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Unpacking the complexity of online incivility: an analysis of characteristics and impact of uncivil behavior during the Hong Kong protests

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Abstract

Purpose – This study seeks to establish a new framework for categorizing incivility, differentiating between explicit and implicit forms, and to investigate their respective abilities to proliferate and mobilize conversations, along with behavioral outcomes in various social contexts.

Design/methodology/approach – Employing computational techniques, this research analyzed 10,145 protest-related threads from the HK Golden Forum, a prominent online discussion board in Hong Kong.

Findings – Our analysis revealed divergent effects of explicit and implicit incivility on their diffusion, influences on deliberative discussions, and user participation. Explicit incivility was found to impede deliberative conversations, while implicit incivility tended to provoke more responses. Explicit uncivil expressions encouraged the propagation of incivility but reduced the likelihood of individual involvement. In contrast, implicit incivility had a stronger dampening effect on further uncivil comments and achieved greater thread popularity. The results showed strong associations between uncivil expressions and the contextual norms surrounding social movements.

Originality/value – Theoretically, this research introduced a classification of incivility and underscored the importance of differentiating between implicit and explicit incivility by examining their effects on deliberation and engagement. Although previous studies have extensively covered explicit incivility, this study goes further by analyzing implicit incivility and comparing both forms of uncivil discourse in a less-studied context. Methodologically, the study developed a Cantonese dictionary to differentiate between two types of incivility, providing a practical reference for more nuanced analyses. By revealing how varying movement norms moderate the interplay between deliberative and uncivil expressions, the study drew attention to the highly situational nature of incivility.

Keywords Social norms, Deliberation, Social movements, Online incivility

Paper type Research paper

Introduction

The proliferation of the Internet and social media has created a novel venue for political participation for Hong Kong citizens (Liang, 2014). Nevertheless, some academics have raised concerns that the rise of uncivil behaviors may negatively impact the quality of online deliberation (Papacharissi, 2004; Bormann *et al.*, 2022). On one hand, uncivil language is linked to the cyberbalkanization of public space and the spread of extremist opinions and misinformation online. It is often exploited to affront or silence political opponents and stifle healthy democratic conversations (Coe *et al.*, 2014; Suhay *et al.*, 2015; Gervais, 2017; Chan

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et al., 2019; Trifiro *et al.*, 2021). This view is derived from Habermas' vision of the public sphere as a locale where logic, reason, and etiquette facilitate a rational discourse of politics (Habermas, 1989, 1991). On the other hand, incivility is perceived as a mobilizing tactic for "people on the margins" to challenge the civil order of society, further undermining the authority's power to regulate the public sphere (Papacharissi, 2004; Johnson, 2005; Muddiman, 2017; Masullo *et al.*, 2021; Bormann *et al.*, 2022).

Discussions surrounding the decline of civility can be distilled into the question of the societal factors regulating civic behaviors. Why does uncivil communication discourage movement involvement in some social contexts, but cultivate solidarity and stimulate cross-group dialogue under other circumstances? To advance the theoretical goals, we propose two forms of online incivility: explicit and implicit incivility. Explicit incivility is defined as the use of explicit swear words and foul language replete with hatred and stereotypes in online discussions, while implicit incivility involves coded language that carries uncivil meanings only recognizable by a specific subset of the audience – Hongkongers in this study.

Our study centers on the application, perception, and behavioral outcomes of incivility within the Umbrella Movement and Anti-Extradition Law Amendment Bill (Anti-ELAB) protests, utilizing conversation data collected from the HK Golden Forum (GF), a politically active online discussion forum. GF is a well-known discussion network site frequented by both youth and adults in Hong Kong and has been extensively studied within the two protest contexts (Erni, 2017; Po Sang, 2020). Our analysis concentrates on three aspects of the conversational dynamics pertinent to the different uses of incivility. First, the current study argues that implicit uncivil behaviors, despite seemingly innocuous, can incite online deliberation. Subsequently, we investigate the effectiveness of two forms of incivility in reproduction and mobilizing effects in two protests. Lastly, we examine protest contexts as moderating variables that may influence the correspondence between deliberative content and two distinct forms of incivility in comment sections. The findings increase understanding of the varying forms of incivility that may play unique roles in deliberative discourse and protest mobilization in a non-Western context and shed light on the compound effect of incivility in the dynamic interplay of online conversations.

Literature review

A wealth of literature has emphasized the vital role of informal political discussions in cultivating robust democratic societies (Conover and Searing, 2005). Discussions among individuals from different social backgrounds, both online and offline, promote greater tolerance for differing viewpoints, full consideration of social problems, and more meaningful participation (Eveland and Hively, 2009; Stromer-Galley and Wichowski, 2011). As Habermas (1984, 1989) argued, for deliberation to effectively nurture tolerance and understanding, it must rest upon logical reasoning and adhere to etiquette in addressing civic issues.

In extension, early research has identified three dimensions of deliberative content: rationality, sourcing, and interactivity (Ryfe, 2005; Jacobs *et al.*, 2009; Oz *et al.*, 2017). Rationality necessitates that conversations be logical and grounded in evidence (Gastil, 2008; Landemore, 2012); sourcing means that online users should supply external links or resources to endorse their claims (Stromer-Galley, 2007; Monnoyer–Smith and Wojcik, 2012); and interactivity is the focus of deliberative discussions, suggesting thoughtful justification or counter-justification should be presented when communicating with each other (Habermas, 1984). Within the framework of this prevailing perspective, online discussions aimed at fostering tolerance and mutual understanding rely primarily on rational, logical, and interactive forms of communication, as opposed to uncivil and hostile exchanges.

In direct contrast to deliberative content, incivility is deemed as non-normative speech that conveys an "unnecessarily disrespectful tone toward the discussion forum, its participants, or its topics" (Coe *et al.*, 2014, p. 660), and it can be described as encompassing aspersion, name-

calling, false accusation, vulgarity, and pejorative remarks. Albeit incivility has primarily been conceptualized as an antithesis of deliberative democracy (Papacharissi, 2004; Bormann *et al.*, 2022), ongoing research continues to examine nuanced aspects of incivility and its role in online discussions (Benson, 2011; Zompetti, 2019; Ballard *et al.*, 2022). Certain types of incivility, such as flaming, are considered communication norms for those who frequently discuss politics online (Hmielowski *et al.*, 2014). Rossini (2021) pointed out that previous research might be less aware of the rhetorical purpose of online incivility. For instance, the public is more inclined to judge a message as uncivil when it contains personal attacks. However, if the uncivil message focuses on a political argument or policy, it is less likely to be classified as uncivil (Stryker *et al.*, 2016; Muddiman, 2017). Other scholars have also found evidence that uncivil behaviors may have the potential to boost online deliberation, as they are more intriguing, entertaining, and memorable to audiences (Mutz and Reeves, 2005; Sydnor, 2018), further arousing their passion for political issues and sharing of related content (Mutz, 2015). Thus, incivility as a rhetorical feature may encourage political discussions and deliberation plurality (Benson, 2011; Herbst, 2010).

