

Selective Avoidance: Understanding How Position and Proportion of Online Incivility Influence News Engagement

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Abstract

While most research has examined incivility in political contexts, few studies have explored the role of online incivility in contexts where partisan cues are lacking. Integrating insights from selective exposure, media salience, and serial position effects, we proposed the concept of “incivility salience” and examined how its two manifestations—position and proportion of uncivil messages in a comment thread—affected news engagement behavior. Through two conjoint experiments in the United States, we found that people avoided engaging with comment threads starting with uncivil content and the ones with a higher proportion of uncivil content. Furthermore, we identified that the salience of uncivil content could influence the extent to which people perceive such content as uncivil, which in turn impacts engagement behavior. Overall, this study offers a novel framework that considers incivility salience as a core element for understanding the perceptual and behavioral effects of online incivility.

Keywords

incivility, salience, perceived incivility, news engagement, conjoint experiment

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Commenting on the news is an integral part of news consumption experiences on both news websites and social media platforms. One study finds that 55% of Americans have left an online comment, and 77.9% have read online comments at some point (Stroud et al., 2016). Among those who leave comments on news websites, over half of them spend as much or more time on the comments as with the actual stories, and almost 20% spend more time on the comment section than on the stories (Stroud & Peacock, 2016). Given the importance of online user comments in shaping audience engagement with both the news and other users, news organizations and social media companies have focused on ranking user comments by prioritizing certain comments in the comment thread to represent a range of views indicating either quality or popularity. Uncivil content cropped up in the comment sections remains a central concern because such content may taint the democratic ideals for public discussion.

A growing body of research has investigated the impact of online incivility on people's engagement behavior. The results, however, are at best mixed. Some studies show that online incivility encourages user engagement (Gonçalves et al., 2022; Su et al., 2021) and political participation (Chen & Lu, 2017; Gervais, 2015). Others find that incivility has inhibition effects, such as demobilizing the electorate (Borah, 2013; Chen, 2017; Otto et al., 2020) and leading to selective avoidance (Goyanes et al., 2021; Muddiman et al., 2020). It is worth noting that most research in this vein examines online incivility in the political communication context. Yet, much information and news people consume on a daily basis is not partisan (Wojcieszak et al., 2021). The current study seeks to reconcile the debates around the influence of online incivility by examining what effects online incivility may have during news consumption where partisan cues are lacking.

In doing so, we argue that people would generally turn away from online incivility during news consumption because they want to improve their mood states (Zillmann, 2000). We further contend that people's decisions to engage with or turn away from online user comments essentially depend on the consideration of available cues that indicate the salience of online incivility. As a theoretical basis to explain the potential variations of such salience, we draw on insights from media salience (Kiousis, 2004) and serial position effects (Hovland, 1957) and put forward two subdimensions: position and proportion of uncivil content. To link content-level incivility salience and behavioral outcomes, we further incorporate perceived incivility (Kenski et al., 2020; Liang & Zhang, 2021; Muddiman, 2017) into the framework and demonstrate the mechanism by which incivility salience impacts news engagement behavior.

We tested our theory using conjoint experiments. In the experiments, participants were asked to engage in repeated choice tasks between pairs of randomized comment threads under news stories. This experimental design is particularly useful to assess people's sensitivity to the two incivility salience cues—position and proportion of uncivil content by asking them to compare the alternatives and select one from them for engagement. It also enables us to study the effects of incivility salience on the dependent variables without recruiting a large number of participants, and at the same time, to still achieve ample statistical power. Furthermore, the conjoint experiments resemble the news consumption environments where multiple sub-threads

of comments show up under news stories, which enhances external validity of the findings. The results based on two conjoint experiments in the United States show that people avoided engaging in comment threads that started with uncivil content and that had a higher proportion of uncivil content. It also reveals that perceived incivility serves as the key mechanism that explains the effects of incivility salience on news engagement behavior.

Theoretical Framework

Online Incivility as Negativity in News Engagement

Incivility emerges as one prominent type of negative content in today's media environment (Sobieraj & Berry, 2011). Unlike civility that involves the "free and respectful exchange of different ideas" (Coe et al., 2014, p. 358), incivility connotes a violation of norms or a lack of respect for other people or the democratic process (Mutz, 2016; Papacharissi, 2004). This study focuses on what Muddiman (2017) calls *personal-level* incivility, which taps into the violations of interpersonal politeness, such as profanity, name-calling, and swearing (Anderson et al., 2014; Mutz, 2016). We focus on this type of incivility because it is more prevalent on the Internet (Chen, 2017; Coe et al., 2014) and it is often perceived as more uncivil (Kenski et al., 2020), compared to other types of incivility, such as threats to democracy or disrespect for citizens' rights (Papacharissi, 2004). For these reasons, we believe personal-level incivility is an ideal candidate for studying the negativity effects of online incivility.

One way to understand the effects of online incivility on engagement behavior is from the perspective of negativity bias. Negativity bias refers to the tendency that people assign greater weight to negative information relative to equally extreme and equally likely positive information during information processing (Lau, 1985). The reason this occurs, according to the figure-ground hypothesis, is that negative information is contrasted against a positive background so that it is more easily noticed (Kanouse & Reid Hanson, 1987). Research has found that negative content, as compared to positive content, has a stronger impact on arousal, perceptions, attention, and learning (see Rozin & Royzman, 2001). From the perspective of evolutionary psychology, humans have the natural tendency to surveil the environment so they can escape from threats (Plutchik, 1980). As a result, people pay more attention to negative news and information than positive content in a mediated environment because they are evolutionarily hardwired to be wary of threats, so they can avoid negative outcomes (Shoemaker, 1996). In the news consumption context, empirical research reveals that negativity attracts more attention than positivity among audiences (Knobloch-Westerwick et al., 2020; Meffert et al., 2006). In one foundational study on political incivility, Mutz (2016) revealed that impoliteness (i.e., personal-level incivility) on political television not only attracted viewers but also increased recall. Such perceptual salience of incivility lends credence to the assumption that people would form their judgments about online information that consists of both civil and uncivil content mainly based on the latter instead of the former.

