Facebook Comments Influence Perceptions of Journalistic Bias: Testing Hostile Media Bias in the COVID-19 Social Media Environment

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Abstract
News organizations increasingly use Facebook to expand their reach and foster audience engagement. However, this free platform exposes news audiences to user comments before accessing and reading news articles. This exposure shapes the visible opinion climate and has the potential to influence readers. Through the application of the hostile media bias hypothesis, the influence of Facebook comments on COVID-19 related news articles and a knowledge-based assessment on perceptions of news bias and credibility are tested using a nationwide sample of Facebook users (N = 450). Findings show that user comments enhance negative perceptions of bias and diminish perceptions of favorability. The ability for knowledge-based assessments to alleviate this negative influence may induce reactance and needs further investigation.

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Social media outlets have changed, challenged, and benefitted journalism in several ways. An essential benefit is the convenience of content distribution and the ability to reach a larger audience. This approach to amplifying journalistic content has also changed how audiences consume news. Although the internet allows outlets to maximize their reach, news websites with comment sections were burdened with the need to provide moderation, unlike social media which foster audience engagement without this needed resource (Lischka & Messerli, 2016). As such, publishing and distributing news on platforms, such as Facebook, has become a welcomed means for sharing stories, especially as comment sections disappear from news websites (Ellis, 2015). In fact, news outlets that use Facebook to foster user engagement retain a sense of connectedness among audience members, unlike news outlets that shut down comment sections (Muddiman & Stroud, 2017; Stroud et al., 2016, 2020).

News audiences have also become reliant on social media for news. Even during the COVID-19 pandemic, as false claims about the illness and vaccines became commonplace, audiences flocked to online spaces to seek news content (Parks, 2021). As Americans turned toward Facebook, much of the information consumed about COVID-19 tended to originate from traditional news outlets, including television, newspapers, magazines, and digital-native news (Stocking et al., 2020). Using social media for information about the pandemic also led audiences to actively engage with information through comments and other reactions, which have been found to be higher on posts from official news organizations (Stocking et al., 2020). Aspects of audience engagement may lead to concerns about how it may shape the visible opinion climate and induce hostile media bias perceptions, which occur when audiences perceive news presentations as hostile against their personal perspective (Vallone et al., 1985). For instance, Facebook comments have been found to detract from the ability of audiences to view objective news content as neutral and credible (Gearhart et al., 2020).

The current study tests whether exposure to varying Facebook comments before reading online news can differently impact audience perceptions of bias in the news content and credibility of the news outlet and whether the inclusion of a short knowledge-based quiz can reduce the negative influence of comments. Using an online experiment, participants were presented with one-sided Facebook comments before viewing a neutral news report on a COVID-19 topic (i.e., either mandatory mask or COVID-19 vaccination mandates). Results shed light on whether news presentations on social media have the ability to influence how audiences process news content.
Literature Review

Hostile Media Bias and Social Media for News Distribution

Introduced by Vallone et al. (1985), hostile media bias was first demonstrated as partisan audiences were found to differently judge media fairness based on their own views of the issue. Specifically, strong partisans on both sides of the issue felt identical media content was biased against their own opinion. Thus, individuals appear to be motivated by their own involvement with a particular topic. This leads them to view news content as hostile toward their own position, which results in lower trust in the media and a higher political polarization (Perloff, 2015).

The professional responsibilities of journalists align with the fundamental premise of the hostile media phenomenon. Fundamentally, the hostile media phenomenon is presumed to exist in an environment with an “inherent assumption of balanced coverage” where audiences tend to rely on features of journalistic norms to assess aspects of bias (Feldman, 2011, p. 557). However, the perceptual bias seen through investigations into hostile media bias indicate that audiences perceive content as biased against their own opinion. As such, assumptions of the hostile media phenomenon appear to be in direct conflict with traditional journalistic norms and professional responsibilities of journalists, which are fundamentally based on objective and neutral reporting that features balanced and factual coverage free of bias.

Studies on the hostile media effect in traditional media, such as print (Gunther & Chia, 2001) and television (Giner-Sorolla & Chaiken, 1994; Perloff, 1989) found that opinionated audiences perceived neutral content as significantly biased against their own opinion, which led to a hostile media bias effect. More recently, studies have investigated hostile media bias in online contexts focusing on audience comments. For instance, blog and website comments influence perceptions of bias (Arceneaux et al., 2013; Kim, 2015). Likewise, research has found comments can influence how audiences perceive the content of online news stories (Houston et al., 2011; Lee, 2012).