Drawing upon the categorization of abusive and hateful language proposed by Waseem *et al.* (2017) and Kennedy *et al.* (2022), we distinguish between implicit and explicit incivility in the present study. Implicit rhetoric has been widely recognized as leveraging suggestive speech to convey messages to specific audiences (Khoo, 2017; Waseem *et al.*, 2017; Kennedy *et al.*, 2022). However, due to its subtle expressions or absence of explicit uncivil terms, it is challenging to detect through either human annotation or automatic methods (Dinakar *et al.*, 2011; Justo *et al.*, 2014), unless the readers are familiar with this form of language. Thus, we define implicit incivility as coded incivility that does not contain explicit swear words, but carries an additional, implicit uncivil meaning only recognized by a specific subset of the audience—Hongkongers in this study.

Hypothesis development

Deliberative discussions and typology of online incivility

Figure 1 depicted the proposed theoretical framework and corresponding directions of correlations. In response to the observed rampant incivility, GF implemented foul language filters to swear words on their platforms from 2003 through 2005. During the censorship periods, online users devised metaphorical words and phrases as a means of circumventing the filters. For example, phrases like “hi auntie” and “chi lun sin” are used to represent “fuck you” and “crazy” respectively. Even though the enforced swearing filters were removed in Hong Kong in September 2005, some netizens still deliberately use these implicit words to express incivility (Fandom, no date b). The coded nature of this rhetoric, which lacks explicit incivility, conceals its true uncivil nature and makes it challenging for a specific group (i.e. non-Hongkongers in our study) to recognize it (Waseem *et al.*, 2017; Kennedy *et al.*, 2022). Furthermore, distinctive expressions in Hong Kong, including speeches, proverbs, or poems with inherent foul meaning but no apparent foul characters, as well as their homonyms in Cantonese, Pinyin, or English, which have a solid hidden uncivil connotation from non-Hongkongers, were included in our implicit incivility dictionary. In contrast, explicit incivility encompasses expressions characterized by explicit swear words and the use of stereotypes and hate that the public can easily identify. Although dog-whistle rhetoric, a type of implicit hate and uncivil language (Kennedy *et al.*, 2022), has been well documented in hate speech studies focusing on racism and far-right political ideologies in Western countries (López, 2014; Drakulich *et al.*, 2020; Åkerlund, 2021), its application in non-Western contexts, particularly in Hong Kong or Cantonese contexts, remains an under-studied topic. Moreover, salient uncivil behaviors, such as name-calling, vulgarity, and aspersion, are highly toxic and can potentially deter discussants while undermining the quality of the conversation (Stryker *et al.*, 2016; Kenski *et al.*, 2020). In contrast, implicit incivility, such as sarcasm and stereotypes, which are often conveyed through indirect and micro-aggressive tones, may not be readily

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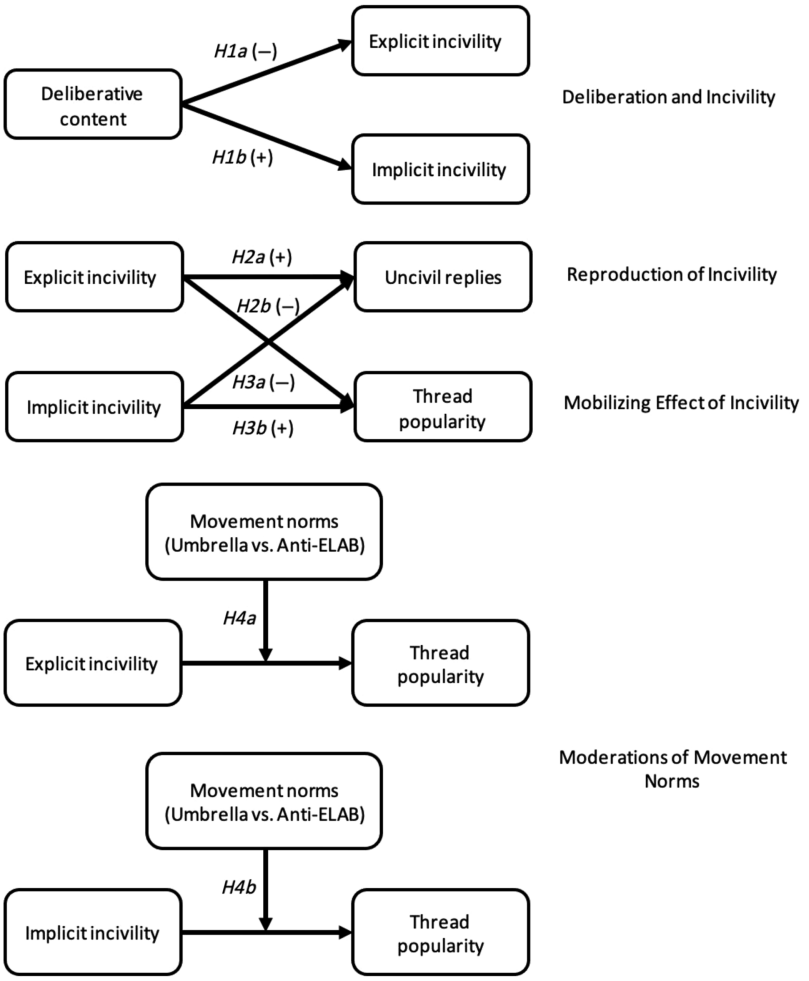

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Figure 1. The proposed theoretical framework and corresponding directions of correlations

discerned in terms of its uncivil implications. However, these forms of incivility can potentially stimulate deliberative conversations among citizens, eliciting the exchange of diverse political perspectives (Lewandowska-Tomaszczyk, 2017; Harmer and Southern, 2021). Based on previous research, we hypothesize that implicit incivility, as a kind of rhetorical incivility, may facilitate online deliberation at both post and comment levels. Conversely, direct incivility, marked by swear and rude expressions, may offend and even harm individuals because of its explicit nature (Schmid *et al.*, 2022). It may also target groups of particular backgrounds and ideologies (Stryker *et al.*, 2016; Muddiman and Stroud, 2017). Thus, different from implicit incivility, explicit incivility may undermine the process of online deliberation. We formulated the following hypotheses about the correspondences between deliberative content and the two forms of incivility:

H1a. Explicit incivility is *negatively* associated with deliberative content at both post and comment levels.

H1b. Implicit incivility is *positively* associated with deliberative content at both post and comment levels.