While the above literature suggests that negativity in news could garner attention, such negativity may not elicit preference and consequently, selection. Mood management theory, for instance, suggests that people make continual efforts to improve affective and emotional states to maximize pleasure (Zillmann, 2000). As a result, they are prone to avoid negative content to help set the desired mood (Knobloch, 2003). Scholarship on news avoidance, in fact, shows that negativity in news leads one to actively avoid such content because it makes one feel emotionally charged and decreases one's psychological well-being (de Bruin et al., 2021; Skovsgaard & Andersen, 2020). People may also feel overwhelmed and unintentionally avoid news (Skovsgaard & Anderson, 2020) in today's high-choice media environment, potentially adding to intentional avoidance of negative news. Research finds that online incivility has the inhibition effects, such as undermining political efficacy (Borah, 2013) and demobilizing the electorate (Chen, 2017; Otto et al., 2020). Evidence from both observational and experimental research shows that people tend to strategically avoid uncivil online discussions (Goyanes et al., 2021; Walsh & Baker, 2021) and uncivil news content (Muddiman et al., 2020). One may contend that online incivility could encourage political engagement by eliciting defensive and negative emotions (Chen & Lu, 2017; Gervais, 2015). However, one recent study highlights that online incivility would increase people's willingness to speak out only when intense negative emotions are aroused (Masullo, Lu, & Fadnis, 2021).

In the context of daily news consumption, uncivil content may not necessarily engender strong negative emotions or threaten one's political identity, both of which form the basis for approaching tendencies toward incivility. Indeed, much news and information people consume daily is not partisan (Wojcieszak et al., 2021). Therefore, if people are motivated to maximize pleasure and alleviate pain (Zillmann, 2000), they may turn away from uncivil user comments to avoid elicitation of a bad mood. Taken together, we anticipate that online incivility would generally inhibit people's news engagement behavior. In other words, uncivil user comments would lead people to either intentionally or unintentionally avoid such comment threads on news websites. To better understand the effects of incivility, we propose incivility salience as a conceptual framework and explicate content-level incivility salience in the next section.

Content-Level Incivility Salience: Position and Proportion

One important assumption for online incivility to exert its negativity effect is that people tend to respond to incivility because it catches their attention. If an individual does not notice the uncivil content, the incivility may not engender any effects. To address this assumption, we bring in the concept of salience, referring to the physical property of being particularly noticeable or important as compared with its surrounding (Augoustinos et al., 2014; Sullins, 1989). In studying media coverage of public issues, Kioussis (2004) explicates media salience along with three dimensions: prominence (the positioning of a story within a media text), attention (the total number of news stories devoted to a particular issue), and valence (positive or negative tone

toward the object of a story). According to this conceptualization, a message is discerned as salient if it occupies the paramount position, has sheer volume, and connotes affective attributes.

In this study, we propose the concept of incivility salience and underscore its two sub-dimensions: position and proportion. The first dimension—position can be found in research that looks at lead coverage (McCombs & Shaw, 1972) and the top sections of news websites (Lim, 2010). Agenda setting studies show that this type of content usually has larger effects in shaping public opinion because of its visibility and the importance indicated by its position (McCombs & Shaw, 1972). Relatedly, research on persuasion and impression formation has identified two types of serial position effects at play: primacy and recency effects (Hovland, 1957; Murphy et al., 2006). A primacy effect suggests that messages that people encounter earlier have more influence on their attitude formation than later ones; a recency effect is present when the information presented last matters more. Although the findings are quite mixed, research in general suggests that when asked to make an item-by-item decision, such as clicking through web links, a recency effect would occur (Murphy et al., 2006). When required to form holistic judgments and make decisions based on a series of information, people usually use early information as an anchor, indicating a primacy effect (Biswas et al., 2009; Li et al., 2015).

As applied here, we argue that incivility becomes salient when uncivil messages occupy the primacy position within a comment thread. Given people in general attend to negative information, uncivil comments at the primacy position are expected to catch people's attention because their prominence gets amplified. Such uncivil comments at the top of a thread could lead people to form an impression of the comment thread as uncivil, and less likely to engage. Thus, we anticipate that incivility salience as manifested in the primacy position would generate greater inhibition effects on people's engagement behavior as compared to comment threads where uncivil content appears later:

H1a: People are less likely to engage in comment threads that start with uncivil comments.

Proportion, similar to the attention dimension of media salience (Kiousis, 2004), stands for the relative number of uncivil messages in a given comment thread. Its effects assume that repeated exposure to messages enhances their effectiveness. Our conception of proportion-level incivility salience draws from Stevens' (2009) notion about the "proportion effects" of negativity. Based on the figure-ground hypothesis, Stevens (2009) argues that the proportion of negativity will stand out and have a detrimental influence on people's candidate evaluations and their voting behavior. Likewise, research shows that the proportion of uncivil messages in a list of comments is positively related to hostile cognitions (Rösner et al., 2016) and negatively related to audience perceptions of news outlet credibility (Masullo, Tenenboim, & Lu, 2021). To extend this line of research, we suggest that the proportion of uncivil comments in a given comment thread has negative effects on people's engagement behavior. The

underlying mechanism is that a higher proportion of incivility would be more likely to attract people's attention in the first place and then lead people to form an impression of the comment thread as uncivil. As such, people would tend to avoid engaging in such comment threads. Hence, we posit the following hypothesis:

H1b: People are less likely to engage in comment threads with a higher proportion of uncivil comments.

Perceived Incivility as the Mechanism

Besides the noticeable physical property, the other assumption for observing the effects of online incivility is that the content-level incivility salience could be perceived by individuals at the corresponding levels, which further instigate behavioral responses. It is important to note that exposure to presumably uncivil content is neither a necessary nor a sufficient condition for perceptions of incivility. Even if uncivil content is well noticed, the messages can be perceived as civil in some situations. In other words, incivility is in the eye of the beholder (e.g., Herbst, 2010). As many studies have pointed out, individuals may perceive and interpret the same uncivil content differently (Kenski et al., 2020; Muddiman, 2017), such as incivility from one's own group (Kim, 2018) or swearing at out-group members (Liang & Zhang, 2021). One recent study demonstrates that uncivil comments may only yield indirect effects on attitudes and behaviors via incivility perceptions in some situations (Liang & Zhang, 2021). While these studies provide insights into how people perceive different types of online incivility and the outcomes of such perceptions, they still leave a considerable gap in the literature in explaining how the arrangement of civil and uncivil comments in each thread could shape one's perceptions about the content and subsequent behavior.