As social media became the norm, studies have also applied hostile media bias in the context of these platforms. Lee et al. (2018) found news shared on Twitter was viewed as inherently biased when individuals from the opposing political party shared it, as compared to when it was shared by individuals in the same party. On Facebook, research has found that comments posted on news teasers that oppose an individual’s opinion on a topic led news audiences to perceive identical news content as biased and showcasing opinions that opposed their own perspective on the issue (Gearhart et al., 2020). Studies found comments accompanying news stories can influence how audiences evaluate content on different platforms, including YouTube videos (Walther et al., 2010) and news on Twitter (Lee et al., 2018) and Facebook (Winter et al., 2016). In fact, Winter et al. (2016) compared the effect of comments against other social media features (e.g., number of likes) and found comments to be more powerful. Taken together, evidence shows that features of social
media platforms can lead to hostile media perceptions. This is especially concerning for platforms that are actively used for news distribution.

While use of social media sites for content distribution and user engagement remains attractive, it has undoubtedly changed the way journalists gather, cover, and distribute news, as well as the way individuals consume and engage with content (Shearer & Matsa, 2018; Vázquez-Herrero et al., 2019). In 2020, Americans were found to use more than ten social media sites as a regular source of news, with Facebook sitting at the top (Shearer & Mitchell, 2021). Many users often see breaking stories on news feeds and follow those links to the specific news sites for more information (Shearer & Matsa, 2018). On the journalistic side, social media outlets are a principal way for outlets to deliver and promote their news content (Vázquez-Herrero et al., 2019). Based on these patterns of news distribution and research on hostile media bias, the following questions are posed:

RQ1: Do perceptions of story bias vary as a function of exposure to user comments?
RQ2: Do perceptions of the news article favorably supporting health mandates vary as a function of being exposed to Facebook user comments?

Knowledge Quiz and Reactance

A potential way to diminish perceived bias could be to ensure that audiences read and retain story content. In practice, this approach has been implemented by the Norwegian Broadcasting Corporation (NRK), who used a knowledge quiz derived from content within news articles, currently applied in a beta-testing platform NRKbeta (Vonberg, 2017). This pragmatic solution requires readers who are motivated to comment on stories to pass a short knowledge-based quiz about the story content. While other outlets have disabled commenting, NRKbeta reported initial success with the quiz as a method that encourages eager commentators to prove they have read story content before being allowed to comment.

To date, a standardization for how and when the quiz should be administered has not been established (Grut, 2017; Schmidt, 2017). Yet, the inclusion of a knowledge-based assessment could benefit social media news consumers because it would encourage retention. However, considering the observed trends, the withdrawal of expected freedoms that a mandated knowledge quiz introduces may further contribute to a sense of reactance due to perceived helplessness or failure, which has been found to arouse frustration (Mikulincer, 1988; Wortman & Brehm, 1975).

As a way to combat and to reduce online incivility during the ‘fake news era’ as it has come to the attention of media professionals, scholars, and audiences alike, NRK [the equivalent of United Kingdom’s BBC in Norway], started to experiment with news quizzes with the idea that readership knowledge, as it pertains to the increase of comprehension surrounding one specific piece of journalistic content, would lead to a reduction of online incivility surrounding the same piece of content, as published
within the same outlet, specifically as the incivility often appears within the online comment sections.

Not only were the NRK able to observe this as it was occurring in real time, however they also found that overall willingness to comment went down. Perhaps similar to the axiom, if you don’t have anything meaningful to say (i.e., now within a forum of perceived knowledgeable readers as one’s peers) don’t say anything at all (Grut, 2017).

Since NRK’s beta-testing of such online interactive news quizzes which features three to five questions about manifest content within each news article, other outlets have followed suit whereby The New York Times has dedicated its own space to articles featuring the same interactive knowledge assessment function (The New York Times, 2022).

**Issue Topics: COVID-19 Mandates**

The topic of the news and online social media discussion is a fundamental factor to consider in application of the hostile media bias. The COVID-19 pandemic presents a controversial topic ideal for application. COVID-19 is a viral disease first identified in Wuhan, China and that quickly spread around the globe, resulting in the declaration of a global pandemic in 2020 (CDC, 2021; WHO, 2020). The COVID-19 pandemic led to the development of several controversial news topics, including several mandates that were recommended for implementation to hinder spread of the virus. Throughout the pandemic, mandates concerning the need to wear a mask and receive a vaccine were politicized, dividing Americans, and hindering public health efforts. Therefore, news about proposed mandates about either mask wearing or vaccinations are ideal topics to investigate perceptions of hostile news bias among American news consumers. As such, the following guide this work:

H1: Placement of knowledge questions immediately after viewing the news story will diminish perceptions of news favorability toward the mandates.

