

Outrage by design: How social media metrics make our news more toxic and uncivil

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Extended Abstract

Uncivil political discourse poses threats to democratic citizenship: exposure to uncivil political content reduces political trust (Van't Riet & Van Stekelenburg, 2022), decreases news media's credibility (Goovaerts, 2022), and leads to increased use of incivility in political expression (Gervais, 2014). However, motivated by economic incentives, media outlets may resort to publishing more toxic, outrage-provoking content, as they tend to be more attention-grabbing and attract larger audiences (Mutz, 2015); this type of content is also more likely to go viral on social media platforms. Several prior studies have demonstrated the presence of extensive uncivil discourse in various forms and spanning several modalities (Sobieraj & Berry, 2011). However, a comprehensive examination of how incivility in news coverage across the entire media landscape has changed is missing: most studies focus on a limited number of sources (Goovaerts & Turkenburg, 2022) thereby preventing us from drawing inferences about fundamental changes within the media landscape as a whole. This is especially an issue given the rise of niche and emerging outlets that often resort to alternative journalistic standards and practices to garner massive audiences outside of the mainstream.

Besides the lack of empirical examination of incivility at the information ecosystem level, the mechanism that results in the observed prominence of uncivil discourse on digital media also remains unclear. In this study, we hypothesize that one driver of the increased incivility may be the presence of social media metrics, which are potentially used by media outlets to gauge audience preferences and cater to them: several ethnographic studies have demonstrated that digital metrics signal real-time audience preferences at an extremely granular level (Christin, 2020). This contrasts with the pre-digital era in which TV ratings or newspaper circulations were neither available in real-time nor indicative of audience preferences for individual news stories or articles.

Studies of this mechanism, however, are missing, because it remains a challenge to empirically quantify the extent to which social media metrics contribute to shifts in news production while also establishing causality to characterize the drivers that lead to the emergence of uncivil content on social media. In order to gauge the impact of social media metrics on content production, it is necessary to capture the extent to which incivility leads to additional engagement compared to civil content, and how this signal may be isolated and used to determine later content production after controlling for confounders.

To examine the trend of incivility in a large set of Facebook posts, we analyzed 4.3 million posts from 50 different news outlets. We used a purposive sampling strategy to generate this pool of media outlets. We first gathered a nearly comprehensive set of news outlets that are commonly consumed by Americans. This involved combining data from multiple studies on news consumption (e.g., Bakshy et al., 2015; Grinberg et al., 2019), resulting in a dataset of 787 outlets. To ensure representation across the ideological spectrum, we matched each outlet to an ideological group (i.e., right, lean right, center, lean left, left) using calculations from AllSides. From each group, we selected the top ten media outlets with the largest number of followers. We also excluded a few non-political news outlets, such as CNET.

We investigate whether incivility in news coverage has indeed been rising in recent years and the characteristics of outlets that display such an increase. We leverage machine learning models provided by Google's Perspective API to provide a fine-grained measure of

the incivility level of news posts published on Facebook. The model assesses six dimensions of incivility. We validate these measures manually and depict the trend of each dimension.

Second, we build a computational pipeline to test how such a trend of incivility may be explained by social media metrics. More specifically, we employed the following model (equation 1) to characterize the extent to which news outlets respond to audience engagement with incivil content and produce more incivil content in future news cycles.

$$\text{Freq}(i,t)=b0 + b1*ES(i,t-1) + b2*\text{Freq}(i,t-1) + \alpha*X + \eta i + \lambda t + \varepsilon \quad (1)$$

$\text{Freq}(i,t)$ denotes the prominence of incivility in a given time period t for outlet i , and $ES(i,t)$ represents the relative engagement accrued from uncivil content posted compared with other posts. X contains an array of potential confounding factors; ηi and λt refer to the fixed effects of time and outlet. The coefficient of interest is $b1$ and it captures the effect that engagement with uncivil content has on frequency of incivility in future news cycles.).

Finally, we apply this pipeline to the Facebook news feeds of various outlets, to gauge the extent to which different outlets respond to these metrics. These measures of responsiveness can further help us to understand how institutional and organizational characteristics explain various standards of content production in the era of social media.

This paper exemplifies the use of techniques borrowed from panel data analyses (typically used to analyze expensive multi-wave survey data) on large-scale longitudinal digital trace data. We show how such methodological innovation can advance our theoretical understanding of digital media and journalistic practices at the information ecosystem level. Our findings provide implications for how journalism may be nudged towards a healthier direction while also informing media policies for dealing with the digital media crises in democracies worldwide.

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Table 1. Selection of media outlets in each ideological group

Media outlet	Number of followers	Ideological group
CNN	107999	Left
Upworthy	26580	Left
HuffPost	100021	Left
VICE	123407	Left
Mashable	104463	Left
The New Yorker	77058	Left
Vox	65387	Left
New York Daily News	157266	Left
New York Magazine	104441	Left
The Atlantic	78221	Left
The New York Times	104352	Lean left
ABC News	157432	Lean left
Al Jazeera English	64412	Lean left
BuzzFeed	76505	Lean left
TIME	85515	Lean left
NBC News	199508	Lean left
The Independent	141490	Lean left
The Economist	88983	Lean left
USA TODAY	107076	Lean left
The Guardian	116490	Lean left
BBC News	61547	Center
Forbes	79374	Center
The Wall Street Journal	106166	Center
Reuters	138057	Center
Financial Times	73755	Center
CNBC	95952	Center
WIRED	51972	Center
PBS NewsHour	58630	Center
Fortune	72652	Center
Foreign Policy	35446	Center
The Epoch Times	103438	Lean right
New York Post	76870	Lean right
The Telegraph	127371	Lean right
Fox Business	65903	Lean right

Investor's Business Daily	35016	Lean right
Washington Examiner	62600	Lean right
The Washington Times	50252	Lean right
Hot Air	36072	Lean right
Newsmax	35619	Right
Fox News	90879	Right
Daily Mail	246587	Right
The Daily Caller	99397	Right
Breitbart	86809	Right
The Western Journal	75598	Right
Daily Wire	110916	Right
TheBlaze	60663	Right
Catholic News Agency	27108	Right
CNSNews.com	25277	Right