In this study, we draw on perceptual salience and argue that incivility salience at the content level could lead to perceptual salience of incivility that in turn shapes how people evaluate the comment threads (i.e., perceived incivility). According to Schmid (2007), salience has two dimensions: the external dimension, known as the physical property of salient content, and the internal one that lies in human perceptions. In the psychology literature, perceptual salience is defined as the extent to which a stimulus stands out relative to its surroundings as perceived by humans (Fiske & Taylor, 1984; McArthur, 1981). In other words, a feature becomes perceptually salient when it is perceived as the figure from the background. Perceptual salience can influence the way that individuals form impressions and make judgments about people and objects: The higher perceptual salience, the more extreme evaluations (Sullins, 1989). In the case of incivility salience, we expect that salient uncivil content, as indicated by primacy position and a high proportion in a comment thread, will lead to perceptual salience of incivility among people and further make them evaluate the comment threads as uncivil. As perceived incivility has been identified as an important antecedent of political behavior (Liang & Zhang, 2021), we posit that perceived incivility could explain the negative effects of incivility salience on news engagement:

H2: Incivility salience, as manifested in a) primacy and b) proportion in comment threads, has an indirect effect on people's news engagement behavior via perceived incivility, such that incivility salience leads to a high level of perceived incivility, which in turn decreases news engagement.

Method

Conjoint Experiments

Conjoint experiments have been used in marketing research for decades (Green & Srinivasan, 1990). In a typical choice-based conjoint experiment, participants are exposed to at least two hypothetical profiles with different attributes, and they are asked to compare the profiles and choose one from them. As compared with simple random assignment, conjoint experiments enjoy several advantages (see Green & Srinivasan, 1990; Hainmueller et al., 2014; Knudsen & Johannesson, 2019). First, this experimental approach enables researchers to simultaneously test the causal effects of a large number of factors with feasible sample sizes. As the unit of analysis is each of the choice alternatives being selected or not rather than individual participants, there are more data points available for conjoint analysis, which yields sufficient statistical power. Second, while traditional experiments expose participants to one experimental condition, conjoint experiments assess people's sensitivity to the attributes by asking them to compare the alternatives and make selections. Third, conjoint experiments could improve external validity, especially for selective exposure research. Because the selection tasks mimic the daily news consumption experiences where multiple items are available at the time of selection. For instance, communication researchers have used this methodology to study partisan selective exposure and news sharing behavior in the high-choice media environment (Johannesson & Knudsen, 2021; Mukerjee & Yang, 2021).

The study employed choice-based conjoint experiments with a full factorial randomized paired design to test the effects of online incivility on people's news engagement behavior. With a relatively small number of attributes and levels, we used a full factorial design that includes all combinations of position (primacy vs. recency) and proportion (20%, 40%, 60%, 80%) of online incivility in making comment thread profiles. A paired conjoint design, according to Hainmueller et al. (2015), works better than other conjoint or vignette designs in resembling real-world behavior and generating robust evidence. Based on these concerns, we randomly generated two profiles of user comment threads featuring different positions and proportions of uncivil content under each news story and asked the participants to choose one to engage with. In the analysis, the attributes serve as the independent variables; the choices (being selected or not) are the dependent variables; the unit of analysis is each profile. We conducted two experiments. Study 1 primarily looked at the main effects of the position of online incivility on news engagement. Study 2 examined the effects of both position and proportion of online incivility and the underlying mechanisms.

Method: Study 1

Participants. The study protocol was approved by the Institutional Review Board at the first author's university on August 6, 2020. The online survey experiment was fielded on August 12, 2020. We recruited participants from Amazon Mechanical Turk (MTurk), an online crowdsourcing marketplace widely used for market and academic research. The experiment took about 8 minutes to finish. One U.S. dollar was rewarded to the participants who followed the instructions and completed the tasks.

A total of 254 participants participated in the experiment. We excluded participants who did not pass the attention check in the survey and who completed the survey within 3 minutes, which indicated they might not spend enough time reading news articles and assessing the user comments. This procedure left us with 235 participants, among whom 3.0 % were 18 to 24 years old, 34.0% were 25 to 34, 28.5% were 35 to 44, 15.0% were 45 to 54, 12.3% were 55 to 64, and 7.2% were 65 or older. There were 43.8% female and 56.2% male. About 75.3% of them were White, followed by Black/African American (10.6%), Asian/Pacific Islander (6.4%), Hispanic (5.1%), Native American/Alaska Native (1.3%), multi-racial (0.9%), and one participant who preferred not to answer (0.4%). The sample included 23.8% with a household income of less than \$35,000 annually, 17.0% with \$35,001 to \$50,000, 29.8% with \$50,001 to \$75,000, 28.5 % with \$75,001 or more, and 0.9% who did not disclose income information. The average years of education were 15.6 years ($SD=3.39$). Males and White people were slightly over-represented in this sample, as compared to the U.S. adult Internet population (Pew Research Center, 2019).

Procedure. Study 1 adopted a randomized pair conjoint experimental design. Participants who agreed to take part in this study answered the pre-experiment questions on demographic information. Then they were instructed to engage in the main experiment, which consisted of four selection tasks in total. In each task, they were asked to read a news story and then were given a pair of user comment thread alternatives to choose from. We also randomized the order of the four news stories to counterbalance the potential learning effects in completing the tasks.

