Cyberpsychology, Behavior, and Social Networking
Volume 18, Number 8, 2015

DOI: 10.1089/cyber.2015.0005

They Came, They Liked, They Commented: Social Influence on Facebook News Channels

Stephan Winter, PhD, Caroline Brückner, BSc, and Nicole C. Krämer, PhD

Abstract

Due to the increasing importance of social networking sites as sources of information, news media organizations have set up Facebook channels in which they publish news stories or links to articles. This research investigated how journalistic texts are perceived in this new context and how reactions of other users change the influence of the main articles. In an online experiment ($N = 197$), a Facebook posting of a reputable news site and the corresponding article were shown. The type of user comments and the number of likes were systematically varied. Negative comments diminished the persuasive influence of the article, while there were no strengthening effects of positive comments. When readers perceived the topic as personally relevant, comments including relevant arguments were more influential than comments with subjective opinions, which can be explained by higher levels of elaboration. However, against expectations of bandwagon perceptions, a high number of likes did not lead to conformity effects, which suggests that exemplifying comments are more influential than statistical user representations. Results are discussed with regard to effects of news media content and the mechanisms of social influence in Web 2.0.

Introduction

Since circulations of printed newspapers are declining, news media organizations have been trying to reach their audiences online. In this context, social media platforms such as Facebook have emerged as an increasingly relevant channel. Recent studies suggest that members use these sites not only for social contacts but also as a source of information on politics or public affairs.[1–3] Messing and Westwood argued that this trend may lead to a situation in which ''the window through which the public views the world is no longer the front page of the New York Times, but the Facebook news feed.''[4(p1058)] Many newspapers and TV and radio stations have developed strategies to (at least partly) adapt to the changing patterns of media usage and set up channels within the social networking site (SNS) Facebook. On these pages, the social media editors regularly publish short news or links to online articles that can be ''liked,'' discussed, or shared by the users. The Facebook page of the New York Times, for instance, has about nine million ''fans.''

On SNS news channels, journalistic texts are accompanied by likes and peer comments, which represents a convergence of mass and interpersonal communication.[5] While most general online news sites also include comment sections, the design of Facebook and similar SNS put an even larger emphasis on user reactions, and feature them in a more salient way. From the receivers' perspective, peer reactions may offer additional information or facilitate finding relevant postings in a situation of information overload.[6] From the journalists' perspective, direct feedback may be helpful for understanding the interests of their audience, but it is also possible that the authors' claims are contradicted. Predominantly in the setting of e-commerce sites, research showed that peer comments or ratings are indeed able to exert substantial effects on readers' evaluations.[7]

Against this background, this study aims to investigate the effects of user reactions in the increasingly popular setting of Facebook news channels and the underlying psychological mechanisms of information processing. As the most relevant form of peer reactions in SNS news channels, this study focuses on the comparison of user-generated comments and the number of likes.[8]

The influence of online comments

First studies of online comments showed that readers use these statements to assess credibility[9] and that viewers of YouTube clips evaluate the content in line with peer comments.[10,11] Focusing on online news sites, Lee and Jang[5] found that contradicting comments below an article are able to change readers' opinions, as well as their perception of the opinion climate. Based on exemplification theory,[12] Lee and Jang argue that comments are seen as relevant statements of

Social Psychology: Media and Communication, University of Duisburg-Essen, Duisburg, Germany.

peers. Although these voices out of the audience are probably not representative, they exert their influence as vivid exemplars of public opinion.[5] One difference compared with commenters on news sites is that people who comment on Facebook are not anonymous but typically visible with their name and a small picture. On the one hand, this may limit identification with the commenters when differences in age or cultural background become salient.[13] On the other hand, the fact that people connect their comments to their public profile may increase the credibility of these statements. Therefore, it can be assumed that the patterns of peer influence that have been shown for commenters on news sites also apply for SNS news channels. While previous studies only investigated the influence of contradicting comments, it can furthermore be assumed that positive comments are likely to enforce the view that is advocated in the main article.