RQ3: Do audience perceptions of news credibility vary as a function of story topic and placement of knowledge questions?

**Method**

**Participants and Procedures**

Using a 3 (congruent; incongruent; control) × 2 (mandatory mask condition; vaccine condition) between-subjects experimental design, the current study recruited adult Facebook users to participate. With approval from the university-affiliated Institutional Review Board, respondents were voluntarily recruited using the Amazon Mechanical Turk (MTurk) platform. MTurk allows academic researchers to register with the platform as
requesters who can solicit opportunities to participate in online research with the ability to collect quality samples (Zhang & Gearhart, 2020). Responses were fielded in February 2021 over a single day and collected from adult Facebook users \((N = 450)\). Each respondent was paid $1.00 USD for their participation. MTurk charged an additional $0.05 USD fee to recruit Facebook users plus 20% of the overall fee.

**Stimulus.** Upon agreeing to participate, respondents answered a questionnaire pertaining to their media use habits, and psychological attributes. Subsequently, participants were randomly assigned to one of the two topics (i.e., mandatory masks or vaccines). Before encountering the experimental stimuli, each respondent was asked about their own opinion and their perceptions of the opinion of others on the assigned topic. This information was subsequently used to identify their opinion on either mandatory mask requirements or mandatory COVID-19 vaccinations to visit public places.

A series of news teasers, displayed as simulations of Facebook posts featuring one-sided comments, and neutral news stories were created as stimuli. After reporting their opinion, participants were shown a Facebook news teaser. This consisted of an original Facebook post advertising a news story from the Associated Press (AP), an outlet known to provide balanced content (Ad Fontes Media, 2021). News teasers included a headline, neutral image, and featured Facebook comments presenting either agreeable or disagreeable feedback based on the participant’s opinion or were absent in the case of the control condition. Journalistic features (i.e., headline and image) were kept constant across conditions. User comments either appeared as congruent or incongruent depending on participants’ randomly assigned condition. The news teaser headline and image accompanying the story teaser remained constant across conditions.

After exposure to the news teaser, participants encountered a news story cultivated by authors of this study with expertize in news writing and AP style. Intended to present balanced content, the articles covered a proposed mandate that could be implemented in response to COVID-19. The only difference was the topic, requiring either mandatory masks or mandatory COVID-19 vaccinations to enter public spaces. The stimuli were standardized so that all content was maintained except for the title and in-text mentions of the respective mandate. To further test content neutrality of the content, the stories were shown to several adult Facebook users including current, former, and freelance journalists, as well as doctoral students and professionals working in a communication-related field. Nearly all found the story to be neutral and realistic.

The story remained constant across conditions. After exposure, respondents were asked to answer knowledge-based questions about story content and to rate aspects of the story to assess perceptions of journalistic bias and credibility. The instrument altered the placement of knowledge questions to either appear immediately after the news story or after being asked about perceptions to assess the influence of a knowledge-based quiz.
Measures. Perceived Story Bias. Mirroring Fico et al. (2004), this item assesses the individual perception of news story bias with three items: (a) the amount of space and prominence the story gave to each side; (b) the strength of the arguments included for each side; and (c) the quality of the sources cited for each side. Respondents were instructed to respond using a 7-point Likert-type scale (1 = opposes the use of mandatory _______ to 7 = favors the use of mandatory _______). The space was replaced with the randomly assigned topic condition (i.e., either masks or vaccines). All items were found to be reliably related and were subsequently merged to form an index (α = .81; M = 5.16, SD = 1.07).

News Topic Favorability. A single item was used to measure the perception of favorability toward a particular position on the tested topic (Gunther & Schmitt, 2004). Using an 11-point scale (0 = 0% to 11 = 100%), participants were asked to report the percentage of the news story that they felt was favorable toward the mandate (M = 8.35, SD = 2.43).

Knowledge. Measurement of knowledge was based on the content of news articles and held constant across story topics. Respondents were asked three multiple choice questions that contained information within the article that did not require knowledge about the health-related topic. Questions asked: (a) the CEO of which store said they would comply with the new mandate; (b) when will the mandate discussed be implemented; and (c) which level of government is responsible for implementing the mandate. Dummy coded responses reflected whether the correct answer was selected (i.e., 0 = incorrect; 1 = correct) and summed into an index (M = 2.26, SD = .75).