Stimuli construction. We selected four news articles published during the outbreak of COVID-19 in the United States. The four news articles represent hard news categories: government, health, education, and economics/jobs, which are among the top types of content that attracted uncivil reader comments on news websites (Coe et al., 2014). To avoid confounding factors that may influence people's intention for news engagement, we ensured the neutrality of the news with three aspects. First, we chose articles published by *The Associated Press (AP News)*, because its wire content typifies an objective journalistic writing style, and the American public perceives it as unbiased relative to other news organizations (Gallup & Knight Foundation, 2018). Second, we avoided partisan cues by choosing general news topics. For government news, the story was about announcing the location for the vice-presidential election. Third, we edited out names such as Donald Trump in the original articles to prevent

them from containing partisan cues. To achieve ecological validity, the final stimuli used the headlines derived from the actual content on *AP News*. The body of news content was slightly edited to an average of 300-word count to keep it short enough to reduce the attrition rate (see Appendix I Stimuli Material). We also added similar time stamps to each news story to indicate the time of publication.

Given *AP News* does not contain a user comment section on its website, one author searched the headlines of the original news articles published by *AP News* and retrieved all relevant user comments under these articles from Reddit, an American social news aggregation and discussion website. After reading the comments closely, the authors selected five comments with substantial content and edited them into comparable lengths. Following previous studies (Chen & Lu, 2017; Muddiman, 2017), the comments were adjusted to represent personal-level incivility by including such attributes as words in all capital letters, name-calling, and profanity. Civil comments did not have these attributes. To give an impression of realism, all spelling and grammatical errors in the original comments were kept. Each comment had an image thumbnail of the capitalized letter to indicate the first letter of the user's name. This guaranteed that the commentators' identities will not confound the results.

As our primary interest lies in the position effect in Study 1, we generated eight user comment threads, featuring different positions and proportions, for each of the news stories. A typical comment thread consists of five user comments. For threads with one uncivil comment, we generated a pair including one with an uncivil comment appearing at the top and the other with an uncivil comment at the bottom. For threads with two uncivil comments, we generated a pair of comment threads: one where the first two comments are uncivil and the other with the two uncivil comments at the bottom. The same rule applied to threads with three uncivil comments and four uncivil comments. To ensure the presenting order of user comment threads within each pair did not confound the results, we alternated the layout of the comment threads pair. Taking the thread with one uncivil comment as an example, we generated one pair in which the uncivil comment at the primacy position appeared on the left and the other pair with the uncivil comment at the recency position appeared on the left (see Figure 1). In total, there were eight pairs of user comment threads for each of the four stories.

News engagement. For the selection task, each participant was required to choose one version of the user comment thread to engage with. A question displayed on top of the comment threads: "Which version of comments accompanying this news story are you more likely to engage with?" The versions of the user comment thread were coded as 1 if selected and 0 if not selected. In the experiment, 940 pairs of two choice alternatives were constructed for the selection tasks (i.e., 1,880 observations).

Analytical strategy. We had eight data points per participant, each corresponding to a pair of the comment threads under the four news articles (2×4). The independent variables, tapping into the position of the uncivil comments, were coded using dummy variables, in which the version with uncivil comments appearing at the top (primacy

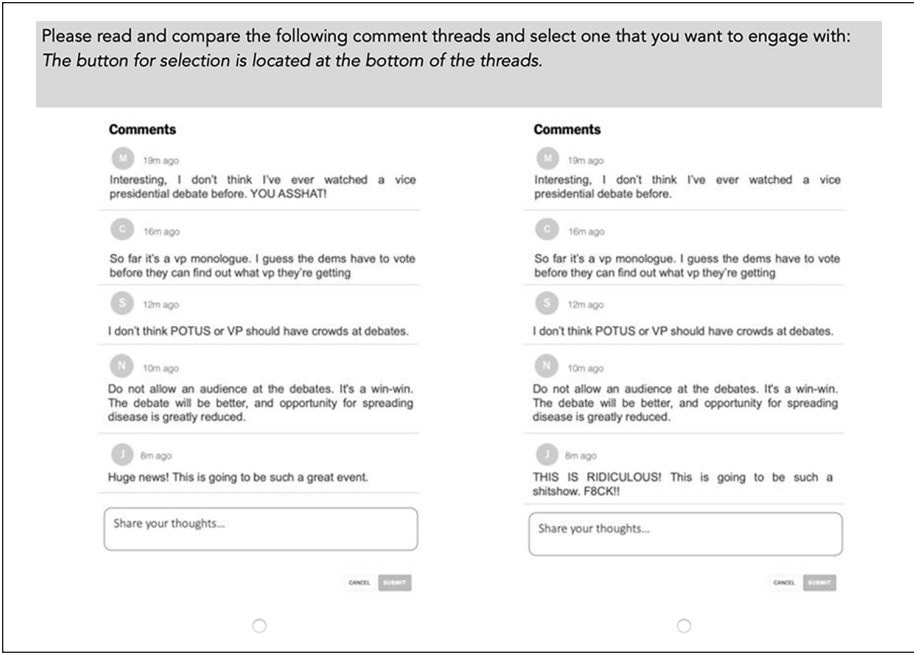


Figure 1. Comment threads following the story 1.

Note. Left: primacy position of incivility, proportion of incivility 20%; right: recency position of incivility, proportion of incivility 20%.

position) was coded as 1 and the version with uncivil comments appearing at the bottom (recency position) was coded as 0. Another predictor was the proportion of uncivil comments (20%, 40%, 60%, 80%) where 20% was the reference category. Given the repeated design of the conjoint experiment (all participants were exposed to the four news stories), we estimated the treatment effects using cross-classified (news stories \times respondents) multilevel logistic regression models. As the conditional logistic regression model is commonly used for analyzing conjoint experiment data, we also attempted to fit data using conditional models, which resulted in similar coefficients. To be consistent, we presented the results from the multilevel models throughout the paper.

Results: Study 1

H1a predicts that people are less likely to engage in comment threads that start with uncivil comments. As shown in Model 1 in Table 1, the result confirmed a negative primacy effect that participants were less likely to engage with comment threads starting with uncivil comments (odds ratio=0.30, CI=[0.24,0.33]). This indicates that comment threads where uncivil comments appear at the top were about 55.0% less

Table 1. Multilevel Logistic Regressions in Predicting News Engagement.