H1: SNS user comments affect readers' attitudes toward the topic in the direction of the comments' valence.

H2: SNS user comments affect readers' perception of public opinion toward the topic in the direction of the comments' valence.

Typically, there are huge differences in the style and quality of the statements that are posted by readers.[14,15] For instance, comments may contain relevant arguments on the topic, but also merely consist of subjective opinions without further reasoning. To explore the question of whether and how these differences influence the comments' impact, this study utilizes the elaboration likelihood model (ELM),[16] which posits that the depth of elaboration depends on readers' motivation and abilities. When readers are highly motivated, they scrutinize the quality of the given arguments; otherwise, they primarily pay attention to peripheral aspects (such as the source). Given that Facebook users who follow news channels are likely to be interested in current topics, it can be expected that differences in argument quality[17] are detected by the readers.[14] Therefore, it is assumed:

H3: Argumentative comments are more persuasive than subjective comments.

According to the ELM, this effect should be most pronounced among readers with high levels of elaboration, which can be assumed when the topic is personally relevant or when readers are generally motivated to engage in complex thinking (need for cognition, NC).[18]

H4: The effect of comment type is strengthened by (a) the perceived relevance of the topic and (b) readers' NC.

The influence of Facebook likes

Besides comments, the ''like'' function is a very prominent feature of Facebook and a means of expressing agreement with a posting, which results in an aggregated number. Prior research has shown that users tend to follow the behavior of the crowd, for example by selecting films with positive ratings or a high popularity.[19] The number of likes differs from ratings insofar as it is limited to agreement and cannot convey a negative evaluation (only a low number may be interpreted as a signal of an unpopular posting). Compared to textual comments, likes are less specific, since there is no further information than mere popularity. However, they usually include reactions of larger parts of the audience (and thereby a possibly more valid impression of others' opinions[4]). According to research on bandwagon perceptions,[20,21] it can thus be assumed that readers evaluate articles that appear to be appreciated by others more favorably.

H5: A high numbers of likes leads (a) to more positive evaluations of article quality, (b) to stronger persuasive effects of the article, and (c) to stronger effects on readers' perceptions of public opinion compared with a low number of likes.

Method

An online experiment was conducted with a 5×2 (type of comments $\times$ number of likes) between-subjects design. Participants saw a screenshot with a short summary of an online news story presented on the Facebook page of a reputable news magazine (see Fig. 1). Afterwards, they read the long version of the article. The study aimed to select an exemplary topic that is moderately relevant for most readers but in which they are less likely to have strong and polarized prior attitudes. Therefore, the debate on the legalization of marijuana (which attracted moderate media attention at the time of the study) was chosen.

Sample

A total of 227 participants filled out the online questionnaire. Five participants younger than the age of 18 years were excluded. Furthermore, only participants who spent a minimum reading time on the posting and the article (more than 20 seconds for each stimulus) were considered for further analysis. This resulted in a final sample of 197 (100 females; $M_{age} = 25.23$ years; $SD = 4.93$ years). Due to the recruitment at a large European university, most of the participants (124) were students, and 46 were employed.

Design

In the Facebook posting and the corresponding article, statements of an economist in favor of legalization were summarized. The posting included a short teaser (34 words) and a link to the Web page—the article itself (371 words, based on existing material) explains statements of a professor who argues that prohibition does not prevent people from consuming harmful drugs and that a legalization would lead to more control.

With regard to the type of comments, the postings of the ostensible peers were either positive or negative toward the slant of the article and either argumentative or subjective. Subjective comments included the mere expression of a specific opinion (example [negative]: ''I can only hope that marijuana will never be legal. I am against any type of drug, it's just not right''), while argumentative comments mentioned a relevant point (example [positive]: ''Prohibition creates a black market without any rules. The legalization would be a chance to stop the criminal structures and the corresponding risks''). In every condition, five comments were displayed as ostensible statements of other users (shown with average names and small profile pictures). Besides four conditions with comments (subjective/pro, subjective/con, argumentative/pro, argumentative/con), a fifth version did not include any further comments.