Reproduction and mobilizing effect of incivility in online discussions

The literature consistently shows the impact of post content on the public's civic reactions. Incivility has been identified as an important contributor to reciprocal counterattacks in online discussions. Seering *et al.* (2017) argued that the prevalence of uncivil behavior might arise from observational learning rather than the anonymity of online environments or individuals' feelings. Similarly, Theocharis *et al.* (2020) illustrated that individuals may internalize the repeated use of incivility in conversations as a descriptive norm for the social venue, leading to a cognitive heuristic that such uncivil behavior is acceptable within that context. Kwon and Gruzd (2017) also noted the contagion effect of incivility at the comment level. As for the interaction between posts and comments, Song *et al.* (2022) offered evidence of "leader mimicry" in online conversations. By imitating the language style of initial posters, online users were more likely to respond in an uncivil manner when the leading post of the thread contained offensive speech.

The effectiveness of a social movement lies in its capacity to mobilize resources, the most crucial of which is human engagement (Shi *et al.*, 2017). In digital space, the impact is contingent upon the popularity of discussion threads. Preliminary evidence has found a positive association between thread popularity, measured as the number of replies a post receives, and the demographic characteristics of the posters (e.g. Tufekci, 2013). In particular, the gender and age of account holders can have effects on thread popularity (Liang and Lee, 2021). From a network analytic perspective, users actively engaged in online discussions tend to attract more replies (Huffaker, 2010).

Civility and politeness have been the expected manner of communication in online discussions (Masullo *et al.*, 2021). According to the expectancy violations theory (Burgoon, 2015), explicit incivility in an initial post, which is a severe violation of politeness norm (Anderson *et al.*, 2014; Bormann *et al.*, 2022), may bring negative communication outcomes, such as uncivil replies and decreased thread popularity. In contrast, implicit incivility, a form of rhetoric only understood by ingroup members, tends to align with established conversation norms. Consequently, this alignment naturally mitigates harmful consequences by means of fewer uncivil responses and increased thread popularity. By disclosing their insider status through coded linguistic cues, posters can garner respect from ingroup members. We aim to understand the overall reproduction and mobilizing effect of incivility in two movements, that is, whether the use of uncivil language in posts would positively affect the use of incivility in replies and induce negative consequences on thread popularity. We proposed the following hypotheses:

H2. The presence of explicit incivility in posts (a) is *positively* associated with uncivil content in replies and (b) triggers *fewer* replies.

H3. The presence of implicit incivility in posts (a) is *negatively* associated with uncivil content in replies and (b) triggers *more* replies.

Online incivility in the evolving contexts of social movements

As Hmielowski *et al.* (2014) stated, incivility can be understood as a social norm depending on the context in which individuals are situated. The distinct characters of the Umbrella Movement and Anti-ELAB protests led to divergent social norms. Though these two protests were both mobilized against the policies of the Government of the Hong Kong Special Administrative Region, demonstrators in the Umbrella Movement adopted a milder strategy –

street occupation (Tang, 2021). In mid-2014, massive numbers of demonstrators converged on the streets of Central, Hong Kong and engaged in a peaceful and polite sit-in demonstration. The core character of "peaceful, rational, and non-violent" protest was planted and strengthened in the heart of the public (Kam, 2020). To align with the social norms of rationality and peace, implicit incivility is expected to gain popularity as a means of cultivating deliberative discussions (Peterson, 2019; Muddiman and Stroud, 2017; Papacharissi, 2015). Simultaneously, explicit uncivil behavior is expected to be discouraged as the waves of protests unceasingly scale up (Emerson *et al.*, 2015; Tang, 2022). Peaceful protest strategies tend to discourage explicit incivility in favor of more measured discourse (Chenoweth and Belgioioso, 2019; Chenoweth and Stephan, 2011; Tufekci, 2017). For instance, Lee and Chan (2018) claimed that during the Umbrella Movement, the commitment to non-violence fostered a culture of civil discourse both online and offline, encouraging protesters to engage in constructive dialogue rather than inflammatory rhetoric.

The culmination of the Umbrella Movement marked a critical turning point, followed by an escalation in radicalized protests that fervently embraced the concept of "localism" (Kaeding, 2017; Veg, 2017; Lee *et al.*, 2019b). In Hong Kong, localism broadly encompasses a range of sociopolitical movements and sentiments advocating for the preservation and enhancement of the city's distinctive identity and autonomy (Lo, 2018). During the Anti-ELAB protests, the principle of "five demands" underscored the depth of civic dissatisfaction, while incidents of violence and vandalism by some demonstrators were also prevalent (Chung, 2020). Explicit incivility was championed by the aggressive and radical norms in contrast to the 2014 protests, regardless of the great damage it did to deliberative discussions.

Suhay *et al.* (2018) and Chan *et al.* (2019) observed that heightened political polarization and radicalization tend to increase the prevalence of explicit incivility, as seen in the shift from the Umbrella Movement to the Anti-ELAB protests. Implicit incivility within democratic deliberation was gradually abandoned as the movement progressed. As protests evolve and become more radicalized, civil norms and constructive discourse are often supplanted by more confrontational and explicitly uncivil forms of communication (Papacharissi and de Fatima Oliveira, 2012). This shift is evident in the discourse surrounding the Anti-ELAB protests, where the intensity and radicalism of the movement led to a decline in implicit incivility and a rise in overtly hostile interactions (Chew, 2023). Given that the types of uncivil expressions may vary within distinct contexts of social movements, we posited the following hypotheses:

H4a. The negative relationship between deliberative content and explicit incivility is weaker in the Anti-ELAB protests than in the Umbrella protests at both post and comment levels.

H4b. The positive relationship between deliberative content and implicit incivility vanishes in the Anti-ELAB protests rather than persists in the Umbrella protests at both post and comment levels.

Data and methods

Data collection

According to the timeframes of two movements provided on Wikipedia, we accessed thread data on the GF forum related to the Umbrella Movement from September 26, 2014 to December 15, 2014 and the Anti-ELAB Movement (prior to the COVID-19 outbreak in Hong Kong) from March 15, 2019 to January 22, 2020 (accessed from September 11, 2021 to September 17, 2021). Our study focuses on the GF, a highly active forum that attracted local citizens and protesters of both movements (Po Sang, 2020; Ng *et al.*, 2022; Yip and Pinkney, 2022). We filtered protest-related threads using 30 keywords for the Umbrella Movement and an equivalent list for the Anti-ELAB protests. The present study mainly focuses on the threads that received replies. The final dataset comprises 2,156 posts from 1,014 users during the Umbrella Movement and 7,989 posts from 933 users during the Anti-ELAB Movement.

