

The Effects of Personality Traits and Situational Factors on the Deliberativeness and Civility of User Comments on News Websites

JOHANNES BECKERT

Johannes Gutenberg-Universität Mainz, Germany

MARC ZIEGELE

Heinrich-Heine-Universität Düsseldorf, Germany

Comment sections have become an integral part of digital journalism. They enable users to share their viewpoints and discuss news issues with others. From a deliberative perspective, there is controversy regarding the democratic benefits of comment sections. Though previous research analyzed causes and effects of uncivil and low-quality comments, it is not clear what makes users contribute deliberative and civil comments. The present study combines data from an online survey and a content analysis of the comments that the survey participants provided to investigate the relative importance of personality traits and situational states for commenting behavior. The findings show that the quality of user comments is both a matter of personality traits and situational states. Incivility was found to be triggered mainly by sadistic personality traits and specific article topics, whereas deliberative comments result from high levels of agreeableness, cognitive involvement, and from low levels of extraversion and positive affect.

Keywords: user comments, deliberation, incivility, personality, involvement, multimethod

Over the past decade, comment sections have become an integral part of online journalism. Comment sections allow users of news websites and social media to discuss news issues and other users' opinions publicly and interactively (Ruiz et al., 2011; Stroud, Scacco, Muddiman, & Curry, 2015). Reading and writing user comments is a popular form of user participation (Reich, 2011; Stroud, van Duyn, & Peacock, 2015; Weber, 2014): In most Western industrialized countries, between 10% and 28% of Internet users contribute comments at least once a week (Newman, Fletcher, Kalogeropoulos, Levy, & Nielsen, 2017). Still, there is controversy about the benefits of this kind of user participation. On the one hand, the emergence of user comments has always been tied to expectations that these comments would foster deliberative discussions of online news (Dahlgren, 2005; Papacharissi, 2002; Rowe, 2015b). On the other hand, research has pointed out that user discussions in comment sections, although showing signs of deliberation (e.g., Graham & Wright, 2015; Manosevitch & Walker, 2009), do not always live up to the ideals of deliberative theorists (Stroud, Scacco, et al., 2015). Instead, these discussions often emerge as one-

Johannes Beckert: johannes.beckert@uni-mainz.de

Marc Ziegele: Marc.Ziegele@hhu.de

Date submitted: 2019-09-13

Copyright © 2020 (Johannes Beckert and Marc Ziegele). Licensed under the Creative Commons Attribution Non-commercial No Derivatives (by-nc-nd). Available at <http://ijoc.org>.

sided expressions of opinions rather than as flourishing debates, with users not listening to each other, and with only few heavy users contributing comments regularly (Ruiz et al., 2011). Moreover, user comments are often characterized by high levels of incivility (Coe, Kenski, & Rains, 2014; Rowe, 2015a; Santana, 2015) or trolling behavior (Buckels, Trapnell, & Paulhus, 2014). These findings raise general concerns regarding the quality of user comments (Diakopoulos & Naaman, 2011; Ruiz et al., 2011). Additionally, the sheer amount of incivility has made various news organizations remove comment sections from their websites, thus withdrawing the opportunity for users to participate (Chen, 2017; Liu & McLeod, 2019).

Consequently, scholars have started to investigate what determines the quality of user comments in terms of their deliberativeness (e.g., Rowe, 2015b; Ruiz et al., 2011) or incivility (e.g., Chen, 2017; Santana, 2014). This research has identified a broad variety of factors that affect comment quality, including, for example, users' state of anonymity (Rowe, 2015a; Santana, 2014, 2019), news topics and news values (Coe et al., 2014; Weber, 2014), discourse architectures of the comment sections (Esau, Friess, & Eilders, 2017; Freelon, 2015), or the presence of moderators (Camaj & Santana, 2015; Stroud, Scacco, et al., 2015). Fewer studies, in contrast, have investigated to what extent the personalities of the commenters account for writing deliberative or civil comments. Such research is important, for example, to assess whether and how measures such as editorial moderation can be designed to improve the quality of user discussions and to prevent, for example, trolling behavior. Clarifying the link between personality and commenting behavior could also help future research to investigate the deliberative dynamics of user discussions more comprehensively: If personality traits indeed affect users' commenting behavior, future studies could, for example, investigate more closely the interplay between these traits and factors such as anonymity.

The present study aims at making three contributions to the field. First, while previous studies have analyzed either effects of personality traits or states on commenting behavior (e.g., Buckels et al., 2014; Cheng, Bernstein, Danescu-Niculescu-Mizil, & Leskovec, 2017), our study considers the relative importance of both factors. Second, instead of measuring users' self-reported commenting behavior or willingness to comment (e.g., Barnes, Mahar, Cockshaw, & Wong, 2018; Buckels et al., 2014), we investigate the effects of users' personality on their actual commenting behavior. Third, previous studies have mainly focused on negative, uncivil, or troll comments (e.g., Buckels et al., 2014). Our study additionally focuses on the determinants of high-quality comments.

In a first step, we define and discuss indicators for comment quality—namely, deliberativeness and (in)civility. We then provide a theoretical link between user personality and commenting behavior. This relationship is tested using a multimethod design that combines survey data from 297 participants and a content analysis of 284 user comments.

Quality Measures of User Comments and Discussions

Deliberativeness

Deliberative quality, or deliberativeness, has become a common benchmark to assess the quality of user comments and debates online (Collins & Nerlich, 2015; Ruiz et al., 2011). In general, deliberation describes a rational, reciprocal, and respectful discourse on political or social issues that is accessible for every user

(Dryzek, 2004; Habermas, 2006). Ideal deliberative discussions are expected to come to an “agreement . . . based on the best argument” (Ruiz et al., 2011, p. 466) that participants support. To achieve this agreement, participants are expected to engage in a cooperative exchange and make logical and coherent contributions (Habermas, 1984). Though this deliberative ideal can be hardly achieved in many off-line publics, the social Web has long been regarded as a new space for deliberative publics to emerge (Dahlgren, 2005; Papacharissi, 2002). Hence, comment sections bear the potential to fulfil the requirements for deliberative discussions because they represent a “unique and constructive space of public discourse” (Manosevitch & Walker, 2009, p. 2).