FIG. 1. Example of the stimulus material: Facebook posting of a reputable news media source with user reactions (pictures blurred for publication).

To check the validity of the manipulation, an additional 44 participants (30 female, $M_{age} = 24.84$ years; $SD = 4.86$ years) rated all comments with regard to competence, trustworthiness, and argument quality, averaged to a quality score (Cronbach's α between 0.83 and 0.96). Results showed a strong effect of comment type (argumentative vs. subjective) on participants' perception of quality, $F(1, 43) = 238.69$; $p < 0.001$; $\eta_p^2 = 0.85$.

The number of ''likes,'' which was shown below the Facebook posting, was either high (around 500) or low (around 40). The specific numbers were chosen based on observations of the specific Facebook page for articles with high and low popularity.

Dependent measures

Readers' attitude toward the topic was assessed with five items (e.g., ''The legalization of marihuana should be supported''), which were rated on a 7-point scale ($\alpha = 0.90$; $M = 4.17$; $SD = 1.65$). Based on prior studies,[5] perceived public opinion was measured by asking participants whether they believed that the general public would agree with the above mentioned statements ($\alpha = 0.79$; $M = 3.31$; $SD = 1.01$). Furthermore, the evaluation of the article was measured with a semantic differential[14] (''well-written–not well-written,'' ''useful–not useful,'' ''like–dislike''; $\alpha = 0.80$; $M = 4.56$; $SD = 1.20$) and four items on the credibility and quality of the text ($\alpha = 0.83$; $M = 4.27$; $SD = 1.31$).

Moderating variables

Participant's NC was measured with 16 items[18,22] ($\alpha = 0.81$; $M = 5.00$; $SD = 0.70$). A further three items assessed the personal relevance of the topic (e.g., ''I frequently think about the topic of Marihuana and legalization''; $\alpha = 0.71$; $M = 3.55$; $SD = 1.42$).

Results

For hypothesis tests, analyses of variance were conducted with type of comment and number of likes as independent factors. For the attitude toward the topic, results showed a significant main effect of comment type, $F(4, 187) = 2.60$, $p = 0.038$, $\eta_p^2 = 0.05$, but no main effect of likes. Pairwise comparisons (LSD) showed a significant difference between the control group and argumentative con comments ($p = 0.006$; $SE = 0.374$). Readers who read these negative comments had a more negative attitude toward legalization ($M = 3.59$; $SD = 1.56$) than those who only read the main posting ($M = 4.62$; $SD = 1.67$). Participants who read negative subjective comments also tended to express a more negative attitude ($M = 3.91$; $SD = 1.82$) than the control group, but the difference was smaller—the post hoc contrast approached significance ($p = 0.054$; $SE = 0.376$). Positive comments did not lead to a more positive attitude in comparison to the control group. Readers who saw positive argumentative comments ($M = 4.38$; $SD = 1.40$) and subjective comments ($M = 4.37$; $SD = 1.65$) only differed from participants who saw negative argumentative comments (post hoc contrasts: $p = 0.029$; $SE = 0.361$/ $p = 0.033$; $SE = 0.372$). Therefore, H1 is partially supported for negative comments but not for positive comments.

Further analyses of variance for the dependent measures of perceived public opinion and article quality did not show significant effects of comment type and likes. Therefore, H2 about the effects of comments on the perception of public

Table 1. Moderated Regression Analysis Predicting Attitudes Toward Legalization by Type of Comment (Argumentative vs. Subjective), Personal Relevance, and Interaction of Comment Type and Personal Relevance

	Attitude toward legalization		
Predictor	R^2	β	p
(1) Type of comment	0.010	0.098	0.393
(2) Personal relevance	0.157	0.386	<0.001
(3) Type of comment ×personal relevance	0.223	0.257	0.014

Final model: $F(3, 75) = 7.17$; $p < 0.001$; $R^2 = 0.223$.