	Model 1	Model 2	Model 3
	Engaged	Engaged	Engaged
Fixed effects			
Position: primacy vs. recency	0.30 [0.24,0.33]	0.07 [0.21,0.50]	0.32 [0.20,0.49]
Proportion:			
40% vs. 20%	1.00 [0.77,1.31]	1.08 [0.59,1.98]	1.07 [0.60,1.95]
60% vs. 20%	1.00 [0.76,1.32]	0.95 [0.52,1.74]	0.95 [0.51,1.71]
80% vs. 20%	1.00 [0.77,1.31]	1.04 [0.58,1.91]	1.05 [0.58,1.87]
Present order: right vs. left		1.02 [0.67,1.57]	1.02 [0.67,1.56]
News story order:			
Second vs. first		1.09 [0.58,2.02]	1.08 [0.58,2.03]
Third vs. first		1.20 [0.67,2.10]	1.18 [0.67,2.13]
Fourth vs. first		0.97 [0.53,1.73]	0.97 [0.54,1.77]
Present order × position		<i>n.s.</i>	<i>n.s.</i>
Present order × proportion		<i>n.s.</i>	<i>n.s.</i>
News order × position		<i>n.s.</i>	<i>n.s.</i>
News order × proportion		<i>n.s.</i>	<i>n.s.</i>
Demographics			<i>n.s.</i>
Intercept	1.83 [1.45,2.34]	1.73 [1.07,2.81]	1.77 [0.44,7.22]
Random effects			
σ^2	3.29	3.29	3.29
τ_{00} –Stories	0.01	0.01	0.01
τ_{00} –Respondents	0.00	0.00	0.00
Marginal/conditional R^2	8.8%/8.8%	9.7%/9.8%	10.7%/10.7%
N (Stories/respondents)		1,880 (4/235)	

Note. Estimates (odds ratios) of logistic regression models are reported with 95% credible intervals in parentheses. All models were fitted with the *brms* package in R using the Bayesian approach (four chains, each with 5,000 iterations; warmup=2,500; $\hat{R} = 1$ and all Bulk Effective Sample Sizes > 1,000, indicating good convergence). *n.s.* indicates “non-significant.” All non-significant variables and coefficients could be found in the appendix. We also fitted the models with the *lme4* package and conditional logistic regression with R. The estimated coefficients are almost the same.

Model 1: $\text{logit}(\text{Engaged}_{ijk}) = \beta_0 + \beta_1 \text{Position}_{ijk} + \beta_2 \text{Proportion}_{ijk} + u_j + u_k + e_{ijk}$

Model 2: $\text{logit}(\text{Engaged}_{ijk}) = \beta_0 + \beta_1 \text{Position}_{ijk} + \beta_2 \text{Proportion}_{ijk} + \beta_3 \text{PresentOrder}_{ijk} + \beta_4 \text{NewsOrder}_{ijk} + u_j + u_k + e_{ijk}$

Model 3: $\text{logit}(\text{Engaged}_{ijk}) = \beta_0 + \beta_1 \text{Position}_{ijk} + \beta_2 \text{Proportion}_{ijk} + \beta_3 \text{PresentOrder}_{ijk} + \beta_4 \text{NewsOrder}_{ijk} + \beta_5 \text{Position}_{ijk} \times \text{PresentOrder}_{ijk} + \beta_6 \text{Proportion}_{ijk} \times \text{NewsOrder}_{ijk} + \beta_7 \text{Demographics}_j + u_j + u_k + e_{ijk}$

where, Engaged_{ijk} indicates whether respondent j engaged with story k in comment thread i , and the random effects include $\tau_j = \text{Var}(u_j)$, $\tau_k = \text{Var}(u_k)$, and $\delta^2 = \text{Var}(e_{ijk})$.

likely to be selected for engagement than those where uncivil comments appear at the bottom. Furthermore, Model 2 and Model 3 in Table 1 indicate that this effect was not influenced by the presentation order of paired comment threads (i.e., left vs. right on the screen), the order of viewing the four news stories, or demographic variables (i.e., age, gender, race, education, and income).

H1b predicts that people are less likely to engage with comment threads with a higher proportion of uncivil comments. As shown in Model 1 in Table 1, the effect of the proportion of uncivil comments was not statistically significant.

Discussion: Study 1

The findings of Study 1 demonstrate that there is a primacy effect of online incivility such that people tend to avoid engaging with comment threads starting with uncivil messages. Assuming the negativity bias drives users to attend to online incivility, this primacy effect revealed here indicates that first impressions matter. Clearly, people were making an assessment about whether to engage in commenting threads based on the first few comments they encountered. The findings are also in line with studies showing that negative content would occupy human cognition upon encounter (Mundorf et al., 1990) and serve as an anchor for them to form evaluations of the entire comment threads (Biswas et al., 2009; Li et al., 2015).

There are several limitations of Study 1. First, given proportion was an invariant attribute in the two comment threads participants read, it prevented a direct test of its main effect on people's news engagement by comparing the difference between the two threads. The reported main effects of proportion in Table 1 were estimated through the comparisons between different news stories. And thus, the reported effects might be inaccurate. Second, one may argue that people read comments from the bottom to the top, which questioned the validity of our claim that a primacy effect occurs when people avoided comment threads where uncivil comments are placed at the top. Third, we did not tackle if participants perceived corresponding levels of incivility, which is the key assumption for the effects of online incivility to occur. Fourth, although we did not expect people to experience intense negative emotions when reading the user comments in this study, they may still experience negative emotions to some degree. To address the limitations of Study 1, we conducted Study 2 to replicate and extend the findings of Study 1 based on data drawn from another online crowdsourcing platform Prolific. In Study 2, we fully randomized the comment threads featuring position and proportion to allow for testing the main effects of both attributes. To test H2, we also measured the mediator, perceived incivility, and controlled for negative emotions to test the mechanisms. Finally, we asked a question about participants' reading habits to ensure our interpretation of the position effect matched their reading order.