News Credibility. Assessment of credibility was collected across five items (unfair/fair, biased/unbiased, does not tell the whole story/tells the whole story, accurate/inaccurate, can be trusted/cannot be trusted) using a seven-point scale (Fico et al., 2004). Some items were reverse-coded, so the higher score reflected positive assessment. The items were reliably related and were merged to form an index (α = .89; M = 4.45, SD = 1.62).

Demographics. Respondents were found to be 40.09 years in age (SD = 12.96) on average. Most participants were female (53.3%). On average, respondents completed between some college and a 2-year college degree (M = 4.49, SD = 1.34) and self-identified as somewhere between moderate and moderately liberal (1 = very conservative to 7 = very liberal) (M = 4.51, SD = 1.68). The majority were Caucasian (73.3%), followed by Asian/Pacific Islander (9.8%), Black/African American (8.2%), Hispanic/Latino (5.3%), and other groups (3.4%). The average 2020 household income ranged from $40,000 to under $50,000 (1 = less than $20,000 to 10 = $100,000 or more) (M = 4.86, SD = 2.98).

Results

RQ1 asked whether the perceived level of story bias varies as a function of being exposed to Facebook user comments. Data analysis revealed a significant main effect for the influence of user comments, F(2, 447) = 5.95, p = .003; ηp² = .03.
Review of the associated means demonstrated that stories featuring congruent comments are perceived to have a higher level of bias within the story \( (M = 5.39, SD = 1.01) \) than do news stories featuring no Facebook comments \( (M = 4.96, SD = .99) \), but stories with incongruent comments \( (M = 5.15, SD = 1.16) \) did not differ from either condition (see Figure 1).

RQ2 asked whether perceptions of news favorability vary as a function of being exposed to Facebook user comments. Data analysis revealed a significant main effect for the influence of user comments, \( F(2, 444) = 3.07, p = .04; \eta^2 = .01 \). As demonstrated in Figure 2, review of the associated means indicated that stories featuring likeminded comments are perceived to have a higher proportion of story content that was favorable toward mandatory COVID-19 vaccines or mandatory masks \( (M = 8.76, SD = 2.23) \) than did news stories featuring incongruent Facebook comments and those without comments \( (M = 8.21, SD = 2.59; M = 8.10, SD = 2.42; \) respectively).

H1 predicted that knowledge questions placed immediately after the news story would diminish audience perceptions of news favorability. Data analysis revealed a significant main effect for the influence of knowledge question placement, \( F(1, 448) = 4.54, p = .03; \eta^2 = .01 \). As seen in Figure 3, review of the associated means showed that placing the knowledge questions immediately after the story led to greater perceptions that more of the story was favorable toward accepting the mandates \( (M = 8.58, SD = 2.32) \) than when knowledge-based questions were presented after asking about perceptions of bias \( (M = 8.10, SD = 2.53) \). Therefore, H1 was not supported.

RQ3 asked if perceptions of story credibility varied as a function of topic and knowledge-question placement. Data analysis showed a significant main effect of

![Figure 1. Perceptions of story bias by comment condition.](image-url)
story topic (i.e., mandatory masks or vaccines) on audience perceptions of credibility within the news article, $F(1, 446) = 104.44, p < .001; \eta^2 = .19$. As seen in Figure 4, a review of the associated means suggested that respondents who encountered a story about a mandatory mask requirement perceived a higher level of credibility ($M = \ldots$)
5.15, \(SD = 1.38\) than did those who saw a story about a mandatory vaccine requirement (\(M = 3.76, SD = 1.55\)). Findings diverged in regard to the placement of knowledge questions, which were found to have no main effect, \(F(1, 446) = .11, p = .74; \eta^2 = .00\). However, an analysis of effect revealed a significant interaction between story topic and placement of knowledge questions, \(F(1, 446) = 12.13, p = .02; \eta^2 = .01\). Review of the associated means demonstrated that questions asked immediately after exposure to the news story resulted in higher perceptions of news credibility for the mask condition (\(M = 4.98, SD = 1.44\)) than the vaccine condition (\(M = 3.90, SD = 1.51\)). Yet, asking delayed knowledge-questions led to substantially higher evaluations of credibility in the mask condition (\(M = 5.35, SD = 1.28\)) than the vaccine condition (\(M = 3.62, SD = 1.58\)).