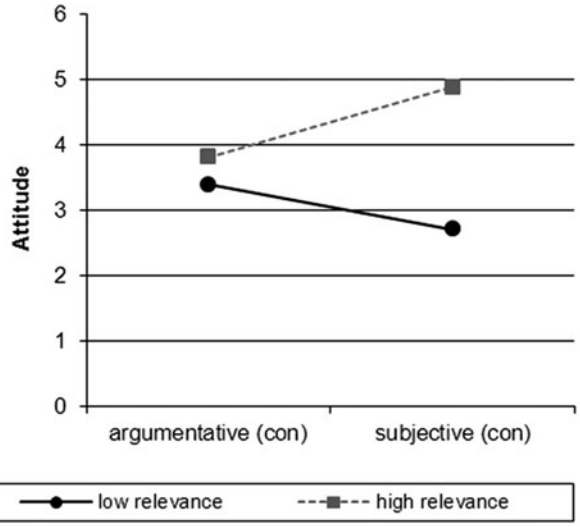

FIG. 2. Simple slopes: interaction of comment type and personal relevance on readers' attitude toward the topic.

opinion has to be rejected. Since readers who saw the posting with a high versus low number of likes did not differ regarding their evaluation of article quality, their attitude and perceptions of public opinion, H5 is not supported by the data either.

The finding that negative argumentative comments showed stronger effects on readers' attitudes than negative subjective comments partially supports H3. However, there were no differences between subjective and argumentative comments when their valence was positive.

H4 predicted a stronger persuasive influence of argumentative comments for readers with a higher level of elaboration. This was tested in moderated regression analyses with readers' attitude as criterion. Due to the ineffectiveness of positive comments, this analysis only included participants who saw negative comments and focused on a comparison of argumentative and subjective comments in this subsample ($n = 79$). To test H4a, the type of comment, personal relevance, and the interaction of comment type and personal relevance were entered as predictors. According to the results (Table 1), the interaction emerged as a significant predictor. A simple slope analysis[23] revealed that readers who perceived the topic as relevant were affected more strongly by argumentative comments than by subjective comments ($b = 1.07$; $SE = 0.49$; $t = 2.19$; $p = 0.032$), while comment type did not matter for participants with low levels of relevance (see Fig. 2), supporting H4a.

With regard to H4b on need for cognition, a regression analysis following the same pattern was conducted. However, none of the predictors accounted for a significant amount of variance, so that H4b is not supported. Additional analyses for the subsample of participants who saw positive comments did not yield significant regression models.

Discussion

The goal of the present study was to examine the effects of peer reactions in Facebook news channels. Results predominantly showed persuasive effects of negative user statements, which is in line with research on (anonymous) comments on news sites[5] and YouTube,[10,11] and shows that voices out of the Facebook community are able to diminish the persuasive effects of articles published by renowned news sources. However, statements that supported the article's claims did not lead to strengthening persuasive effects. This may be due to a ceiling effect, since the article itself already led to relatively high levels of agreement or a negativity bias[24] in that information of negative valence arouses more attention. These interpretations could be tested with a further variation of the slant of the article.

With regard to the differences in the quality of reader comments,[14] results showed stronger and more consistent effects of (contradicting) argumentative comments, but readers who saw negative comments with merely subjective statements also tended to express a more negative attitude. Moderation analyses showed that readers who perceived the topic as personally relevant were affected more strongly by argumentative comments. In line with the ELM,[16] these readers appear to detect the low informational value of subjective comments more easily. This underlines that dual process models such as the ELM can serve as useful frameworks to describe the interplay of reader characteristics and user generated messages in Web 2.0, although there was no such moderating effect for dispositional need for cognition. Reasons for the lack of effects may be that the level of NC in the sample was generally high and that thinking about common news topics is not considered as sufficiently complex by readers with higher NC. Considering argumentative (but not subjective) comments would match ideals of deliberation[25]—the fact that at least highly involved participants were only persuaded by relevant arguments might therefore temper fears that incompetent comments lead readers' opinions into questionable directions.