TextMind, a Chinese version of the Linguistic Inquiry and Word Count system, is an advanced text analysis software that detects psychological features and emotional tones in the written text through sophisticated linguistic analysis and classification algorithms. It has been validated specifically in the context of Hong Kong Cantonese (Song and Zhang, 2017; Liang and Lee, 2021). We applied it to quantify the emotions (i.e. PosEmo, NegEmo expression in the dictionary), identity expressions (i.e. I, We, You, YouPL, SheHe, They), level of rationality (i.e., CogMech), and length of posts and comments (i.e. WordCount). We excluded the comments that have no content or contain only numbers (e.g. 1, 20) or seemingly random character combinations (e.g. "B2," "FF"), which lacked sufficient context for meaningful annotation by TextMind. The whole dataset includes 70,856 comments published by 10,896 users in the Umbrella Movement and 452,473 comments published by 6,389 users during the Anti-ELAB protests period.

The construction of a Cantonese incivility dictionary

Pinker (1998, 2012) discussed the intricate relationship between words and the cognitive rules guiding their usage. This framework fortifies our word-based analysis, elucidating the systematic underpinnings of language and the consistent semantic patterns inherent in word usage. Pechenick *et al.* (2015) provided complementary support for our methodology. Their analysis of the Google Books corpus emphasized both the complexities and opportunities associated with employing word frequencies in deciphering cultural evolution. By anchoring our approach in the theoretical underpinnings of established literature (e.g. Grimmer *et al.*, 2022), we affirmed the legitimacy of employing word-based methodologies in scrutinizing online incivility.

To establish a more grounded and comprehensive Cantonese foul language dictionary, we drew on the swearing dictionary from Lee *et al.* (2019a) and the Golden Filter (Fandom, no date b). We also collected swearing words from the Cantonese foul language research website (廣州話粗口研究網, no date) grounded in Hong Kong Cantonese and the Hong Kong Internet Dictionary (Fandom, no date a). From these resources, we discovered the interesting phenomenon of "homonyms" and "Chinese and English idioms" in Hong Kong Cantonese foul-mouthed culture. We also added related proverbs, poems, and riddles to build up a more compendious Cantonese swearing dictionary to date. The final dictionary comprises 803 words, including 794 explicitly and 189 implicitly uncivil words.

In contrast to explicit incivility, implicit incivility does not contain any apparent swear words, thus it can be used to elicit the distinction between individuals indigenous to Hong Kong and those who are not. Explicit incivility contained salient swearing characters such as "笨" (stupid), "屌" (fuck), and so forth. A post or comment was categorized as implicit incivility if it contains the following types of words without apparent foul characters: HK Golden swearing filters with underlying uncivil sense such as "hi你" (fuck you), "on9" (idiot), and "痴向左走向右走線" (crazy) (Ng *et al.*, 2022); Cantonese foul speeches or their homonyms, such as "燒你數簿" (fuck your mother), "粉腸" (idiot), and "大九鑊" (I am in trouble/screwed); Cantonese foul proverbs, such as "關仁隱士" (none of their business), "玉皇大帝第九個孫" (disgust), and "柑蕉桔李碌柚, 雁鷙貂狸獅狒" (fuck your ass in the morning, fuck your ass in the afternoon); or Pinyin or English homonym of Cantonese foul language/foul language proverbs, such as "chi lun sin" (crazy), "Holland jeans" (very bitchy), and "delay no more" (fuck your mother). We adopted several measures to enhance the quality of this dictionary (refer to Appendix 1 for detailed descriptions).

Measurement

Dependent variables. We identified explicit and implicit incivility in posts and comments using our custom dictionaries. During the protest periods, 10.92% and 1.20% of threads featured *explicit incivility* ($N = 1{,}108$) and *implicit incivility* ($N = 122$) in posts, respectively. Comments containing explicit or implicit uncivil words were coded accordingly. There were

82,478 explicit uncivil comments and 9,792 implicit ones published during the two protests, accounting for 15.76% and 1.87% of total discussions respectively. *Uncivil replies*, another dependent variable (DV), were found in 59.96% of threads discussed regarding the Umbrella Movement and the Anti-ELAB Movement ($N = 6{,}083$). Liang and Lee (2021) suggested that the indicator of thread popularity could be the number of replies or the number of likes and dislikes. These two indicators show high correlations (Spearman $\rho = 0.51$) in this study. Thus, we adopted the number of replies to represent *thread popularity* ($M = 51.67$, $SD = 230.11$) as Liang and his collaborator (2021) did. Due to the potential correlation between *thread popularity* and *uncivil replies*, one was fed as a compounding variable into regressions when the other was the outcome variable.

Independent variables. We collected 2,156 posts and 70,856 comments during the Umbrella Movement (*movement id* as 0), as well as 7,989 posts and 452,473 comments published during the Anti-ELAB protests period (*movement id* as 1).

We adopted the operationalization of *deliberative content* from Oz and Nurumov (2022) and Gelfand *et al.* (2015) with appropriate modifications. A comment was coded to have *deliberative content* if it comprises features such as URLs to external sources, statistics and numbers in either Chinese or English, or rational argumentation in text. Gelfand *et al.* (2015) posited that the CogMech category in LIWC could detect cognitive development in causal reasoning and rational argumentation. Once the CogMech score of a comment reached the threshold value of 0.5, we coded the indicator of rational argumentation as 1, and 0 otherwise. Overall, 62.73% of posts and 80.28% of the comments were determined to be *deliberative*. *Control variables* at the post and comment levels are described in Appendix 2.

Results

Predicting the presence of implicit incivility and explicit incivility in posts and comments

Table 1 summarized the results of the research hypotheses concerning the relationships between uncivil behaviors and content in forum posts and comments. To test H1s at the post level, we conducted two logistic regressions predicting incivility in posts based on post-level and author-level variables in Stata 17. Logistic regressions were selected due to their

Table 1. An overview of the results of hypothesis testing

Hypothesis	Supported/not supported
H1a. Explicit incivility is negatively associated with deliberative content at both post and comment levels	Supported
H1b. Implicit incivility is positively associated with deliberative content at both post and comment levels	Partially supported (at the comment level but not the post level)
H2a. The presence of explicit incivility in posts is positively associated with uncivil content in replies	Supported
H2b. The presence of explicit incivility in posts triggers fewer replies	Supported
H3a. The presence of implicit incivility in posts is negatively associated with uncivil content in replies	Supported
H3b. The presence of implicit incivility in posts triggers more replies	Supported
H4a. The negative relationship between deliberative content and explicit incivility is weaker in the Anti-ELAB protests than in the Umbrella protests at both post and comment levels	Partially supported (at the comment level but not the post level)
H4b. The positive relationship between deliberative content and implicit incivility vanishes in the Anti-ELAB protests rather than persists in the Umbrella protests at both post and comment levels	Partially supported (at the comment level but not the post level)

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appropriateness for analyzing binary outcomes (i.e. *explicit incivility, implicit incivility, uncivil replies*), facilitating the examination of predictors and their correlations with the occurrence of incivility and offering valuable insights into the determinants of uncivil discourse. Table 2 reported the results from the separate regression analyses on the presence of explicit and implicit incivility, with 9.2 and 9.5% of the variability in the outcomes explained in these two models respectively indicated by R^2 Nagelkerke. Consistent with H1a, the coefficient of the deliberative content was negative and statistically significant (B = −0.28, $p < 0.001$) in predicting *explicit* incivility, meaning that a decline in deliberative content in a post corresponded to an increase in the likelihood of explicit incivility occurring in the post. However, we found null relationships between deliberative content and *implicit* incivility in posts (B = 0.13, $p > 0.05$). H1b was unsupported at the post level.