Over the past two decades, numerous studies have analyzed the normative conditions for quality online discourse (Dahlberg, 2004; Papacharissi, 2002) and the actual quality of online discussions in different spaces based on deliberation theory (e.g., Collins & Nerlich, 2015; Graham & Witschge, 2003; Schneider, 1997). Scholars have also developed coding schemes for measuring the deliberative quality of discussions (Rowe, 2015b; Stromer-Galley, 2007). Regarding the actual deliberativeness of discussions in comment sections, studies have shown that comments often do not entirely live up to the ideal of deliberation (Manosevitch & Walker, 2009; Rowe, 2015b; Strandberg & Berg, 2013). Manosevitch and Walker (2009), for example, analyzed the deliberative quality in comment sections of a regional news website in the U.S. Deliberativeness was operationalized as the information available on the topic discussed—that is, factual knowledge, sources to further information, or topic-related arguments. Additionally, interactivity and mutual respect were measured—that is, references to other comments or requests for clarification. Findings showed that many user comments had a deliberative character. Another study investigated the deliberativeness of comments in terms of logic and coherence of an argument, cooperation, and reference to sources for supporting individual viewpoints (Noci, Domingo, Masip, Micó, & Ruiz, 2012). Contradicting the findings by Manosevitch and Walker (2009), the authors concluded that user comments “hardly meet any of the Habermasian principles” (Noci et al., 2012, p. 62). Other studies arrived at similar conclusions (Strandberg & Berg, 2013; Zhou, Chan, & Peng, 2008). Finally, a comparative study by Ruiz et al. (2011) revealed that with regard to the deliberative quality of comments on newspaper websites, “communities of debate” coexist with “homogeneous communities” (p. 482); whereas the former debate in a deliberative manner, the latter conduct a “dialogue of the deaf” (p. 480). In addition to these regional and cultural differences, Graham and Wright (2015) suggested that the extent of deliberativeness might also vary among news outlets.

Overall, these findings are in line with studies on deliberation in other online spaces, according to which user discussions have the potential and sometimes meet some criteria of deliberativeness (e.g., Collins & Nerlich, 2015; Schneider, 1997), but rarely fulfil these criteria entirely (e.g., Wilhelm, 1998).

(In-)Civility

Deliberative norms demand a rational exchange of reasoned arguments among discussants (Papacharissi, 2004). Studies that have assessed the quality of online discussions based on these principles often regard deliberation as an overarching and comprehensive paradigm. This also includes a civil tone of discussants’ contributions in terms of mutual respect. From a normative perspective, civility is a necessary condition for deliberativeness. However, empirical findings indicate that these two norms are not necessarily mutually dependent. A content analysis by Coe et al. (2014) showed that “16.5% of uncivil comments used

evidence, whereas only 13.7% of civil comments used it" (p. 673). This finding suggests that incivility and deliberativeness can be regarded as two dimensions of discussion quality, which overlap only in parts.

Incivility is often defined as an aggressive, disrespectful, and hostile tone (Chen, 2017; Coe et al., 2014). In addition, uncivil commenting encompasses several rhetorical and figurative elements that aim at diminishing individuals or social groups, such as hyperboles, overgeneralizations, and stereotypes, but also sarcasm and cynicism (Coe et al., 2014; Papacharissi, 2004). Various studies have found that incivility, at least in small proportions, is prevalent in almost every comment section: In some threads, up to every fifth comment showed signs of incivility, whereby the actual proportion of uncivil comments varies considerably with the topic discussed (Coe et al., 2014; Santana, 2015).

Incivility in comment sections can have several negative consequences. For example, uncivil comments on news articles about nanotechnology (Anderson, Brossard, Scheufele, Xenos, & Ladwig, 2014) or smoking (Shi, Messaris, & Cappella, 2014) were found to increase the risk perceptions of previously uninvolved readers on these topics. Hsueh, Yogeewaran, and Malinen (2015) revealed that uncivil comments expressing stereotypes led users to adopt these prejudices. Moreover, incivility in user comments can negatively affect the perceived journalistic quality of related news articles (Kümpel & Springer, 2016; Prochazka, Weber, & Schweiger, 2016).

In sum, the literature review illustrates that there are two lines of approaches toward determining the quality of user comments, focusing either on deliberativeness or incivility as central indicators. Certainly, as Chen (2017) argues, the two concepts are not mutually exclusive, but rather are closely related. For example, certain forms of uncivil expression may breach the deliberative ideal, but can still be located in a "deliberative zone" (Chen, 2017, p. 84). A lack of incivility, on the other hand, does not automatically mean that a comment is of a high deliberative quality, as other constructive elements, such as arguments, may still be absent. Consequently, it will not suffice to measure only deliberativeness or incivility to profoundly evaluate the quality of user comments. Rather, it seems necessary to consider both deliberativeness and incivility as relevant quality factors.

User Personality and Commenting Behavior

Personality researchers differentiate between two aspects that determine an individual's character: Dispositional traits describe rather broad and persistent patterns of feelings, thoughts, and behavioral tendencies. States, in contrast, represent variables that dynamically shape an individual's personality in the context of time, situations, and social roles (McAdams & Pals, 2006; McCrae & Costa, 1996). The current study investigates the role of these two types of individual characteristics as predictors of commenting behavior and comment quality.

Personality Traits

The most popular set of personality traits is the five-factor model or Big Five (McCrae & Costa, 1987; McCrae & John, 1992). The model describes five basic dimensions, which, as a continuum, reflect individual personality in a broad sense: Individuals high in neuroticism are worrying, insecure, and temperamental. Individuals scoring high on extraversion are outgoing, friendly, talkative, and sociable. High

levels of openness to experience represents an imaginative, broadly interested, curious, and novelty-seeking character. High levels of agreeableness relate to cooperative, straightforward, and sympathetic individuals. Finally, individuals scoring high on conscientiousness are characterized as ambitious, disciplined, and keen (Costa & McCrae, 1992; John & Srivastava, 1999).

Personality traits shape most kinds of human behavior, including communication (Daly & Bippus, 1998; Leung & Bond, 2001). Accordingly, many studies have shown that personality traits affect users' online activities and participation. This includes, for example, the general motivation to use or disclose information on social network sites and other kinds of social media (e.g., Amichai-Hamburger & Vinitzky, 2010; Correa, Hinsley, & Gil de Zúñiga, 2010), social media addiction (Blackwell, Leaman, Tramosch, Osborne, & Liss, 2017), and mobile phone use (Butt & Phillips, 2008). Research has also shown that personality traits are associated with users' intention to write comments on news websites (Wu & Atkin, 2017) and with the topics they write about in status updates or comment sections (Marshall, Lefringhausen, & Ferenczi, 2015).

Fewer studies have addressed the relation between user personality and the quality of user-generated content (i.e., deliberativeness and civility), especially with respect to user comments. A study by Schwartz et al. (2013), for example, showed that individual personality traits are related to a specific use of words in status updates on Facebook: high levels of neuroticism correlated with a more frequent use of swear words and words that express negative emotions. High levels of agreeableness were related to a less frequent use of swear words and a more frequent use of words that express positive emotions. Another study revealed significant effects of several personality traits on participants' self-reported impulsiveness in user comments (Ziegele, 2016). In this study, highly neurotic users also stated that their comments are more affected by their feelings. In contrast, extroverted, agreeable, and conscientious users claimed to have better control over their feelings in commenting situations.

Buckels et al. (2014) explored the influence of both the Big Five and the Dark Tetrad—an inventory to measure personality disorders—namely, narcissism, Machiavellianism, psychopathy, and sadism—on so-called trolling, which is a particularly disruptive and deviant kind of intentionally violating commenting behavior. Regarding the Big Five, users higher in extraversion and lower on agreeableness reported trolling as one of their favorite activities when writing comments. As for the Dark Tetrad, only the trait of everyday sadism—the enjoyment of hurting others—was a significant predictor for both reported trolling enjoyment and trolling behavior. Craker and March (2016) as well as Sest and March (2017) reported similar associations between sadism and self-reported trolling behavior.