Method: Study 2

Participants. The data for Study 2 were collected in October 2020. We recruited participants from Prolific, an online crowdsourcing marketplace with more naïve

participants and yielding comparable high-quality results as compared to MTurk (Palan & Schitter, 2018). The experiment took about 7 minutes to finish. One U.S. dollar was compensated to the participants who followed the instructions and completed the tasks. After excluding participants who did not pass the attention check and did not spend enough time participating in the experiment, 282 participants were retained and 51.4% were female. Most participants (70.9%) were White, followed by Hispanic (8.5%), Black/African American (8.2%), Asian/Pacific Islander (8.2%), multi-racial (3.5%), and Native American/Alaska Native (0.7%). Nearly one-third of the participants (29.4%) were 18 to 24 years old, 36.2% were 25 to 34, 19.5% were 35 to 44, 10.7% were 45 to 54, 2.8% were 55 to 64, and 1.4% were 65 years old and above. The sample included 11.0% with some high school education, 27.0% with some college and 2-year college degree, 34.4% with a 4-year college degree, and 27.7% with graduate or professional degrees after college. As compared to the U.S. adult Internet population, this sample had more White, young, and educated people.

Procedure. Similar to Study 1, participants of Study 2 who agreed to take part in this study answered the pre-experiment survey questions on demographic information and then were asked to proceed with the main experiment, comprised of a total of four selection tasks after reading the news articles. In addition to the selection tasks, participants were also asked to indicate the level of incivility for each of the comment threads they viewed. Following Study 1, we randomized the presentation order of the paired comment threads as well as the order of the four choice tasks.

Stimuli. We used the same stimuli materials from Study 1. But in Study 2, the pair of comment threads displayed to participants were varied by either the position or the proportion of incivility, or both. In that sense, there are 56 pairs of comment threads, featuring different positions and proportions, for each of the news stories.

News engagement. For the selection task, each participant was asked “Which version of comments accompanying this news story are you more likely to engage with?” and required to choose one version of the user comment threads. The versions of the user comment thread were coded as 1 if selected and 0 if not selected. There were 2,256 data points and 1,128 matching sets for selection.

Perceived incivility. Following prior research (Kenski et al., 2020), we asked participants to indicate the incivility level of the comment threads they read on a 5-point scale: *uncivil*, *rude*, *unnecessary*, and *unrespectful*. The mean of the 4 items was computed to evaluate the levels of perceived incivility with larger scores indicating higher perceived incivility. The final constructs of perceived incivility yielded high reliability (Cronbach’s $\alpha > 0.90$).

Negative emotions. Adapted from previous research (Chen & Lu, 2017; Rösner et al., 2016), Study 2 included negative emotions as a control variable by asking participants the extent to which they felt *disgust*, *fear*, *anger*, and *anxiety* for each comment thread

they read on a 5-point scale. The mean of the 4 items was computed to evaluate negative emotions. The final constructs of negative emotions yielded high reliability (Cronbach's $\alpha > 0.85$).

Reading habits. At the end of Study 2, participants were asked to indicate if their reading order of the comment threads in the experiments was *from the top to the bottom* or *from the bottom to the top*. We reversely coded the position effects for the participants who indicated that they read from the bottom to the top ($n=8$).

Analytical strategy. Like Study 1, we had eight data points per participant, each corresponding to a pair of the comment threads under the four news articles. The dependent variable (selected or not) was coded using a dummy variable (selected for engagement = 1). The independent variables position of online incivility was coded using the dummy variable (primacy = 1) and proportion was coded as a factor variable where 20% was the reference category. In addition to estimating the series of multilevel logistic regression models, we regressed perceived incivility on the focal variables and used Imai et al. (2010)'s causal mediation framework to estimate the indirect effects of online incivility on news engagement through perceived incivility. While common mediation analytical techniques use parametric tests that require the data to meet the standard assumptions of the general linear model (see Hayes, 2017), Imai et al. (2010)'s average casual meditation effect (ACME) is nonparametrically identified and its estimator is less biased, especially for nonlinear models (e.g., multi-level logistic regression). Given that both primacy and proportion varied across pairs of comment threads, the multilevel models included three levels: thread pairs nested in participants and across news stories.

Results: Study 2

In support of H1a, the results based on a multilevel logistic regression model showed that there was a negative primacy effect of online incivility on news engagement behavior (in Model 4 in Table 2). The proportion of incivility had a negative effect on news engagement behavior, supporting H1b, even when controlling for presentation order, order of the news stories, and demographic variables. Further, we found that both primacy position and proportion of online incivility yielded a greater level of perceived incivility (Model 5); such perceived incivility had a negative effect on news engagement behavior (Model 7). However, the primacy effect on negative emotion was not significant (Model 6); neither was the effect of negative emotion on news engagement when controlling for perceived incivility (Model 8).

To test H2a–b, we conducted two formal mediation analyses to test the effects of incivility salience (i.e., position and proportion) on news engagement through perceived incivility. As seen in Figure 2, the results show a significant indirect effect of the primacy position of online incivility on news engagement behavior through perceived incivility. Specifically, the primacy of incivility increased perceived incivility, which then decreased news engagement ($ACME: -0.01, p < .001$), accounting for

Table 2. Multilevel Regression Models in Predicting Perceived Incivility, Negative Emotions, and News Engagement.

	Model 4	Model 5	Model 6	Model 7	Model 8
	Engaged	Perceived incivility	Negative emotions	Engaged	Engaged
Fixed Effects					
Position: primacy vs. recency	0.78 [0.65,0.93]	0.09 [0.02,20.17]	0.04 [-.02,0.09]	0.80 [0.67,0.96]	0.80 [0.66,0.97]
Proportion:					
40% vs. 20%	0.36 [0.28,0.46]	0.56 [0.45,0.65]	0.26 [0.18,0.34]	0.44 [0.34,0.58]	0.44 [0.34,0.57]
60% vs. 20%	0.21 [0.16,0.27]	0.91 [0.81,1.01]	0.46 [0.37,0.54]	0.29 [0.23,0.39]	0.29 [0.22,0.39]
80% vs. 20%	0.09 [0.07,0.12]	1.24 [1.13,1.34]	0.65 [0.57,0.74]	0.14 [0.10,0.19]	0.14 [0.10,0.19]
Mediators					
Perceived incivility				0.66 [0.60,0.72]	0.67 [0.61,0.74]
Negative emotions					0.95 [0.87,1.04]
Intercept	3.96 [3.16,5.07]	2.51 [2.25,2.79]	2.38 [2.12,2.66]	11.85 [8.40,16.99]	12.27 [8.84,18.63]
Random effects					
σ^2	3.29	0.66	0.39	3.29	3.29
τ_{00} –Stories	0.01	0.05	0.04	0.01	0.01
τ_{00} –Respondents	0.00	0.39	0.76	0.00	0.00
τ_{00} –Pairs	0.00	0.03	0.14	0.00	0.00
Marginal/conditional R ²	15.4%/15.4%	16.3%/49.4%	4.4%/71.5%	18.9%/18.9%	19.0%/19.0%
N (stories/respondents/sets)			2,256 (4/282/1,128)		