In order to investigate the correspondences of interest at the comment level, another two logistic regressions were performed. These models accounted for 16.4% and 7.3% of the variability in the occurrence of explicit and implicit incivility in comments respectively. As presented in Table 3, deliberative content had a negative and significant correlation with explicit incivility (B = −0.36, $p < 0.001$), supporting H1a at the comment level. As more deliberative content emerged in comments, the implicit uncivil expressions would also significantly increase (B = 0.16, $p < 0.001$), supporting H1b at the comment level. When deliberative content emerged, explicit uncivil comments were 30% less likely to occur (OR = 0.70, 95% CI = [0.69, 0.71]), whereas there was a 17% increase in the occurrence of implicit incivility in comments (OR = 1.17, 95% CI = [1.11, 1.22]).

Table 2. Logistic regression prediction of the existence of explicit and implicit incivility in posts

Dependent variables	Explicit incivility B	95% CI	Implicit incivility B	95% CI
Covariates				
Text length	0.001***	[0.0007, 0.001]	0.001	[−0.00003, 0.001]
Profile characteristics				
Author gender	−0.06	[−0.26, 0.14]	0.01	[−0.54, 0.57]
Author class	−0.03	[−0.07, 0.02]	−0.13	[−0.26, 0.01]
Profile characteristics				
Reciprocal ties (log)	0.21*	[0.04, 0.37]	0.56*	[0.11, 1.02]
In-degree centrality (log)	0.17	[−1.26, 1.60]	3.94	[−0.40, 8.28]
Out-degree centrality (log)	0.57	[−0.22, 1.36]	−1.42	[−3.82, 0.99]
Emotion expressions and identity indicators				
Positive emotions	−3.02	[−11.20, 5.16]	4.24	[−17.23, 25.71]
Negative emotions	12.17*	[0.33, 24.00]	1.22	[−35.53, 37.96]
First-person singular pronouns	10.47*	[2.13, 18.80]	6.42	[−15.38, 28.23]
First-person plural pronouns	13.47	[−13.66, 40.59]	14.41	[−48.20, 77.03]
Second-person pronouns	47.51***	[37.35, 57.67]	33.69**	[11.25, 56.13]
Third-person pronouns	−28.78***	[−42.38, −15.18]	−63.25*	[−113.86, −12.63]
Independent variables				
Movement id	−0.83***	[−0.99, −0.68]	−1.36***	[−1.79, −0.94]
Deliberative content	−0.28***	[−0.42, −0.14]	0.13	[−0.28, 0.53]
(Intercept)	−1.85***	[−2.36, −1.35]	−4.80***	[−6.29, −3.31]
N	10,145		10,145	
R^2 Nagelkerke	9.2%		9.5%	

Note(s): *Log* represents log-transformation was applied in the variable. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$
Source(s): Table created by authors

Table 3. Logistic regression prediction of the existence of explicit and implicit incivility in comments

Dependent variables	Explicit incivility B	95% CI	Implicit incivility B	95% CI
Covariates				
Comment length (log)	0.79***	[0.78, 0.80]	0.73***	[0.71, 0.76]
Profile characteristics				
Author gender	0.003	[−0.02, 0.02]	0.06*	[0.01, 0.11]
Author class	−0.04***	[−0.04, −0.03]	−0.08***	[−0.10, −0.06]
Emotion expressions and identity indicators				
Positive emotions	4.81***	[4.53, 5.08]	3.71***	[2.95, 4.48]
Negative emotions	14.37***	[13.87, 14.86]	2.54**	[0.76, 4.33]
First-person singular pronouns	5.27***	[4.67, 5.87]	4.80***	[3.25, 6.35]
First-person plural pronouns	−6.64***	[−9.68, −3.61]	−0.38	[−7.49, 6.74]
Second-person pronouns	23.38***	[22.93, 23.82]	11.76***	[10.88, 12.64]
Third-person pronouns (log(x+1))	−83.04***	[−89.02, −77.06]	−131.07***	[−152.79, −109.35]
Independent variables				
Movement id	−0.08***	[−0.11, −0.06]	−0.31***	[−0.37, −0.24]
Deliberative content	−0.36***	[−0.38, −0.34]	0.16***	[0.11, 0.20]
(Intercept)	−5.03***	[−5.08, −4.98]	−6.89***	[−7.01, −6.76]
N	523,329		523,329	
R^2 Nagelkerke	16.4%		7.3%	

Note(s): *Log* represents log-transformation was applied in the variable. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$
Source(s): Table created by authors

Predicting the existence of uncivil replies

A logistic regression was used to test predictors of uncivil replies (see Table 4). The goodness of fit indicates that the model accounted for 54.3% of the variability in the emergence of uncivil replies during the Umbrella Movement and Anti-ELAB Movement. The main results of interest are the effects of incivility in the original posts on the uncivil content in subsequent replies. In the regression analysis shown in Table 4, the coefficient of explicit incivility ($B = 0.46$, $p < 0.001$) strongly suggested that incivility presented in posts was an influential factor in triggering more uncivil replies. The results were consistent with our H2a, which asserted that explicit incivility, a violation of social expectations, unavoidably invoked more negative and uncivil responses during discussions about the movement. In contrast, the coefficient of implicit incivility was negative and statistically significant in predicting uncivil replies in both protests ($B = -0.52$, $p < 0.05$), implying an inhibiting effect of implicit incivility, which can only be understood by ingroup. By revealing the insider status through coded linguistic cues, the posters can gain the respect of other users, mostly ingroup members. Thus, H3a was supported.

Predicting thread popularity

Following the same procedures introduced by Liang and Lee (2021) to predict thread popularity, the likelihood ratio test ($\chi^2 = 107{,}221.39$, $p < 0.001$), AIC, and BIC values (Poisson model: AIC = 183,185, BIC = 183,315; negative binomial model: AIC = 75,965.56, BIC = 76,102.83), were leveraged to test overdispersion. Given the highly skewed distribution of the dependent variables, negative binomial regressions are suitable for our analysis (Cameron and Trivedi, 2013). This model demonstrated strong predictive power, explaining 84.1% of the variability in the DV. Table 5 provided a detailed summary of the regression model.