Finally, qualitative data by Jennstål and Niemeyer (2014) indicate “different deliberative styles on the part of different kinds of individuals” (p. 19). Analyzing deliberative discussions in small focus groups, the researchers found that openness increases the number of speech acts in a discussion. At the same time, this trait coincided with less consistent postdeliberative positions of the discussion group.

Taken together, the literature review shows that some personality traits, such as neuroticism and sadism, could impair civil commenting behavior, but other traits, such as openness and conscientiousness, may foster the deliberativeness in users' comments. At the same time, research on the impact of user

personality on high-quality comments and discussions is still inconclusive with respect to certain traits. Additionally, most research has only analyzed self-reported, and not actual commenting behavior of the users. We therefore address this relationship with an open research question:

RQ1: How do personality traits affect the deliberativeness and incivility, and thus the quality, of user comments on news websites?

States of Involvement

Individuals, especially in the context of consuming and discussing news in social media, are facing a social environment that is constantly changing. Because behavioral patterns derived from dispositional traits may not suit all circumstances, individuals require characteristic adaptations in their personality (McAdams & Pals, 2006; McCrae & Costa, 1996). These are mainly situational factors or different states of involvement, which are induced, for example, by the exposure to journalistic content. Perse (1990) differentiated two dimensions of involvement during media exposure: cognitive involvement, on the one hand, is the active reasoning or elaboration of information received. Cognitive involvement can further be subdivided according to whether users think about the meaning and consequences of the issue reported for themselves (personal-level involvement) or for the society as a whole (societal-level involvement; Eilders, 1996). Affective involvement, on the other hand, encompasses individuals' emotional engagement with a given message. On the broadest level, positive affect describes internal states such as joy and excitement, whereas a highly negative affective involvement is characterized by states such as anger and annoyance (Berry & Hansen, 1996; Watson, Clark, & Tellegen, 1988).

There is little empirical evidence that cognitive and affective involvement relate to the quality of user comments in terms of (in)civility. For example, Ziegele, Weber, Quiring, and Breiner (2018) found that participants with high cognitive involvement wrote less uncivil comments, whereas negative affective involvement correlated with higher levels of incivility (see also Cheng et al., 2017). The latter may result in a spiral of incivility: Being exposed to uncivil comments stimulates negative emotions in readers, which makes them more prone to write uncivil comments themselves (Hwang & Kim, 2016; Rösner, Winter, & Krämer, 2016). In contrast, the influence of cognitive and affective involvement on the deliberativeness of user comments has hardly been investigated. Our second research question therefore asks the following:

RQ2: How do cognitive and affective states of involvement affect deliberativeness and civility in user comments on news websites?

Method

Participants

We recruited 297 participants (65% female, $M_{\text{age}} = 26$ years, $SD = 7.84$ years, 46% with university entrance diplomas) using snowball sampling: The authors shared the survey link in their social networks (off-line and online) and asked the receivers to invite further participants. Additionally, the link was

distributed among undergraduate students participating in different classes of a communication studies program at a large university in Germany.

Procedure

We first conducted a quantitative online survey, in which we assessed participants' personality traits. Participants were guaranteed anonymity for the whole survey. After completing the questions on personality traits, participants were exposed to a fictitious online newspaper article. This article was supplemented by four fictitious user comments that expressed both agreement and disagreement with the positions presented in the article. The topic of the article needed to be a socially relevant and controversial issue. A pretest ($N = 22$) identified two topics that met these criteria—namely, the reform of sexual crime legislation and a possible extension of governmental surveillance to prevent terrorist attacks in Germany. To control for the effects of the article topic, we decided to include both issues as an experimental between-subjects factor into our main study. Participants in the survey thus were randomly assigned to one of the two article topics. After reading the stimulus article and the corresponding comments, we measured participants' cognitive and affective involvement with the stimulus material (states).

To adequately measure the effects of personality traits and states on comment quality, it is necessary to investigate users' actual commenting behavior. However, surveys only allow for self-reports on commenting behavior, which may deviate from actual behavior. We therefore asked participants to write their own user comment on the news article they read before. Again, to guarantee anonymity, we did not require participants to provide a user name, e-mail address, or pseudonym before writing the comment. A total of 284 participants followed our request and wrote a comment. At the end of the survey, participants answered some sociodemographic questions and were debriefed.

In a second step, we conducted a quantitative content analysis of the 284 user comments, which participants had contributed in the survey. Two coders rated the quality of the comments in terms of deliberativeness and civility (see next section). After completing the coding, we combined both data sets to explore the impact of users' states and traits (survey data) on their actual commenting behavior (content analysis data).

Measures

Unless noted otherwise, participants rated all items on 5-point Likert scales (1 = *strongly disagree* to 5 = *strongly agree*).

We used the German version of the Big Five Inventory (BFI) to measure participants' levels of extraversion, neuroticism, agreeableness, conscientiousness, and openness to experiences (Lang, Lüdtker, & Asendorpf, 2001; English version in Benet-Martínez & John, 1998). The BFI consists of 44 short-phrase items. Items measuring the same dimension were condensed into a scale. Consequently, we measured extraversion with eight items, such as "I am talkative" ($\alpha = .85$; $M = 3.59$, $SD = .78$). Agreeableness was measured with nine items—for example, "I am considerate and kind to almost everyone" ($\alpha = .84$; $M = 3.70$, $SD = .56$). The scale for conscientiousness similarly consisted of nine items, such as "I make plans, follow through with them" ($\alpha = .74$; $M = 3.58$, $SD = .70$). Neuroticism was measured using eight items—

for example, "I get nervous easily" ($\alpha = .87$; $M = 2.92$, $SD = .83$). Finally, openness was measured with 10 items, such as "I value artistic, aesthetic experiences" ($\alpha = .78$; $M = 3.71$, $SD = .63$).

We used four items of the Short Sadistic Impulse Scale (SSIC; O'Meara, Davies, & Hammond, 2011) to measure participants' sadistic personality. Items include statements such as "I have fantasies that involve hurting people." We deliberately did not use the complete scale to avoid overly offending our participants. However, this decision impeded the reliability of the scale ($\alpha = .62$; $M = 1.74$, $SD = .74$).

Based on various scales on perceived relevance and elaboration (Eveland & Dunwoody, 2002; Ziegele, Weber, et al., 2018), we used two items each to measure participants' cognitive involvement on a personal level (e.g., "The information I read stimulated my thoughts on this topic"; $\alpha = .71$, $M = 3.20$, $SD = 1.00$) and on a societal level (e.g., "I thought about what this means for our society"; $\alpha = .80$, $M = 3.81$, $SD = .97$).