While there were substantial effects on readers' own attitudes, comments did not influence perceptions of public opinion. That is, participants did not perceive the commenters as representative, which may appear reasonable, since only a minority actively writes comments.[15] These findings suggest that the mechanisms of peer influence in this setting are mostly due to direct persuasive effects rather than indirect effects over perceived public opinion.[5]

Against expectations on bandwagon effects,[21] the number of likes did not influence the way in which readers evaluated a news story or its content. This may also be connected to a negativity bias. Since likes are limited to agreement, they might fail to arouse readers' attention and might not provide an interpretable overview on the percentage of proponents and

opponents in the public. The superiority of comments over likes may also be explained by exemplification theory.[5,12] Single statements by peers can be regarded as vivid exemplars (which also contain more potentially persuasive content to think about), whereas numbers of likes are less concrete statistics. However, it is possible that this may change when extraordinarily high numbers of likes signal extreme popularity or conflict with an initially negative impression of a source.

From a practical point of view, journalists might conclude that they can only ''lose'' if they are confronted with reader statements, since positive comments and likes did not enhance persuasive effects. This, however, neglects that argumentative comments may contribute to processes of deliberation and also give additional feedback to journalists.

When interpreting the results, the sample that mainly consisted of students and the restriction to one specific article have to be mentioned as limitations. Furthermore, the static nature of the screenshot and the relatively uniform comments did not fully reproduce the interactive nature of SNS. Since SNS increasingly try to highlight comments that are written by friends, relations to the commenters are likely to be a further important factor in the mechanisms of peer influence. While the present study showed comments by strangers, future research should try to analyze the impact of these interpersonal aspects.

Despite these limitations, it is argued that this study contributes to research on social influence in Web 2.0 settings. It demonstrates that the juxtaposition of mass and interpersonal communication[5] in Facebook news channels may attenuate traditional effects of mass media content. At the same time, this study clarifies the conditions under which voices out of the audience influence other readers: To make a difference, they have to contradict the news slant and include reasonable arguments, while positive comments or likes do not strengthen the article's claims. With regard to theoretical perspectives, the study shows that classic theories such as the ELM[16] and exemplification theory[12] are helpful in analyzing the underlying mechanisms of peer influence. Following this path may be a worthwhile endeavor to understand patterns of news consumption in a changing media landscape.

Acknowledgments

An earlier version of this work has been presented at the 2014 conference of the International Communication Association (Seattle, WA).

Author Disclosure Statement

No competing financial interests exist.