Table 4. Logistic regression prediction of the existence of uncivil replies

	B	95% CI
Covariates		
Thread popularity (log)	1.32***	[1.25, 1.39]
Text length	0.0003*	[0.00004, 0.001]
Profile characteristics		
Author gender	0.04	[−0.14, 0.22]
Author class	−0.04*	[−0.08, −0.003]
Network positions		
Reciprocal ties (log)	0.73***	[0.41, 1.05]
In-degree centrality (log)	1.52*	[0.27, 2.78]
Out-degree centrality (log)	−3.54***	[−4.41, −2.67]
Emotion expressions and identity indicators		
Positive emotions	3.93	[−2.48, 10.33]
Negative emotions	3.82	[−6.33, 13.96]
First-person singular pronouns	−2.53	[−11.46, 6.39]
First-person plural pronouns	10.66	[−16.67, 37.99]
Second-person pronouns	4.64	[−7.84, 17.12]
Third-person pronouns	13.03**	[3.22, 22.85]
Independent variables		
Movement id	−0.17*	[−0.32, −0.02]
Deliberative content	−0.10	[−0.22, 0.02]
Explicit incivility existence	0.46***	[0.28, 0.65]
Implicit incivility existence	−0.52*	[−1.01, −0.02]
(Intercept)	−2.84***	[−3.31, −2.36]
N	10,145	
R^2 Nagelkerke	54.3%	

Note(s): *Log* represents log-transformation was applied in the variable. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$
Source(s): Table created by authors

As portrayed in Table 5, regression results unraveled interesting relationships between the two forms of incivility and thread popularity. The coefficient of explicit incivility was negative and statistically significant (B = −0.09, $p < 0.001$) in predicting thread popularity in the two movements, meaning that a decline in explicit uncivil expressions in a post content corresponded to an increase in the likelihood of thread popularity. In contrast, the coefficient of implicit incivility was positive and significant, implying a positive relevance between implicit incivility and thread popularity (B = 0.21, $p < 0.01$). Thus, H2b and H3b were supported.

The moderation results in different protests

To verify the moderating effects of protests at the comment level, we performed two hierarchical logistic regressions. Moderating effects were examined through the statistical results of interaction terms between *deliberative content* and *movement id* (Baron and Kenny, 1986). H4a and H4b inquired about the moderating roles of movements, particularly its moderation effects on the relationship between deliberative content and uncivil behaviors. Table 6 and Table 7 presented the significant predicting capacity of the moderation terms of deliberative content and movement id in both two types of incivility (Model 2 of explicit incivility: B = 0.22, $p < 0.001$; Model 2 of implicit incivility: B = −1.09, $p < 0.001$), supporting H4a and H4b. As shown in Figure 2, the association between deliberative content and explicit incivility maintained a steeper slope during the Umbrella protests. For comments without deliberative quality, explicit uncivil expressions in the Umbrella Movement were

Table 5. Negative binomial prediction of thread popularity

	B	95% CI
Covariates		
Existence of uncivil replies	0.93***	[0.90, 0.97]
Text length	0.0001**	[0.00002, 0.0002]
Profile characteristics		
Author gender	0.03	[−0.01, 0.08]
Author class	0.01	[−0.004, 0.02]
Network positions		
Reciprocal ties (log)	2.05***	[2.01, 2.09]
In-degree centrality (log)	0.18	[−0.20, 0.55]
Out-degree centrality (log)	−4.62***	[−4.85, −4.39]
Emotion expressions and identity indicators		
Positive emotions	−1.85	[−3.71, 0.01]
Negative emotions	−0.61	[−3.47, 2.26]
First-person singular pronouns	3.13**	[0.85, 5.40]
First-person plural pronouns	1.17	[−6.47, 8.80]
Second-person pronouns	−1.35	[−4.64, 1.94]
Third-person pronouns	3.29*	[0.64, 5.93]
Independent variables		
Movement id	−0.22***	[−0.26, −0.18]
Deliberative content	0.08***	[0.05, 0.11]
Explicit incivility existence	−0.09***	[−0.14, −0.04]
Implicit incivility existence	0.21**	[0.07, 0.34]
(Intercept)	2.02***	[1.89, 2.14]
N	10,145	
R^2 Nagelkerke	84.1%	

Note(s): *Log* represents log-transformation was applied in the variable. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$
Source(s): Table created by authors

Table 6. Logistic regression prediction of the existence of explicit incivility in comments with moderation

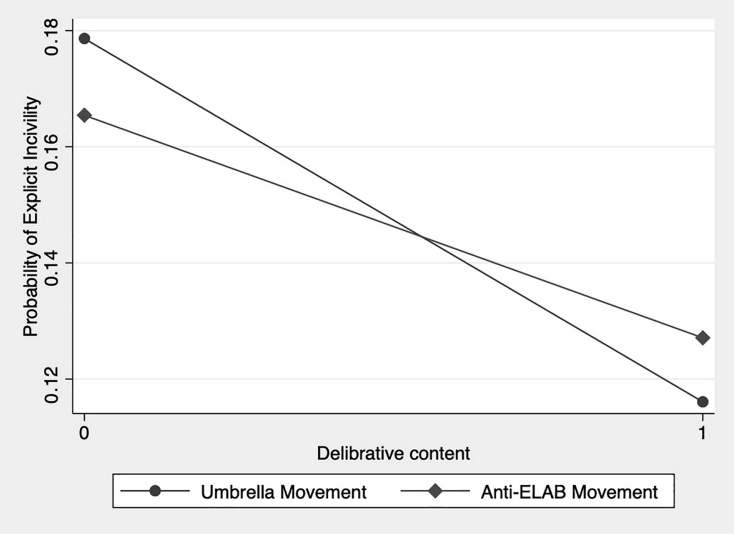
	Model 1		Model 2	
	B	95% CI	B	95% CI
Comment length (log)	0.76***	[0.75, 0.77]	0.79***	[0.78, 0.80]
Author gender	0.003	[−0.02, 0.02]	0.004	[−0.02, 0.02]
Author class	−0.06***	[−0.07, −0.05]	−0.04***	[−0.04, −0.03]
Positive emotions	4.83***	[4.56, 5.10]	4.83***	[4.56, 5.11]
Negative emotions	14.58***	[14.08, 15.08]	14.38***	[13.89, 14.88]
First-person singular pronouns	5.60***	[5.42, 6.58]	5.27***	[4.67, 5.87]
First-person plural pronouns	−4.90**	[−7.81, −1.99]	−6.62***	[−9.66, −3.59]
Second-person pronouns	23.90***	[23.45, 24.35]	23.38***	[22.94, 23.83]
Third-person pronouns (log(x+1))	−83.07***	[−89.06, −77.07]	−82.66***	[−88.64, −76.69]
Movement id			−0.10***	[−0.13, −0.08]
Deliberative content			−0.56***	[−0.64, −0.48]
Deliberative content* Movement id			0.22***	[0.14, 0.30]
(Intercept)	−4.98***	[−5.02, −4.93]	−5.02***	[−5.07, −4.97]
N	523,329		523,329	
R^2 Nagelkerke	16.0%		16.4%	