Participants' affective involvement was assessed on two dimensions: Positive affective involvement was measured with two items (e.g., "After reading the article and the comments, I felt excited"; $\alpha = .80$, $M = 1.66$, $SD = .82$), and negative affective involvement was measured with two items as well (e.g., "After reading the article and the comments, I felt angry"; $\alpha = .55$, $M = 2.56$, $SD = 1.03$). The items were retrieved from the German version of the Positive and Negative Affect Schedule (Janke & Glöckner-Rist, 2012).

Coder Ratings

Our literature review has shown that the quality criteria deliberativeness and (in)civility should be regarded as multidimensional constructs. Hence, based on the existing literature, we defined several categories in our coding scheme describing these quality measures. Each category in the coding scheme included descriptions and several indicators. The two coders coded the comments independently. Intercoder reliability was assessed based on 27 comments that were randomly chosen from the sample. Table 1 shows the reliability scores for all categories. After coding the material, the data sets from the survey and the content analysis were combined, and the categories were aggregated to form mean indices. Unless noted otherwise, the coders rated all categories on 5-point scales (1 = *not present* to 5 = *highly present*).

Table 1. Intercoder Reliability for the Categories Forming the Deliberativeness and Incivility Measures.

Category	Krippendorff's α
<i>Deliberativeness</i>	
Substance of argumentation	0.87
Elaboration	0.78
Information value	0.81
Length	1.00
<i>(In)Civility</i>	
Disrespectful language	0.78
Polarization	0.71
Simplification	0.82
Humor	0.77

The index reflecting deliberativeness ($M = 2.65$, $SD = 1.02$, Cronbach's $\alpha = .86$) included the following categories: (1) substance of argumentation (i.e., quantity of arguments in the comment), (2) level of elaboration and reflexiveness (as indicated by the provision of additional knowledge, for example), (3) information value (i.e., extent to which a comment adds new information to the discussion), and (4) the length of a comment. High values on the index describe high levels of deliberativeness.

The (in)civility index ($M = 2.01$, $SD = .87$, Cronbach's $\alpha = .73$) was calculated from the following categories that have been employed in earlier studies: (1) disrespectful language of the comment (i.e., extent of uncivil expressions, such as insults, stereotypes, and pejorative speech; Coe et al., 2014; Papacharissi, 2004; Stroud, Scacco, et al., 2015), (2) polarization (i.e., extent of highly controversial or radical statements; Stroud, Scacco, et al., 2015; Ziegele, Breiner, & Quiring, 2014), (3) simplification (i.e., extent to which complex relationships are reduced to simple cause-effect relations, as well as the use of generalizations, exaggerations and truisms; Sobieraj & Berry, 2011; Stroud, Scacco, et al., 2015; Ziegele et al., 2014), and (4) offensive humor (i.e., extent to which comments include elements like cynicism or sarcasm; Rowe, 2015a). High values on the index describe high levels of incivility (or the absence of civil elements, respectively).

Results

To answer the research questions and to gain an initial overview of the relationship between comment quality and user personality, we calculated zero-order correlations. Table 2 shows that there are only few and rather weak correlations between each quality criterion and users' personality traits: deliberativeness correlates positively with agreeableness ($r = .15$, $p < .05$) and negatively with conscientiousness ($r = -.16$, $p < .01$). The incivility index, in contrast, correlates negatively with neuroticism ($r = -.22$, $p < .001$) and positively with sadism ($r = .26$, $p < .001$). Table 3 illustrates the correlations between comment quality and the different states of involvement. Deliberativeness correlates positively with cognitive involvement on a societal ($r = .26$, $p < .001$) and on a personal level ($r = .15$, $p < .01$), and negatively with positive affective involvement ($r = -.13$, $p < .05$). Incivility only shows a positive correlation with negative affective involvement ($r = .22$, $p < .001$). The correlation analysis thus suggests that different personality traits and states of involvement could account for different levels of civil and deliberative commenting.

Table 2. Zero-Order Correlations Between the Indicators for Comment Quality (Deliberativeness, Incivility) and Users' Personality Traits.

	1.	2.	3.	4.	5.	6.	7.	8.
1. Deliberativeness	-							
2. Incivility	.02	-						
3. Extraversion	-.04	.00	-					
4. Agreeableness	.15*	-.05	.19**	-				
5. Conscientiousness	-.16**	-.06	.06	.21***	-			
6. Neuroticism	.02	-.22***	-.22***	-.26***	-.09	-		
7. Openness	.12	.07	.26***	.02	-.07	.00	-	
8. Sadism	-.06	.26***	.02	-.49***	-.18**	.11	-.02	-

Note. $n = 284$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Zero-Order Correlations Between the Indicators for Comment Quality (Deliberativeness, Incivility) and Users' States of Involvement.

	1.	2.	3.	4.	5.	6.
Deliberativeness	–					
Incivility	.02	–				
Cognitive involvement (societal)	.26***	–.06	–			
Cognitive involvement (personal)	.15**	–.09	.53***	–		
Affective involvement (positive)	–.13*	–.08	.09	.24***	–	
Affective involvement (negative)	–.05	.22***	.02	–.09	.08	–

Note. $n = 284$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Based on these initial findings, we conducted two linear multiple-regression analyses, each with deliberativeness or civility as the dependent variable. The independent variables were entered in blocks: The first block included the personality traits (i.e., the Big Five and the sadistic personality trait). In a second block, we entered the participants' states (i.e., their cognitive and affective involvement). Moreover, we added the topic of the stimulus article as a control variable. Table 4 displays the results of both regression analyses.

Table 4. Regression Analyses for the Effects of User Personality on the Deliberativeness and Incivility of User Comments.

Model	Deliberativeness	Incivility
	β	β
<i>Traits: Big Five and sadism</i>		
Extraversion	–.14*	–.04
Neuroticism	.02	–.01
Agreeableness	.14*	.09
Conscientiousness	–.19**	–.05
Openness to experiences	.09	.08
Sadism	.01	.24***
<i>States: Cognitive and affective involvement</i>		
Cognitive involvement (social)	.24**	–.03
Cognitive involvement (personal)	.08	.02
Affective involvement (positive)	–.15*	–.08
Affective involvement (negative)	–.04	.15*
<i>Controls</i>		
Topic of the article	–.06	–.21***
R^2	.16***	.16***
R^2_{corr}	.13***	.12***

Note. $n = 284$. * $p < .05$. ** $p < .01$. *** $p < .001$. The independent variable "topic of the article" was dummy coded with the values 0 = "state surveillance" and 1 = "sexual crime law."

With regard to the deliberative quality of user comments, our independent variables account for 13% of the overall variance of the dependent variable. Regarding personality traits, agreeableness significantly increases the deliberativeness of the comments the participants wrote ($\beta = .14, p < .05$). In contrast, extraverted ($\beta = -.14, p < .05$) and highly conscientious users ($\beta = -.19, p < .01$) wrote less deliberative comments. Among the states of involvement investigated, only cognitive involvement on a societal level is a significant predictor of deliberative commenting behavior ($\beta = .24, p < .01$). In other words, the more participants thought about the social implications of what they read in the article, the more rational and substantial comments they wrote.

