater than the effect on the indirect effect (-1.18 vs. 0.16 , $p = .001$), the overall effect of social endorsement should be positive, exacerbating the impact of uncivil disagreement on psychological reactance. According to Li and Sundar (2021), social endorsement cues could attenuate the effects of persuasive messages on psychological reactance, which appears contrary to our findings. The rationale of their study is that high endorsement implies social acceptance (e.g., regarding the message to be a legitimate inference because of its popularity) and thus leads to less reactance. This logic is somehow consistent with what we observed in the interaction effect between incivility and social endorsement cues on psychological reactance (see Figure 1). Although uncivil messages led to a higher level of reactance, high social endorsement decreased this effect ($\beta = -0.68$, $SE = 0.32$). However, the interaction effect between disagreement and social endorsement was not significant. Nevertheless, as Figure 2 shows, social endorsement amplified the effects of disagreement on reactance for uncivil messages. As explained above, uncivil disagreement may be associated with low credibility, while high social endorsement could increase the credibility level (Li & Sundar, 2021). Taken together, if individuals consider

Table 3. Direct and indirect effects on psychological reactance

| | Psychological reactance | |
|---------------------------------------|-------------------------|---|
| | Direct effects | Indirect effects (via threat to freedom) |
| Disagree vs. Agree | 1.47*** (0.29) | 0.33*** (0.10) |
| Uncivil vs. Civil | 0.55* (0.23) | 0.16* (0.08) |
| High vs. Low endorsement | 0.33 (0.22) | 0.01 (0.07) |
| Disagree × Uncivil | -0.74* (0.34) | -0.18 (0.10) |
| Disagree × High endorsement | -0.14 (0.36) | -0.17 (0.10) |
| Disagree × Uncivil × High endorsement | 0.99* (0.49) | 0.25 (0.15) |
| Low civil vs. high civil | -0.19 (0.28) | 0.002 (0.07) |
| Low civil vs. low uncivil | 0.19 (0.24) | -0.14* (0.07) |
| Low civil vs. high uncivil | -0.10* (0.39) | 0.02 (0.06) |
| High civil vs. low uncivil | 0.38 (0.28) | -0.14 (0.08) |
| High civil vs. high uncivil | -0.81 (0.42) | 0.02 (0.06) |
| Low uncivil vs. high uncivil | -1.18** (0.40) | 0.16* (0.07) |
| N | | 418 |
| $\chi^2(7)$ | | 12.595, $p = .083$ |
| CFI/TLI | | 0.988/0.959 |

Note. The standardized coefficients (standard errors) were calculated based on the structural equation model in Figure 1. Standard errors were obtained with 10,000 times bootstrapping. *High* and *low* in the three-way interaction effects refer to high and low levels of social endorsement cues.