References

1. Glynn CJ, Huge ME, Hoffman LH. All the news that's fit to post: a profile of news use on social networking sites. Computers in Human Behavior 2012; 28:113–119.
2. Mitchell A, Kiley J, Gottfried J, et al. The role of news on Facebook: common yet incidental. Pew Internet & American Life Project 2013. www.journalism.org/2013/10/24/the-role-of-news-on-facebook/ (accessed May 1, 2015).
3. Oeldorf-Hirsch A, Sundar SS. Posting, commenting, and tagging: effects of sharing news stories on Facebook. Computers in Human Behavior 2015; 44:240–249.
4. Messing S, Westwood SJ. Selective exposure in the age of social media: endorsements trump partisan source affiliation when selecting news online. Communication Research 2014, 41:1042–1063.
5. Lee EJ, Jang YJ. What do others' reactions to news on Internet portal sites tell us? Effects of presentation format and readers' need for cognition on reality perception. Communication Research 2010; 37:825–846.
6. Holton A, Chyi HI. News and the overloaded consumer: factors influencing information overload among news consumers. Cyberpsychology, Behavior, & Social Networking 2012; 15: 619–624.
7. Walther JB, Liang YJ, Ganster T, et al. Online reviews, helpfulness ratings, and consumer attitudes: an extension of congruity theory to multiple sources in Web 2.0. Journal of Computer-Mediated Communication 2012; 18:97–112.
8. Walther JB, Jang J-W. Communication processes in participatory websites. Journal of Computer-Mediated Communication 2012; 18:2–15.
9. Metzger MJ, Flanagin AJ, Medders RB. Social and heuristic approaches to credibility evaluation online. Journal of Communication 2010; 60:413–439.
10. Konijn EA, Veldhuis J, Plaisier XS. YouTube as a research tool: three approaches. Cyberpsychology, Behavior, & Social Networking 2013; 16:695–701.
11. Walther JB, DeAndrea D, Kim J, et al. The influence of online comments on perceptions of antimarijuana public service announcements on YouTube. Human Communication Research 2010; 36:469–492.
12. Zillmann D, Brosius HB. (2000) *Exemplification in communication*. Mahwah, NJ: Lawrence Erlbaum.
13. Reicher SD, Spears R, Postmes T. A social identity model of deindividuation phenomena. European Review of Social Psychology 1995; 6:161–198.
14. Winter S. (2013). *Lost in Information?: Sozialpsychologische Aspekte der Selektion und Rezeption von journalistischen Online-Angeboten [social psychological aspects of selecting and processing online news]*. Stuttgart, Germany: Kohlhammer.
15. Ziegele M, Quiring O. (2013) Conceptualizing online discussion value. A multidimensional framework for analyzing user comments on mass-media websites. In Cohen EL, ed. *Communication yearbook 37*. New York: Routledge, pp. 125–153.
16. Petty RE, Cacioppo JT. (1986) *Communication and persuasion. Central and peripheral routes to attitude change*. New York: Springer Verlag.
17. Park HS, Levine TR, Kingsley Westerman CY, et al. The effects of argument quality and involvement type on attitude formation and attitude change: a test of dual-process and social judgment predictions. Human Communication Research 2007; 33:81–102.
18. Cacioppo JT, Petty RE. The need for cognition. Journal of Personality & Social Psychology 1982; 42:116–131.
19. Xu X, Fu WW. Aggregate bandwagon effects of popularity information on audiences' movie selections. Journal of Media Economics 2014; 27:215–233.
20. Chaiken S. (1987) The heuristic model of persuasion. In Zanna M, Olson J, Herman C, eds. *Social influence: the Ontario symposium.* Vol. 5. Hillsdale, NJ: Lawrence Erlbaum, pp. 3–39.
21. Sundar SS. (2008) The MAIN model: a heuristic approach to understanding technology effects on credibility. In Metzger MJ, Flanagin AJ, eds. *Digital media, youth, and credibility*. Cambridge, MA: MIT Press, pp. 72–100.

22. Bless H, Wänke M, Bohner G, et al. Need for cognition: Eine Skala zur Erfassung von Engagement und Freude bei Denkaufgaben [Need for cognition: a scale for the assessment of involvement and enjoyment of cognitive tasks]. Zeitschrift für Sozialpsychologie 1994; 25:147–154.
23. Aiken LS, West SG. (1991) *Multiple regression: testing and interpreting interactions*. Newbury Park, CA: Sage.
24. Baumeister RF, Bratslavsky B, Finkenauer C, et al. Bad is stronger than good. Review of General Psychology 2001; 5:323–370.
25. Donsbach W, Mothes C. (2012) The dissonant self. Contributions from dissonance theory to a new agenda for studying political communication. In Salmon CT, ed. *Communication Yearbook 36*. London: Routledge.

Address correspondence to:
Dr. Stephan Winter
University of Duisburg-Essen
Social Psychology: Media and Communication
Forsthausweg 2
47057 Duisburg
Germany

E-mail: stephan.winter@uni-due.de