With regard to the incivility of user comments, the predictors account for 12% of the variance of the dependent variable. The results of the regression analysis show that—unlike the first impression of the correlation analysis—only one personality trait was related to uncivil commenting behavior: The incivility of user comments notably increased with an increasing tendency toward a sadistic personality ($\beta = .24, p < .001$). Situational factors also affect the civility of user comments; users who experienced strong negative emotions during the exposure of the news article and/or the other user comments wrote more uncivil comments ($\beta = .15, p < .05$). Moreover, the article's topic was found to be a significant predictor for incivility ($\beta = -.21, p < .001$): When the article and the online discussion in our stimulus dealt with the reform of sexual crime legislation, participants contributed more civil comments as compared with the article about possible extensions of governmental surveillance.

Discussion

The current study aimed at investigating how personality traits and situational involvement of online users affect the deliberative and civil quality of their comments on news websites. Previous research has often focused on users' self-assessment of their commenting behavior or analyzed how users' states and traits are related to their general commenting activity (Wu & Atkin, 2017). Combining data from an online survey and a content analysis, the current study went one step further, analyzing the links between user characteristics and the actual commenting behavior. In sum, the results show that comment quality partly varies depending on a user's personality. The Big Five, everyday sadism, and situational involvement account for slightly more than 10% of the variance of both the quality indicators deliberativeness and (in)civility.

In particular, the findings reveal that the participants' cognitive involvement on a societal level increases the deliberative quality of the comments they wrote. According to the concept of deliberation within (Goodin, 2000), discussants have to elaborate on their arguments for themselves before they express these arguments in a discussion. This internal evaluation process includes reasoning about the meanings and consequences of the arguments for the society (Goodin, 2003; Weinmann, 2017). Thus, users who elaborate extensively on the societal consequences of the news they read may feel a need to share the results of this cognitive effort with others in an elaborate way, too. This way, they may hope to encourage other members of society, who are similarly affected by the issue under discussion, to reflect the social consequences of current issues more elaborately as well.

Our findings also show that participants who felt strong positive emotions after reading the stimulus wrote less deliberative comments. This aligns with earlier findings that strong affect does not “necessarily contribute to the quality of discussions” (Ziegele, Weber, et al., 2018, p. 1422). Indeed, when people feel strong positive emotions, they often want to share this emotion through communication without much further cognitive processing (e.g., Rimé, 2009). Additionally, respondents with a strong positive affective involvement possibly want to express their agreement with the article or the other comments, which, in contrast to disagreement, less often involves the need to provide arguments and reasons. Both mechanisms could reduce the deliberativeness of user comments.

Personality traits, on the other hand, affected the deliberativeness of user comments to a smaller extent. For example, agreeable people wrote more deliberative comments. Agreeable people are generally characterized as accommodating, cooperative, and willing to compromise (Costa & McCrae, 1992). In fact, qualitatively examining the comments of our participants revealed that users high in agreeableness often act as a kind of mediator between conflicting positions. For example, concerning the issue of governmental surveillance, one highly agreeable user weighed the pros and the cons of this type of surveillance:

In a way, the state must take action in order to protect us. But privacy must not be waived entirely. . . . I take a very critical view of governmental intervention without judicial authorization.

Other agreeable users also weighed the pro and contra arguments against each other in a deliberative and neutral style, possibly intending not to offend either side.

The negative effect of conscientiousness on comment deliberativeness, however, was counterintuitive at a first glance. People high in conscientiousness are described as careful, thoughtful, and diligent. Therefore, it was expected that these users also write their comments in a highly elaborate way. However, several studies have shown that conscientiousness is also associated with lower levels of talkativeness, especially in the context of social media (e.g., Sneed, McCrae, & Funder, 1998). In fact, in the current study, a separate analysis of the sub-dimensions of deliberativeness revealed a significant negative correlation between conscientiousness and the length of the written comments as a possible indicator of talkativeness ($r = -.13, p < .05$). Other dimensions of our deliberativeness scale were statistically unrelated to conscientiousness. Thus, we assume that the aspect of low talkativeness of conscientious individuals is particularly reflected in their less deliberative commenting behavior.

We also found a negative correlation between the participants' level of extraversion and the deliberativeness of their comments. Although extraverted individuals are described as talkative (Costa & McCrae, 1992), their communication behavior is also characterized by high levels of expressiveness, playfulness, humor, and communicative dominance (Sneed et al., 1998). These characteristics are possibly reflected in comments that are quite sociable, but also limited regarding their rationality and/or information value.

Regarding the quality dimension of civility, our analyses showed that highly sadistic users tend to write less civil comments in online discussion. Although previous research had already suggested this

relationship (Buckels et al., 2014; Craker & March, 2016; Sest & March, 2017), our study confirms it using behavioral data instead of self-reports. When controlling for the effect of sadism, the other personality traits, however, were unrelated to the civility in our participants' comments. Still, our data revealed that the civility of the participants' comments decreased with the strength of their negative affective involvement. This finding, together with the mostly nonsignificant effects of the personality traits, corroborates previous research that has argued that uncivil communication behavior is largely rooted in situational circumstances (Coe et al., 2014). For example, Cheng and colleagues' (2017) study revealed a similar pattern between negative mood and uncivil communication behavior. The situational approach to incivility can also explain why different topics attract different volumes of uncivil comments (Coe et al., 2014); some topics simply evoke strong negative emotions in readers, which makes them more prone to writing uncivil comments (Cheng et al., 2017; Ziegele, Weber, et al., 2018).

In sum, with regard to the current state of research on user comments, our results contribute to confirming previous findings and to clarifying inconsistencies. On the one hand, we find further confirmation for the assumption that broad measures of personality traits such as the Big Five account not only for uncivil commenting behavior but also for more specific, socially aversive traits as described in the Dark Tetrad (Buckels et al., 2014). On the other hand, the results show that conflict-laden issues and controversial user discussions cause negative emotions in recipients what may result in a spiral of incivility (Hwang & Kim, 2016; Rösner et al., 2016).

It should also be noted that the quality of user reactions can only be inferred from the news topic to a limited extent. Whereas the news topic appeared to be a strong predictor for uncivil commenting, the deliberativeness of user comments was not affected by the topic of the respective article at all. This finding suggests that civility and deliberativeness of comments in fact are two distinct constructs and that the former does not necessarily affect the latter (Chen, 2017; Coe et al., 2014). This finding advocates a more differentiated view on the quality of user discussions in future research as well as in social debate.

Finally, we can derive some tentative implications from our findings regarding how news editors and community managers could try to prevent and regulate user comments that do not meet the quality criteria presented in this study. For example, editors could try to avoid framing some of their news coverage in terms of negativity (Lengauer, Esser, & Berganza, 2012) or highly emotive terms. Such measures could, to some extent, decrease users' negative affective involvement and, consequently, their tendency to write uncivil comments. At the same time, it is the responsibility of community managers to engage in highly emotional user discussions with a deescalating and factual moderation that also highlights neutral, positive, or socially relevant aspects of the issue under discussion (Stroud, Scacco, et al., 2015; Ziegele, Jost, Bormann, & Heinbach, 2018). On the other hand, the relationship between the civility of comments and users' personality traits suggests that uncivil commenting behavior will emerge to some extent regardless of the topics discussed and the circumstances of discussion (Coe et al., 2014).