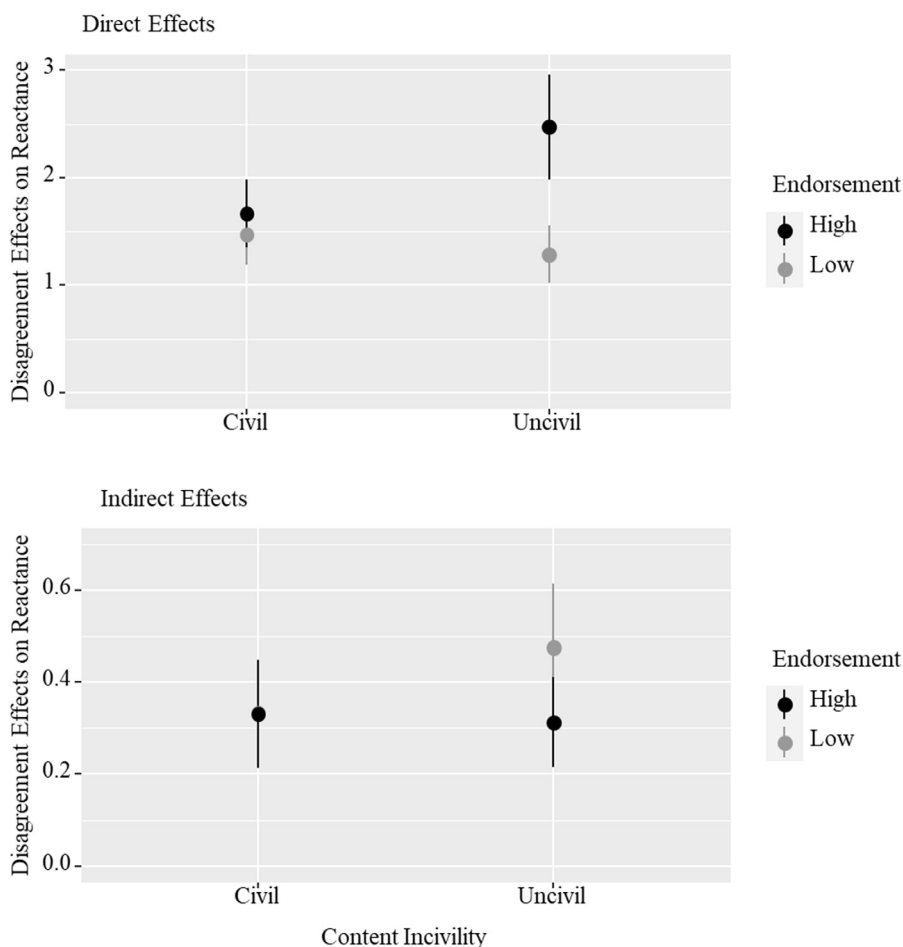


Figure 2. The interaction effects of incivility (civil vs. uncivil) and endorsement (low vs. high) on the disagreement effects on psychological reactance. The parameters were estimated based on the structural equation model in Figure 1. Formal significance tests are available in Table 3 (i.e., the three-way interaction comparisons).

uncivil disagreement as not serious, it is less likely for them to perceive threats to freedom; however, if the message received a lot of social approvals, the content will be considered credible and thus lead them to perceive threats to freedom.

Theoretical and Practical Implications

Given these findings, the present study contributes to the literature in several important ways. Theoretically speaking, we extend PRT to informal online political discussions. The theory originally contends that social influence attempts (persuasion intent and its associated content features) are critical for reactance arousal. PRT studies in communication have also documented other message features that reduce reactance arousal, such as message novelty, narrative, and empathy (see a review by Rosenberg & Siegel, 2018). The present study applied the theory in a more natural and informal setting and found that the common message features in online political discussions – disagreement, incivility, and social endorsement cues – affect psychological reactance as well. It suggests that PRT could be applied to communication contexts other than formal strategic communication where messages are carefully drafted. It also provides new insights to explain daily conversations.

More profoundly, the present study bridges the studies of psychological reactance and political deliberation. First, political disagreement has been thought to be one of the most salient features on the Internet that could be beneficial for political deliberation. It indicates political diversity, breeds tolerance and open-mindedness (Mutz, 2006), but may create attitude ambivalence and decreases participation at the same time (Feldman & Price, 2008; Lu et al., 2016). The present study shows that political disagreement can lead to active and motivated reactance to opposite opinions, which in turn may decrease deliberativeness and result in polarization. Second, incivility has been mentioned as the key feature explaining why online discussions are far from the deliberative ideals (Papacharissi, 2004). Although incivility is normatively unaccepted in political deliberation, empirical theories are still needed to guide the investigation on the underlying mechanisms of negative consequences of incivility. The present study, based on PRT, provides an alternative explanation to the negative effects, which has not been extensively discussed before.

Our findings also have practical implications. Currently, many social media platforms rank user comments by social endorsement cues, such as the number of views and likes. The primary purpose of this method is to highlight the most important messages for later users. Our study suggests that ranking by social endorsement cues may amplify the reactance elicited by uncivil disagreeing user comments. Exposure to uncivil disagreeing content leads to more

uncivil commenting behavior (Chen & Lu, 2017), which can create a vicious cycle of online incivility. Given the beneficial potential of disagreement in political discussion and that social endorsement cues do not play a significant role in civil disagreement, a solution is to deprioritize the messages according to their degree of incivility.

Limitations and Future Work

A few limitations should be addressed in future studies. First, this study tested the model with a single-issue design, which constrains the generalizability of the study. Recent research has shown that the magnitude of psychological reactance depends on the topic (Li & Shen, 2022). In particular, it is important to consider an individual's self-assessed competence in exercising freedom and levels of involvement in the topics. If individuals are less involved in the topics and feel less competent to exercise freedom, they will perceive a lower level of psychological reactance. Given immigration might be an unobtrusive issue to the participants, future studies may choose local issues that are directly related to one's daily life, such as community policies, to replicate our study. Also, it would be fruitful to measure issue involvement and competence in exercising freedom and include them as moderators in formal analyses.

Second, it is worth mentioning that the majority of the study participants were pro-immigrant. These participants may consider all anti-immigrant messages as uncivil based on the derogative substance regardless of the tone of the content. Such perceptions may confound the effects of incivility identified in the study. Future research should take into consideration the substance dimension of incivility, also known as intolerance (see Rossini, 2020). Investigating intolerance in tandem with incivility will help to tease out the unique and interactive effects of the two attributes on psychological reactance in online political discussions.

Third, the PRT framework generally treats perceived threat to freedom as the key component that links threatening messages and reactance arousal. However, what we found is that the mediation effects of message attributes through perceived threats to freedom were weaker than the direct effects. This indicates that there might be some competing or alternative explanations. We invite future scholars to delve into these mechanisms.

Lastly, PRT posits that psychological reactance is a process that includes perceived threats, reactance, and freedom restoration (e.g., belief boomerang, message derogation, and restoration behaviors). It would be meaningful to extend our findings by investigating how reactance aroused in informal political discussions can lead to attitudinal changes and real-world behaviors both online and offline.

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