**Discussion**

This study aimed to identify whether user comments impact audience perceptions of news bias and credibility in content distributed on social media and if the inclusion of a knowledge-based quiz could diminish the negative influence of comments. Overall, results provide additional support for claims that comments on social media platforms used for news distribution can lead to perceptions of hostile media bias (Gearhart et al., 2020; Lee, 2012). However, the inclusion of a knowledge-based quiz does not alleviate or redirect this problem. Consequently, concerns remain that attributes of social media, especially Facebook, may detract from the ability of the news to inform a democratic society. These results have robust practical implications.
for both news outlets and reporters using social media for content distribution and for the platforms themselves.

News organizations are incentivized to distribute news via Facebook and other social platforms because it allows them to freely expand their reach and invite user engagement through comments or reactions, such as Facebook likes (Lee & Tandoc, 2017). Despite these advantages, findings seen here show that audiences had enhanced perceptions that news content was biased and that more of the story agreed with the health mandate when likeminded comments were seen before viewing the actual news story. These results further demonstrate that this type of user activity influences audience interpretations of professional news content, aligning with existent hostile media research testing their impact on news audiences (Gearhart et al., 2020).

Contrary to existing studies, which tend to only examine perception of bias against one’s own point of view, the current study utilizes measurement of news bias that focuses on whether the article’s content was perceived as being in-favor (Ficco et al., 2004) of accepting the federal mandates. Therefore, the mere mention of a federally instated mandate may have inadvertently indicated a level of acceptance or advocacy for complying with the directives. This means that news teasers featuring comments that display the same point of view as the audience member led them to perceive the news as having a higher level of bias and favorability toward accepting the mandates. Though the willingness to adopt these mandates was relatively high, there are other potential mandates on the horizon (e.g., vaccine passports for public entry or travel) that necessitate an understanding of the opinion climate around coronavirus safety precautions and where the partisan divide on them may fall.

This work proposed the use of knowledge-based questions as a potential way to overcome perceived bias induced by user comments. Results demonstrated that participants who encountered knowledge-based questions immediately after the story perceived the article more favorable toward accepting the mandates. Although quiz placement did not influence perceptions of news credibility on its own, it was found to interact based on topic. That is, the inclusion of a knowledge quiz immediately after the story led to diminished perceptions of credibility on the highly accepted topic of mandatory masks. One explanation may be the induction of reactance among participants who encounter the quiz. Considering the observed trends, the withdrawal of expected freedoms introduced by mandating a knowledge quiz may compound a sense of helplessness or failure, and arouse frustration (Mikulincer, 1988; Wortman & Brehm, 1975). That is, the presence of the quiz may have upset respondents, resulting in a change of their evaluation. Thus, perceived credibility suffered when reactance occurs.

Research has identified social media comments as a factor that led audiences to think negatively about journalism (e.g., Gearhart et al., 2020). However, in the context of health or science-related topics, where audiences seek knowledge and education, the influence of the comments may not pose such a dire risk. Journalists play an important role in distributing public information during crises and should feel a responsibility to assume an educator role (Hinnant et al., 2012). Traditional journalistic norms tended to emphasize objectivity, but the public doubts this practice in our current environment
(Gil de Zúñiga & Hinsley, 2013). Journalists must step beyond the role of a pure disseminator, especially when it comes to health and science topics (Hinnant et al., 2016), and the public expects journalists to be public educators (Vos et al., 2019), placing a higher regard on the disseminator role (Willnat et al., 2019). Journalists remain conflicted between the idea of informing versus educating through their reporting. Despite that tension, they must take the responsibility of informing communities while remaining aware of the potential for perceived bias (Feldman, 2011).

Overall, the above findings add support to earlier claims that the hostile media perception can be induced by unique attributes of social media platforms used for news distribution. Based on these results, journalists should know that as soon as comments appear alongside their stories on social media, perceptions of bias are immediately introduced to other audience members before they read the story. Findings showcase that the best solution to avoid biased perceptions is to remove the ability to comment altogether. However, this is not a viable solution for news outlets who use social media to avoid the costs of comment moderation while simultaneously expanding their reach. While the use of knowledge quizzes was proposed to fill a gap in existent journalism and health communication research, their use does not appear to diminish the perception of bias that user comments impose upon news audiences. While these results lead to the common suggestion to improve media literacy education among audiences, there remains potential for further testing the news quiz and whether alerting readers to the quiz can avoid reactance.

These results are not without limitation. Experimental approaches can be limited in their attempt to re-create an ecologically valid environment. The use of an MTurk sample may limit the generalizability of results. Additionally, more should be known about the application of knowledge-based assessments, especially differences between types of questions posed to participants. In sum, future research should examine other aspects of online environments used for content distribution, which might have the potential to impact audience perceptions of journalism as a whole and news content specifically.

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