Limitations and Conclusion

This study has several limitations. First, the participants in our sample were mostly female, young, and highly educated. This might also go along with an overrepresentation of specific personality types.

Future studies should try to replicate the findings of the current study using more diverse samples. Second, the power and the validity of the findings are limited by parts of our analytical approach. This particularly concerns the external validity of our findings because we forced participants to write user comments in a lab setting, including absolute anonymity. We suppose that in a more "natural" setting, some participants would have reacted differently or would not have contributed user comments at all.

A second limitation concerns our measure of incivility. This measure is selective in terms of the types of speech it considers as uncivil. We deliberately chose to also include "mild" forms of incivility, such as exaggerations and sarcasm, because we anticipated that our highly educated respondents would possibly not engage in posting severe hate speech or threats. Although the choice of the categories was based on previous research on incivility, future studies should try to develop more comprehensive measures.

Third, the specific cultural context of our study may limit the generalizability of our findings. Ruiz et al. (2011) concluded that cultural context is a relevant factor for predicting the democratic quality of user debates. They attribute this finding primarily to the nature and representation of different viewpoints and ideologies within the media systems. Thus, issues similar to the ones we used in our study could elicit more polarized debates in media systems with higher levels of external plurality among publishers and users. Additionally, it must be noted that culture can also affect the development of personality (Triandis & Suh, 2002). Thus, the way personality affects commenting behavior in online discussions in terms of incivility and deliberativeness may differ across cultures. It is, therefore, an important task for future research to conduct more cross-cultural studies on personality effects on commenting behavior.

Finally, measuring actual commenting behavior instead of self-assessments can be seen as a strength of our analysis. Still, future studies should advance this approach by combining content analysis of comments that have actually been published with surveys of the users who wrote these comments. Such in situ analyses would capture the actual situational and dispositional conditions of commenting, permitting the estimation of valid effect sizes for the relationship between active users' personality and comment quality.

Despite these limitations, the current study contributes to the literature showing that both user personality and situational involvement shape the quality of user comments. These findings complement previous studies on the sociodemographics of commenters (e.g., Kalogeropoulos, Negredo, Picone, & Nielsen, 2017) and, because of the analysis of actual commenting behavior, they advance studies on self-reported commenting behavior (e.g., Buckels et al., 2014). Thereby, this study adds another stepping stone toward a more comprehensive understanding of how users interact in comment sections, and why some comments live up to deliberative norms while others do not.

References

- Amichai-Hamburger, Y., & Vinitzky, G. (2010). Social network use and personality. *Computers in Human Behavior, 26*(6), 1289–1295. doi:10.1016/j.chb.2010.03.018
- Anderson, A. A., Brossard, D., Scheufele, D. A., Xenos, M. A., & Ladwig, P. (2014). The “nasty effect”: Online incivility and risk perceptions of emerging technologies. *Journal of Computer-Mediated Communication, 19*(3), 373–387. doi:10.1111/jcc4.12009
- Barnes, R., Mahar, D., Cockshaw, W., & Wong, I. (2018). Personality and online news commenting behaviours: Uncovering the characteristics of those below the line. *Media International Australia, 169*(1), 117–130. doi:10.1177/1329878X18798695
- Benet-Martínez, V., & John, O. P. (1998). Los Cinco Grandes across cultures and ethnic groups: Multitrait-multimethod analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology, 75*(3), 729–750. doi:10.1037/0022-3514.75.3.729
- Berry, D. S., & Hansen, J. S. (1996). Positive affect, negative affect, and social interaction. *Journal of Personality and Social Psychology, 71*(4), 796–809. doi:10.1037//0022-3514.71.4.796
- Blackwell, D., Leaman, C., Trampusch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences, 116*, 69–72. doi:10.1016/j.paid.2017.04.039
- Buckels, E. E., Trapnell, P. D., & Paulhus, D. L. (2014). Trolls just want to have fun. *Personality and Individual Differences, 67*, 97–102. doi:10.1016/j.paid.2014.01.016
- Butt, S., & Phillips, J. G. (2008). Personality and self-reported mobile phone use. *Computers in Human Behavior, 24*(2), 346–360. doi:10.1016/j.chb.2007.01.019
- Camaj, L., & Santana, A. D. (2015). Political deliberation on Facebook during electoral campaigns: Exploring the relevance of moderator’s technical role and political ideology. *Journal of Information Technology & Politics, 12*(4), 325–341. doi:10.1080/19331681.2015.1100224
- Chen, G. M. (2017). *Online incivility and public debate: Nasty talk*. Cham, Switzerland: Palgrave Macmillan.
- Cheng, J., Bernstein, M., Danescu-Niculescu-Mizil, C., & Leskovec, J. (2017). Anyone can become a troll. In C. P. Lee, S. Poltrock, L. Barkhuus, M. Borges, & W. Kellogg (Eds.), *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing—CSCW ’17* (pp. 1217–1230). New York, NY: ACM Press. doi:10.1145/2998181.2998213

- Coe, K., Kenski, K., & Rains, S. A. (2014). Online and uncivil? Patterns and determinants of incivility in newspaper website comments. *Journal of Communication, 64*(4), 658–679. doi:10.1111/jcom.12104
- Collins, L., & Nerlich, B. (2015). Examining user comments for deliberative democracy: A corpus-driven analysis of the climate change debate online. *Environmental Communication, 9*(2), 189–207. doi:10.1080/17524032.2014.981560
- Correa, T., Hinsley, A. W., & Gil de Zúñiga, H. (2010). Who interacts on the Web? The intersection of users' personality and social media use. *Computers in Human Behavior, 26*(2), 247–253. doi:10.1016/j.chb.2009.09.003
- Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R professional manual*. Odessa, FL: Psychological Assessment Resources.
- Craker, N., & March, E. (2016). The dark side of Facebook®: The Dark Tetrad, negative social potency, and trolling behaviours. *Personality and Individual Differences, 102*, 79–84. doi:10.1016/j.paid.2016.06.043
- Dahlberg, L. (2004). Net-public sphere research: Beyond the "first phase." *Javnost—The Public, 11*(1), 27–43. doi:10.1080/13183222.2004.11008845
- Dahlgren, P. (2005). The Internet, public spheres, and political communication: Dispersion and deliberation. *Political Communication, 22*(2), 147–162. doi:10.1080/10584600590933160
- Daly, J. A., & Bippus, A. M. (1998). Personality and interpersonal communication. In J. C. McCroskey, J. A. Daly, M. A. Martin, & M. J. Beatty (Eds.), *Communication and personality: Trait perspectives* (pp. 1–40). Cresskill, NJ: Hampton.
- Diakopoulos, N., & Naaman, M. (2011). Towards quality discourse in online news comments. In P. Hinds (Ed.), *Proceedings of the ACM 2011 Conference on Computer Supported Cooperative Work* (pp. 133–142). New York, NY: ACM. Retrieved from <http://dl.acm.org/citation.cfm?id=1958824>
- Dryzek, J. S. (2004). *Deliberative democracy and beyond: Liberals, critics, contestations*. New York, NY: Oxford University Press.
- Eilders, C. (1996). *The role of news factors in media use* (WZB Discussion Paper, No. FS III, pp. 96–104). Berlin, Germany: Wissenschaftszentrum Berlin für Sozialforschung (WZB). Retrieved from <http://hdl.handle.net/10419/49819>
- Esau, K., Friess, D., & Eilders, C. (2017). Design matters! An empirical analysis of online deliberation on different news platforms. *Policy & Internet, 9*(3), 321–342. doi:10.1002/poi3.154