Note(s): *Log* represents log-transformation was applied in the variable. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$
Source(s): Table created by authors

Table 7. Logistic regression prediction of the existence of implicit incivility in comments with moderation

	Model 1 B	95% CI	Model 2 B	95% CI
Comment length (log)	0.74***	[0.72, 0.76]	0.73***	[0.71, 0.75]
Author gender	0.06*	[0.01, 0.12]	0.06*	[0.004, 0.11]
Author class	−0.12***	[−0.14, −0.11]	−0.08***	[−0.10, −0.06]
Positive emotions	3.67***	[2.87, 4.47]	3.55***	[2.79, 4.30]
Negative emotions	2.23*	[0.33, 4.12]	2.45**	[0.64, 4.25]
First-person singular pronouns	4.54***	[2.96, 6.11]	4.87***	[3.34, 6.41]
First-person plural pronouns	−0.06	[−7.14, 7.02]	−0.55	[−7.59, 6.49]
Second-person pronouns	11.65***	[10.77, 12.54]	11.77***	[10.89, 12.65]
Third-person pronouns (log(x+1))	−129.77***	[−151.41, −108.13]	−136.47***	[−158.40, −114.53]
Movement id			−0.10**	[−0.17, −0.03]
Deliberative content			1.11***	[0.99, 1.22]
Deliberative content* Movement id			−1.09***	[−1.22, −0.97]
(Intercept)	−7.00***	[−7.12, −6.88]	−7.03***	[−7.15, −6.90]
N	523,329		523,329	
R^2 Nagelkerke	7.2%		7.6%	

Note(s): *Log* represents log-transformation was applied in the variable. ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$
Source(s): Table created by authors



Note(s): The *solid* line represents significant relationship, while the *dotted* line represents insignificant relationship
Source(s): Figure created by authors

Figure 2. Moderation result of movements on the effects of deliberative content on explicit incivility in comments

considerably higher than in the Anti-ELAB protests. However, when comments presented deliberative features, explicit incivility during the Umbrella Movement, in turn, occurred less during the Anti-ELAB protests period. The results of margin impacts in Table 8 suggested that

Table 8. The margin effects of movement id when the outcome is explicit incivility

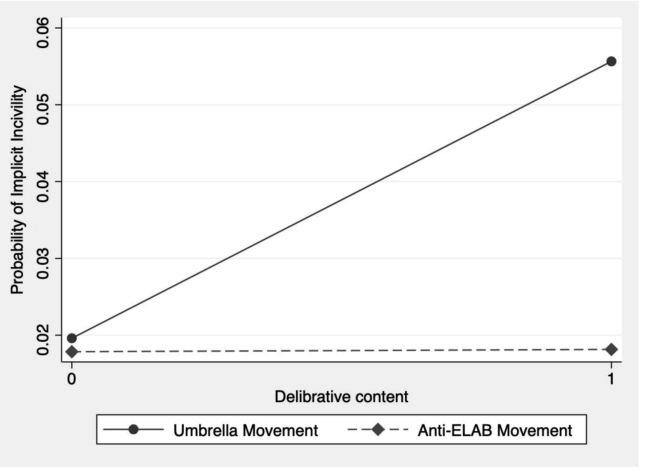
Margin effects	Movement	Effect	SE	95% CI
IV: Deliberative content	Umbrella Movement	−0.06***	0.004	[−0.07, −0.05]
	Anti-ELAB protests	−0.04***	0.001	[−0.041, −0.036]

Note(s): N = 523,329; ***p < 0.001; **p < 0.01; *p < 0.05
Source(s): Table created by authors

during two protests (Umbrella Movement: b = −0.06, p < 0.001; Anti-ELAB Movement: b = −0.04, p < 0.001), the existence of deliberative content significantly and negatively predicted their explicit uncivil behaviors. Figure 3 and Table 9 showed a positive influence of deliberative content on implicit incivility in comments during the Umbrella protests (b = 0.04, p < 0.001), but this vanished in the Anti-ELAB discussions (b = 0.0003, p > 0.05). Despite the lack of significant moderating effects of movement contexts on the relationships between deliberative content and the two forms of uncivil behavior in posts (Explicit incivility: B = 0.09, p > 0.05; Implicit incivility: B = −0.74, p > 0.05), similar trends between deliberative content and two forms of incivility in protest-related posts were still observed in margin plots, as proposed in the H4a and H4b (see Appendix 3). Concerning the potential between-period effects from two protests, the present study conducted a robustness check described in Appendix 4.

Discussions

Building upon preliminary scholarly work on online incivility (e.g. Song and Wu, 2018; Oz and Nurumov, 2022), our study dedicates several significant theoretical, methodological, and contextual contributions.



Note(s): The *solid* line represents significant relationship, while the *dotted* line represents insignificant relationship
Source(s): Figure created by authors

Figure 3. Moderation result of movements on the effects of deliberative content on implicit incivility in comments

Table 9. The margin effects of movement id when the outcome is implicit incivility

Margin effects	Movement	Effect	SE	95% CI
IV: Deliberative content	Umbrella Movement	0.04***	0.003	[0.03, 0.04]
	Anti-ELAB protests	0.0003	0.0005	[−0.001, 0.001]

Note(s): $N = 523{,}329$; ***$p < 0.001$; **$p < 0.01$; *$p < 0.05$
Source(s): Table created by authors

Theoretically, the current study distinguished between two forms of online incivility, implicit and explicit incivility, and evaluated their potential impact on democratic deliberation at both post and comment levels. Implicit rhetoric, a renowned political strategy, has been widely studied in Western contexts (Åkerlund, 2021). We extend this literature by first studying this type of language in an underexplored region — Hong Kong. Our finding unmasks a surprising outcome: implicit incivility as a rhetorical tool does not impede, but rather, boosts online deliberation in comment sections. Our results are consistent with those of Song *et al.* (2022), who observed that subsequent comments tend to mimic the uncivil language in initial posts. To further extend the literature, we divided lead posts into explicit and implicit uncivil types. Our findings unveiled that the contagion effect of leader mimicry was more pronounced in posts with explicit incivility. However, our findings also revealed that implicit incivility might exert stronger inhibiting effects on the occurrence of subsequent uncivil replies in a thread compared to the range of arousing effects of explicit incivility. This aligns with expectancy violations theory, suggesting that uncivil conversations with salient swear words may violate daily social norms of civility and politeness (Anderson *et al.*, 2014; Bormann *et al.*, 2022), resulting in a gradual disregard or abandonment of such discourses in public. On the contrary, implicit incivility in posts, as a rhetorical means that is only detectable by Cantonese-speaking Hongkongers, may stimulate people's willingness to participate in discussions and gather greater attention to the original posts (Benson, 2011; Herbst, 2010).