Note. Estimates (odds ratios for logistic Models 4, 7, and 8) of regression models are reported with 95% credible intervals in parentheses. All models were fitted with the brms package in R using the Bayesian approach (four chains, each with 5,000 iterations; warmup=2,500; $\hat{R} = 1$ and all Bulk Effective Sample Sizes > 1,000, indicating good convergence). As in Table 1, we did not find any significant heterogeneous effects regarding the order of news stories. All non-significant variables and coefficients could be found in the appendix. We also fitted the models with the lme4 package and conditional logistic regression with R. The estimated coefficients are almost the same.

$$\text{Model 4: } \text{logit}(\text{Engaged}_{jkl}) = \beta_0 + \beta_1 \text{Position}_{jkl} + \beta_2 \text{Proportion}_{jkl} + u_j + u_k + u_l + e_{jkl}$$

$$\text{Model 5: } \text{PerceivedIncivility}_{jkl} = \beta_0 + \beta_1 \text{Position}_{jkl} + \beta_2 \text{Proportion}_{jkl} + u_j + u_k + u_l + e_{jkl}$$

$$\text{Model 6: } \text{NegativeEmotion}_{jkl} = \beta_0 + \beta_1 \text{Position}_{jkl} + \beta_2 \text{Proportion}_{jkl} + u_j + u_k + u_l + e_{jkl}$$

$$\text{Model 7: } \text{logit}(\text{Engaged}_{jkl}) = \beta_0 + \beta_1 \text{Position}_{jkl} + \beta_2 \text{Proportion}_{jkl} + \beta_3 \text{PerceivedIncivility}_{jkl} + u_j + u_k + u_l + e_{jkl}$$

$$\text{Model 8: } \text{logit}(\text{Engaged}_{jkl}) = \beta_0 + \beta_1 \text{Position}_{jkl} + \beta_2 \text{Proportion}_{jkl} + \beta_3 \text{PerceivedIncivility}_{jkl} + \beta_4 \text{NegativeEmotion}_{jkl} + u_j + u_k + u_l + e_{jkl}$$

where, Engaged_{jkl} indicates whether respondent j engaged with story k in comment thread l in the pair of comment threads l , and the random effects include $\tau_j = \text{Var}(u_j)$, $\tau_k = \text{Var}(u_k)$, $\tau_l = \text{Var}(u_l)$, and $\delta^2 = \text{Var}(e_{jkl})$

14.4% of the total effects. Similarly, a significant indirect effect of the proportion of online incivility on news engagement through perceived incivility was found. The proportion of online incivility increased perceived incivility, which further decreased news engagement ($ACME: -0.10, p < .001$), accounting for 18.7% of the total effects. Hence, H2a–b were supported. As an alternative mechanism, the mediation effect of negative emotions on news engagement was not significant when perceived incivility was considered (see the bottom grids in Figure 2).

Discussion: Study 2

Study 2 achieved two goals. First, it replicated and enriched the results from Study 1 on people’s avoiding tendencies toward comment threads with higher incivility

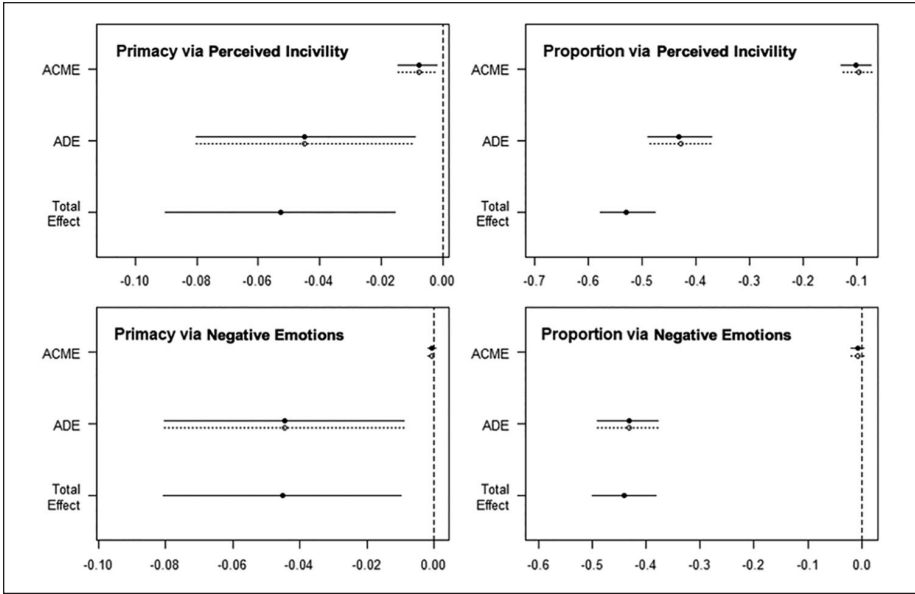


Figure 2. Mediation effects through perceived incivility and negative emotions. The effects of primacy position (left) and proportion (right) of online incivility on engagement intention via perceived incivility (up) and negative emotions (bottom). ACME = average causal mediation effects; ADE = average direct effects; Total Effect = ACME + ADE. The effects were estimated based on Models 5, 6, and 8 in Table 2 using Imai et al. (2010)'s method.

salience. On the one hand, the findings, by considering whether people read the thread from top to bottom or bottom to top, confirmed that people were more likely to avoid comment threads starting with uncivil messages (i.e., negative primacy effect). On the other hand, it also offered robust evidence that people tended to avoid comment threads with a higher proportion of online incivility, another indicator of incivility salience.