- Eveland, W. P., Jr., & Dunwoody, S. (2002). An investigation of elaboration and selective scanning as mediators of learning from the Web versus print. *Journal of Broadcasting & Electronic Media*, 46(1), 34–53. doi:10.1207/s15506878jobem4601_3
- Freelon, D. (2015). Discourse architecture, ideology, and democratic norms in online political discussion. *New Media & Society*, 17(5), 772–791. doi:10.1177/1461444813513259
- Goodin, R. E. (2000). Democratic deliberation within. *Philosophy & Public Affairs*, 29(1), 81–109. doi:10.1111/j.1088-4963.2000.00081.x
- Goodin, R. E. (2003). *Reflective democracy*. Oxford, UK: Oxford University Press.
- Graham, T., & Witschge, T. (2003). In search of online deliberation: Towards a new method for examining the quality of online discussions. *Communications*, 28(2), 400425. doi:10.1515/comm.2003.012
- Graham, T., & Wright, S. (2015). A tale of two stories from “below the line.” *The International Journal of Press/Politics*, 20(3), 317–338. doi:10.1177/1940161215581926
- Habermas, J. (1984). *The theory of communicative action*. Boston, MA: Beacon.
- Habermas, J. (2006). Political communication in media society: Does democracy still enjoy an epistemic dimension? The impact of normative theory on empirical research. *Communication Theory*, 16(4), 411–426. doi:10.1111/j.1468-2885.2006.00280.x
- Hsueh, M., Yogeewaran, K., & Malinen, S. (2015). “Leave your comment below”: Can biased online comments influence our own prejudicial attitudes and behaviors? *Human Communication Research*, 41(4), 557–576. doi:10.1111/hcre.12059
- Hwang, H., & Kim, Y. (2016). Influence of discussion incivility on deliberation: An examination of the mediating role of moral indignation. *Communication Research*. Advance online publication. doi:10.1177/0093650215616861
- Janke, S., & Glöckner-Rist, A. (2012). *Deutsche Version der Positive and Negative Affect Schedule (PANAS)* [German version of the Positive and Negative Affect Schedule]. doi:10.6102/zis146
- Jennstål, J., & Niemeyer, S. (2014). *The deliberative citizen: The role of personality and context in deliberative behaviour* (Working Paper Series: No. 1/2014). Canberra, Australia: Centre for Deliberative Democracy and Global Governance.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102–138). New York, NY: Guilford.

- Kalogeropoulos, A., Negredo, S., Picone, I., & Nielsen, R. K. (2017). Who shares and comments on news? A cross-national comparative analysis of online and social media participation. *Social Media + Society*, 3(4), 1–12. doi:10.1177/2056305117735754
- Kümpel, A. S., & Springer, N. (2016). Commenting quality. *Studies in Communication | Media*, 5(3), 353–366. doi:10.5771/2192-4007-2016-3-353
- Lang, F. R., Lüdtke, O., & Asendorpf, J. B. (2001). Testgüte und psychometrische Äquivalenz der deutschen Version des Big Five Inventory (BFI) bei jungen, mittelalten und alten Erwachsenen [Test accuracy and psychometric equivalence in the German version of the Big Five Inventory (BFI) on young, middle-aged, and old adults]. *Diagnostica*, 47(3), 111–121. doi:10.1026//0012-1924.47.3.111
- Lengauer, G., Esser, F., & Berganza, R. (2012). Negativity in political news: A review of concepts, operationalizations and key findings. *Journalism: Theory, Practice & Criticism*, 13(2), 179–202. doi:10.1177/1464884911427800
- Leung, S.-K., & Bond, M. H. (2001). Interpersonal communication and personality: Self and other perspectives. *Asian Journal of Social Psychology*, 4(1), 69–86.
- Liu, J., & McLeod, D. M. (2019). Pathways to news commenting and the removal of the comment system on news websites. *Journalism*. Advance online publication. doi:10.1177/1464884919849954
- Manosevitch, E., & Walker, D. (2009, April). *Reader comments to online opinion journalism: A space of public deliberation*. 10th International Symposium on Online Journalism, Austin, TX.
- Marshall, T. C., Lefringhausen, K., & Ferenczi, N. (2015). The Big Five, self-esteem, and narcissism as predictors of the topics people write about in Facebook status updates. *Personality and Individual Differences*, 85, 35–40. doi:10.1016/j.paid.2015.04.039
- McAdams, D. P., & Pals, J. L. (2006). A new Big Five: Fundamental principles for an integrative science of personality. *American Psychologist*, 61(3), 204–217.
- McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52(1), 81–90. doi:10.1037/0022-3514.52.1.81
- McCrae, R. R., & Costa, P. T. (1996). Toward a new generation of personality theories: Theoretical contexts for the five-factor model. In J. S. Wiggins (Ed.), *The five-factor model of personality: Theoretical perspectives* (pp. 51–87). New York, NY: Guilford.
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, 60(2), 175–215. doi:10.1111/j.1467-6494.1992.tb00970.x