Methodologically, we built a comprehensive and well-grounded Cantonese foul language dictionary that distinguishes explicitly and implicitly uncivil words by referencing existing incivility dictionaries as well as conceptualization (e.g. Kennedy *et al.*, 2022), and observation of Hong Kong's Internet culture. The use of word counting, particularly with a user-defined dictionary, proves to be an efficacious methodological approach for operationalizing and quantifying the presence of specific categories of words associated with incivility. Through the application of word counting techniques, we aim to systematically detect the occurrence of incivility-related words in online discussions. Additionally, word counting with a user-defined dictionary facilitates a nuanced examination of incivility indicators tailored to the specific context of our study. This approach enables us to capture the multidimensional nature of incivility by concentrating on predefined categories of words that are deemed pertinent based on existing literature and expert evaluation. This dictionary furnishes empirical guidance for fine-grained analyses of incivility in the future.

Our research investigated deliberative content and uncivil expressions during two social movements in Hong Kong, suggesting that incivility is context-dependent (Hmielowski *et al.*, 2014; Theocharis *et al.*, 2020). There is a dearth of research that compares individuals' uncivil behavior within the contexts of social movements from the standpoint of social norms theory. Our study filled this gap and unearthed that the norms of social protests (peaceful or confrontational) moderated the association between deliberative content and incivility in online discourse. The "rational and non-violent" nature of the 2014 Umbrella protests fostered a perception of civic and politeness norms in the broader society. This strategy adhered to the prevailing social norms of rationality and peace, advocating for the utilization of implicit incivility as a means of nurturing deliberative discussions. Conversely, aggressive strategies were widely adopted as effective norms during the Anti-ELAB protests. The increased

radicalization and violence norms both online and offline might disregard the importance of deliberative discussions. The incorporation of implicit incivility as a tool in democratic deliberation has steadily waned, as online users increasingly endorsed explicit incivility in their posts within the Anti-ELAB protests.

While our study focuses on the Hong Kong protests and the use of Cantonese incivility, the conceptual framework of explicit and implicit incivility is applicable to other cultural contexts. Explicit incivility involves the use of clear and recognizable swear words and derogatory language, which is a universal phenomenon. Implicit incivility, on the other hand, represents more subtle and coded language that carries uncivil meanings, recognizable only to specific groups within a culture. For instance, dog-whistle language used by certain political groups in the U.S. can serve as a form of implicit incivility. Such language might only offend its targeted audience while remaining unnoticed or exerting diverse effects on outsiders. By conceptualizing incivility in terms of explicit and implicit dimensions, our methodology provides a structured approach that can be adapted to various cultural contexts.

Researchers can develop user-defined dictionaries tailored to the specific linguistic and cultural nuances of their study areas, thereby broadening the applicability of our findings. Various regions have unique ways of expressing incivility. By developing localized dictionaries, researchers can study the nature and impact of online incivility across different cultural and linguistic settings. Our proposed framework also allows for comparative studies across different cultural contexts. By applying the explicit and implicit incivility conceptualization, researchers can compare the prevalence and forms of incivility in online discourse across countries and cultures, providing valuable insights into global patterns of online behavior. Notwithstanding the unique characteristics of Hong Kong that may constrain the generalizability of our findings, we encourage future research to explore the dynamics of incivility in diverse cultural settings, utilizing adapted versions of our conceptual framework and methodology.

Another limitation of this study is the selection of online forums. Although the GF has been validated as a suitable platform for investigating the Umbrella Movement, some experts may argue that protesters of the Anti-ELAB Movement utilized the LIHKG forum rather than the GF, as the primary site for organizing, mobilizing, and propagating (Kow *et al.*, 2020; Lee, 2020). However, recently established in 2016, LIHKG forums may not be appropriate for us to collect the data during the Umbrella protests in Hong Kong. In contrast, the GF remains a favored discussion community for Hongkongers, and its popularity makes it a suitable site for us to collect and compare the data of these two protests. Furthermore, a cross-platform comparison may present a more comprehensive understanding of the dynamics of social movements in Hong Kong, as protesters may have developed different norms regulating the use of uncivil language. Additionally, the current study developed an automatic approach to calculating deliberative content. Notwithstanding its accuracy inferior to expert annotation, this method is highly efficient, particularly when analyzing large-scale datasets. Finally, the present research relied on dictionary-based approaches (i.e. a user-defined incivility dictionary and TextMind software) to detect the existence of uncivil speech and other psychological features in texts. While this approach provides a structured and systematic means of identifying uncivil language, it is inherently limited by the predefined terms and phrases included in the dictionary. This method may overlook nuanced or context-specific expressions of incivility that do not precisely match the entries in the dictionary and do not capture the full complexity and subtlety of human communication. To address these limitations and enhance the robustness of our analysis, we plan to incorporate advanced language models in future research, such as the Generative Pre-trained Transformer (GPT). GPT models can dynamically interpret context, identify subtle patterns, and adapt to various linguistic nuances, making them well-suited for detecting incivility and psychological features in a more comprehensive and sophisticated manner. By integrating GPT models, we anticipate improving the accuracy and depth of our incivility detection and psychological analysis. This advancement will allow us to capture a broader range of uncivil expressions and

psychological nuances, thereby providing a more detailed and nuanced understanding of the texts under study.

Conclusions

The study comprehensively examined the dynamics of online incivility and its effects in the context of two recent social movements in Hong Kong.

Firstly, we found that explicit incivility was negatively associated with deliberative content at both post and comment levels. This suggests that as posts and comments become more deliberative, the likelihood of explicit incivility decreases. Conversely, implicit incivility showed a positive association with deliberative content in comments but not in posts.

Secondly, our analysis revealed that posts containing explicit incivility were likely to trigger more uncivil replies. However, implicit incivility in posts was associated with fewer uncivil replies. Findings indicate that while explicit incivility fuels further incivility, implicit incivility may foster a more respectful interaction among in-group members.

Thirdly, our investigation revealed that explicit incivility negatively impacted the popularity of discussion threads, whereas implicit incivility enhanced it. This finding highlights the differing effects of explicit and implicit incivility on engagement within online discussions.

Lastly, the findings demonstrated that the negative relationship between deliberative content and explicit incivility was weaker in the Anti-ELAB protests compared to the Umbrella protests. Additionally, while deliberative content positively correlated with implicit incivility during the Umbrella protests, this relationship vanished during the Anti-ELAB protests. Despite lacking moderating effects at the post level, similar trends between deliberative content and two forms of incivility were observed, thereby reinforcing our study's hypotheses.

Overall, this study stresses the significance of explicit and implicit incivility in shaping online deliberative discourse, user interactions, and thread popularity. The proposed conceptual and methodological framework can be well-suited to other regions or contexts.

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Supplementary material

The supplementary material for this article can be found online.

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