Second, Study 2 tested the mechanisms through which incivility salience affected news engagement behavior. The mediation test revealed that both primacy and proportion of online incivility generated higher levels of perceived incivility, which in turn led people to avoid these comment threads. In short, Study 2 advances research in online incivility by showing how content-level incivility salience could inhibit engagement behavior through perceived incivility.

General Discussion

The purpose of the study was to investigate the effects of online incivility where partisan cues are lacking. We originated the concept of incivility salience and employed two conjoint experiments to examine its effects on news engagement. To

begin with, this study extends the scholarship on the effects of online incivility by showing that the salience of online incivility could make one perceive the content as more uncivil and further inhibit news engagement behavior. Specifically, we explicate the concept of incivility salience and differentiate two subdimensions: position and proportion of uncivil content based on media salience and serial position effects (Hovland, 1957; Kioussis, 2004). Our empirical analysis showed that both subdimensions are valid indicators of the salience of uncivil content, which in turn inhibits engagement.

We further draw on perceptual salience of incivility and argue that salience of uncivil content could be transferred to the salience of uncivil perceptions, which in turn affect people's judgment of comment threads (i.e., perceived incivility). The findings confirm that it is necessary to examine perceptions in incivility effects studies (Liang & Zhang, 2021), as it could explain whether people avoid uncivil content in news content and social media (Goyanes et al., 2021; Muddiman et al., 2020; Walsh & Baker, 2021). Also, while the extant scholarship shows that perceived incivility could be shaped by both individual attributes and types of incivility (Kenski et al., 2020; Muddiman, 2017), this study offers a new lens by demonstrating that perceived incivility could vary based on incivility salience at the content level. This study explicitly addresses the underlying assumption that people are more likely to attend to uncivil content, rather than civil content, in forming judgments about a comment thread and making decisions about whether to engage or not. The findings corroborate and extend earlier evidence on people's tendencies toward respectful and civil news coverage (Muddiman et al., 2020) by uncovering that the *observed* tendency toward civility could be driven by the *actual* avoidance of incivility.

From a broader theoretical perspective, the findings contribute to scholarship on negativity bias (Kanouse & Reid Hanson, 1972; Lau, 1985; Rozin & Royzman, 2001), particularly in the context of selective exposure. Unlike previous research showing that people prefer negativity to positivity in news consumption (Knobloch-Westerwick et al., 2020; Meffert et al., 2006), our study offers an exception to the rule that incivility, as a type of negativity, could lead to selective avoidance. One explanation is that people may intentionally avoid online incivility because they want to maintain a good mood (Knobloch, 2003; Skovsgaard & Andersen, 2020; Zillmann, 2000). As the study was fielded amidst a global pandemic, it is reasonable that people were experiencing negative emotional states upon participating in the online experiments and they were prone to avoid content that might exacerbate such bad feelings.

From a general methodological standpoint, this project demonstrates the use of a conjoint experimental design in understanding the effects of online incivility on news engagement and in communication research more broadly. Unlike simple random experiments that randomly assign participants to read one comment thread with a particular arrangement of civil and uncivil comments, the conjoint experiment exposes participants to a pair of comment threads from which they make selections based on the comparison. Such a design closely mimics news users' decision-making processes in daily news consumption, such as when news users are choosing whether to read and engage with one of the multiple comment threads under the same story. As a conjoint

experimental design was originally used to gauge consumers' perceived salience of the attributes of a product (Green & Srinivasan, 1990), it is a suitable method for us to tap into participant's sensitivity to incivility salience, signaled by position and proportion, when they are asked to compare and choose one from the pair. A conjoint experimental design also holds great potential for other questions in communication research because it allows for more targeted findings than traditional experiment designs. Lastly, as the unit of analysis is the comment thread (being selected or not), the current design could generate more data points than a simple random assignment experiment does. As such, the results have sufficient statistical power (Hainmueller et al., 2015).

Practically, our study offers valuable implications for news organizations and social media companies. The study provides strong evidence that the arrangement of uncivil and civil comments accounts for whether users want to engage with other commenters on the websites. For instance, users avoided engaging in a comment thread where uncivil comments were at the top, compared with a thread where uncivil comments were at the bottom. In this sense, we recommend news organizations and social media companies deprioritize uncivil comments by placing them at the bottom of a thread because if they are at the top, their presence may impede user engagement. Moreover, we found that a higher proportion of uncivil comments would decrease engagement. This suggests that practitioners should reduce uncivil comments to avoid their predominant presence in a comment thread.

Like any research, the current study has several limitations that should be identified. Although we successfully replicated the findings among participants from two online panels, they are by no means representative of online news users. Given that our samples resembled the typical "WEIRD" (Western, Educated, Industrialized, Rich, and Democratic) population, future research may wish to pay close attention to other social demographic groups in the U.S. as well as those from non-Western countries who may have different experience with and perceptions of online incivility. Second, we used the fictitious comment sections attached to *AP News* to ensure testing the incivility effects in a politically neutral context. But the COVID-19 pandemic itself bears political meanings to audiences with different ideologies, which may inevitably shape their decisions for news engagement. Future research should take into consideration the dynamic interplay between issue contexts and people's ideological stances in fostering news engagement behavior. Next, we used an overarching and generic question to tap into news engagement behavior. A functional comment thread that allows people to actually comment, like, or share will generate in-depth knowledge on how incivility salience influences different types of news engagement behavior. In addition, we only investigated perceived incivility as the mechanism, the scope of which could be expanded. For instance, one study shows that the arrangement of civil and uncivil user comments could impact people's perceptions of news quality (Lu et al., in press), which may in turn shape engagement behavior. Finally, the experimental stimuli were designed with five comments in each thread. With a small and fixed number of comments, users are able to form judgments based on the entire thread they read in an experimental setting. In a real-world situation, people may view threads with more comments in them, so it is not clear if this line of findings would still be applicable. Researchers are invited to

systematically test the effects of online incivility in comment threads with varying lengths using a field experiment under the framework provided in this study.

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Supplemental Material

Supplemental material for this article is available online.

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