- Newman, N., Fletcher, R., Kalogeropoulos, A., Levy, D. A. L., & Nielsen, R. K. (Eds.). (2017). *Reuters Institute digital news report 2017*. Oxford, UK: Reuters Institute for the Study of Journalism.
- Noci, J. D., Domingo, D., Masip, P., Micó, L. J., & Ruiz, C. (2012). Comments in news, democracy booster or journalistic nightmare: Assessing the quality and dynamics of citizen debates in Catalan online newspapers. *#ISOJ*, 2(1), 46–64.
- O'Meara, A., Davies, J., & Hammond, S. (2011). The psychometric properties and utility of the Short Sadistic Impulse Scale (SSIS). *Psychological Assessment*, 23(2), 523–531. doi:10.1037/a0022400
- Papacharissi, Z. (2002). The virtual sphere. *New Media & Society*, 4(1), 9–27. doi:10.1177/14614440222226244
- Papacharissi, Z. (2004). Democracy online: Civility, politeness, and the democratic potential of online political discussion groups. *New Media & Society*, 6(2), 259–283. doi:10.1177/1461444804041444
- Perse, E. M. (1990). Involvement with local television news: Cognitive and emotional dimensions. *Human Communication Research*, 16(4), 556–581.
- Prochazka, F., Weber, P., & Schweiger, W. (2016). Effects of civility and reasoning in user comments on perceived journalistic quality. *Journalism Studies*.
- Reich, Z. (2011). User comments: The transformation of participatory space. In J. B. Singer, D. Domingo, A. Heinonen, A. Hermida, S. Paulussen, T. Quandt, . . . M. Vujnovic(Eds.), *Participatory journalism.: Guarding open gates at online newspapers* (pp. 96–117). Malden, MA: Wiley-Blackwell.
- Rimé, B. (2009). Emotion elicits the social sharing of emotion: Theory and empirical review. *Emotion Review*, 1(1), 60–85. doi:10.1177/1754073908097189
- Rösner, L., Winter, S., & Krämer, N. C. (2016). Dangerous minds? Effects of uncivil online comments on aggressive cognitions, emotions, and behavior. *Computers in Human Behavior*, 58, 461–470. doi:10.1016/j.chb.2016.01.022
- Rowe, I. (2015a). Civility 2.0: A comparative analysis of incivility in online political discussion. *Information, Communication & Society*, 18(2), 121–138. doi:10.1080/1369118X.2014.940365
- Rowe, I. (2015b). Deliberation 2.0: Comparing the deliberative quality of online news user comments across platforms. *Journal of Broadcasting & Electronic Media*, 59(4), 539–555. doi:10.1080/08838151.2015.1093482

- Ruiz, C., Domingo, D., Mico, J. L., Diaz-Noci, J., Masip, P., & Meso, K. (2011). Public sphere 2.0? The democratic qualities of citizen debates in online newspapers. *The International Journal of Press/Politics*, 16(4), 463–487. doi:10.1177/1940161211415849
- Santana, A. D. (2014). Virtuous or vitriolic. *Journalism Practice*, 8(1), 18–33. doi:10.1080/17512786.2013.813194
- Santana, A. D. (2015). Incivility dominates online comments on immigration. *Newspaper Research Journal*, 36(1), 92–107. doi:10.1177/0739532915580317
- Santana, A. D. (2019). Toward quality discourse: Measuring the effect of user identity in commenting forums. *Newspaper Research Journal*, 40(4), 467–486. doi:10.1177/0739532919873089
- Schneider, M. S. (1997). *Expanding the public sphere through computer-mediated communication: Political discussion about abortion in a Usenet newsgroup* (Doctoral dissertation, Massachusetts Institute of Technology). Retrieved from <https://dspace.mit.edu/handle/1721.1/10388>
- Schwartz, H. A., Eichstaedt, J. C., Kern, M. L., Dziurzynski, L., Ramones, S. M., Agrawal, M., . . . Ungar, L. H. (2013). Personality, gender, and age in the language of social media: The open-vocabulary approach. *PLOS ONE*, 8(9). doi:10.1371/journal.pone.0073791
- Sest, N., & March, E. (2017). Constructing the cyber-troll: Psychopathy, sadism, and empathy. *Personality and Individual Differences*, 119, 69–72. doi:10.1016/j.paid.2017.06.038
- Shi, R., Messaris, P., & Cappella, J. N. (2014). Effects of online comments on smokers' perception of anti-smoking public service announcements. *Journal of Computer-Mediated Communication: JCMC*, 19(4), 975–990. doi:10.1111/jcc4.12057
- Sneed, C. D., McCrae, R. R., & Funder, D. C. (1998). Lay conceptions of the five-factor model and its indicators. *Personality and Social Psychology Bulletin*, 24(2), 115–126. doi:10.1177/0146167298242001
- Sobieraj, S., & Berry, J. M. (2011). From incivility to outrage: Political discourse in blogs, talk radio, and cable news. *Political Communication*, 28(1), 19–41. doi:10.1080/10584609.2010.542360
- Strandberg, K., & Berg, J. (2013). Online newspapers' readers' comments: Democratic conversation platforms or virtual soapboxes? *Comunicação e Sociedade*, 23, 132–152. doi:10.17231/comsoc.23(2013).1618
- Stromer-Galley, J. (2007). Measuring deliberation's content: A coding scheme. *Journal of Public Deliberation*, 3(1), 1–35.

- Stroud, N. J., Scacco, J. M., Muddiman, A., & Curry, A. L. (2015). Changing deliberative norms on news organizations' Facebook sites. *Journal of Computer-Mediated Communication, 20*(2), 188–203. doi:10.1111/jcc4.12104
- Stroud, N. J., van Duyn, E., & Peacock, C. (2015). *Survey of commenters and comment readers*. Austin, TX: Center for Media Engagement.
- Triandis, H. C., & Suh, E. M. (2002). Cultural influences on personality. *Annual Review of Psychology, 53*, 133–160. doi:10.1146/annurev.psych.53.100901.135200
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070.
- Weber, P. (2014). Discussions in the comments section: Factors influencing participation and interactivity in online newspapers' reader comments. *New Media & Society, 16*(6), 941–957. doi:10.1177/1461444813495165
- Weinmann, C. (2017). Measuring political thinking: Development and validation of a scale for "deliberation within." *Political Psychology, 39*(2), 365–380. doi:10.1111/pops.12423
- Wilhelm, A. G. (1998). Virtual sounding boards: How deliberative is on-line political discussion? *Information, Communication & Society, 1*(3), 313–338. doi:10.1080/13691189809358972
- Wu, T.-Y., & Atkin, D. (2017). Online news discussions. *Journalism & Mass Communication Quarterly, 94*(1), 61–80. doi:10.1177/1077699016655754
- Zhou, X., Chan, Y.-Y., & Peng, Z.-M. (2008). Deliberativeness of online political discussion: A content analysis of the *Guangzhou Daily* website. *Journalism Studies, 9*(5), 759–770.
- Ziegele, M. (2016). *Nutzerkommentare als Anschlusskommunikation: Theorie und qualitative Analyse des Diskussionswerts von Online-Nachrichten* [User comments as media-stimulated interpersonal communication: Theory and qualitative analysis of the discussion value of online news]. Wiesbaden, Germany: Springer VS.
- Ziegele, M., Breiner, T., & Quiring, O. (2014). What creates interactivity in online news discussions? An exploratory analysis of discussion factors in user comments on news items. *Journal of Communication, 64*(6), 1111–1138. doi:10.1111/jcom.12123
- Ziegele, M., Jost, P., Bormann, M., & Heinbach, D. (2018). Journalistic counter-voices in comment sections: Patterns, determinants, and potential consequences of interactive moderation of uncivil user comments. *Studies in Communication | Media, 7*(4), 525–554. doi:10.5771/2192-4007-2018-4-525

Ziegele, M., Weber, M., Quiring, O., & Breiner, T. (2018). The dynamics of online news discussions: Effects of news articles and reader comments on users' involvement, willingness to participate, and the civility of their contributions. *Information, Communication & Society*, 21(10), 1419–1435. doi:10.1080/1369118X.2017.1324505