

Comment Counts or News Factors or Both? Influences on News Website Users' News Selection

INES ENGELMANN

Friedrich Schiller University Jena, Germany

MANUEL WENDELIN

Ludwig Maximilian University Munich, Germany

In this article, we investigate how news selection on news websites is influenced by popularity indicators and news factor intensities. For Internet users, popularity indicators such as comment counts, published in the context of news items, might complement journalistic relevance attribution. We therefore conducted an experiment ($N = 320$) in which we investigated the impact of comment counts and news factor intensities on news selection. We found that comment counts did not affect the selection of associated news items, whereas news factors affected news selection positively. The implications of these results are discussed.

Keywords: news factors, popularity indicators, news selection, online experiment

Because news media are the only way that most people access political information, the criteria that laypeople use to select news are of considerable interest. To learn more about this, various concepts have been established and empirically investigated. The influencing factors of these concepts include political preferences (e.g., Iyengar & Hahn, 2009), political interests and motives (e.g., Strömbäck, Djerf-Pierre, & Shehata, 2013), and aspects of the informational utility of news content (e.g., Knobloch-Westerwick & Kleinman, 2012). Other criteria largely determined by journalists include the topics covered (e.g., Thorson, 2008) and the type of news story (hard news vs. soft news; see Reinemann, Stanyer, Scherr, & Legnante, 2012).

One of the most prominent approaches explaining news selection is the theory of newsworthiness (Galtung & Ruge, 1965; O'Neill & Harcup, 2009). This theory has broadly confirmed that news factors influence an audience's news selection (e.g., Eilders, 2006). News factors refer to characteristics or qualities of news stories—for example, the degree of damage reported or the status of the people involved (Kepplinger & Ehmig, 2006). The relative impact of these news factors on the selection of news stories is known as *news value*: "News values are—other than news factors—not qualities of news stories, but

Ines Engelmann: ines.engelmann@uni-jena.de

Manuel Wendelin: manuel.wendelin@ifkw.lmu.de

Date submitted: 2016-02-29

Copyright © 2017 (Ines Engelmann and Manuel Wendelin). Licensed under the Creative Commons Attribution Non-commercial No Derivatives (by-nc-nd). Available at <http://ijoc.org>.

characteristics of journalists—their judgment about the relevance of news factors” (Kepplinger & Ehmig, 2006, p. 27).

With the advent of digital communication technologies, new media settings have emerged, and the possibilities for access to news content have been broadened (Reuters Institute for the Study of Journalism, 2015). Although many news websites were originally launched by print newspapers, in many countries today, online news articles are most frequently retrieved by search engines such as Google (Reuters Institute for the Study of Journalism, 2015), as opposed to by first visiting the website of a specific publication. Users can also get news through social network sites (e.g., Facebook), newsfeeds, and news aggregators (e.g., Yahoo! News). Many of these new news websites provide popularity indicators directly within their news teasers, such as the number of clicks, shares, or user comments an article has generated. Search engines and news aggregators provide upload-recency cues or number-of-related-articles cues (Sundar, Knobloch-Westerwick, & Hastall, 2007). On news websites, users are confronted with rankings of the most viewed, most e-mailed, and most commented-on articles (Wendelin, Engelmann, & Neubarth, 2017). Such indicators may affect users’ news selection (e.g., Knobloch-Westerwick, Sharma, Hansen, & Alter 2005; Sundar et al., 2007). These pieces of aggregated information about other users’ news selection—news cues (Sundar, 2008)—can serve as alternative criteria for users to select news. Because all users seek to limit the cognitive effort expended in selecting content (Fiske & Taylor, 1991), they tend to apply heuristics. This allows them to make quick judgments, especially when their motivation is low to engage in thorough information processing (Sundar, 2008).

On the basis of these two theoretical strands of news selection research, the question arises about the extent to which news factors and popularity indicators influence news selection on the Internet. Because popularity indicators rely on the previous selections of other users, we examine whether audience-related popularity indicators complement journalism-related news factors as criteria that users on news websites use to select news content. To investigate this question, we conducted an experiment (with 320 users under 16 conditions) to compare the impacts of the news factors of *reach* and *conflict* and the popularity indicator *comment count* on news selection.

The News Selection of Online Audiences

News Factors

News factors and news values constitute the basic elements of the two-component theory of news selection (Kepplinger & Ehmig, 2006). News selection of journalists is affected by *news factors*, which refers to the characteristics or qualities of news stories, as well as by *news values*, which are judgments of journalists about the relevance of news factors. Neglecting other important causes of news selection, the two-component theory explains the newsworthiness of news stories. News values of news factors indicate how they increase the newsworthiness of a news story, with *newsworthiness* defined as the likelihood of a story to be selected. Although the two-component model primarily refers to the news selection of journalists, news factors determine news selection of journalists and the audience in basically the same way, because news factors “not only serve as selection criteria in journalism, but also guide selection processes by the audience” (Eilders, 2006, p. 9; also see Galtung & Ruge, 1965). Consequently,

Eilders (1997) reformulates the journalistic selection hypothesis of Galtung and Ruge according to the audience perspective: "The higher the intensity of a news factor within a news item is, the more likely that this news item is used by the audience" (p. 146).

Empirical studies have investigated various news factors in different research designs. Although the use of different factor catalogs, methods, samples, and dependent variables has made it difficult to compare findings, some news factors have repeatedly shown an impact in different news settings (Donsbach, 1991; Eilders, 1997; Wendelin et al., 2017), including *conflict/controversy* (i.e., portrayal of disagreement), *damage* (i.e., negative consequences), *continuity* (i.e., references to established issues), *personification* (i.e., information presented in human terms), and *reach* (i.e., number of persons affected).

In developing our study design, we chose reach and controversy, two news factors that have been shown to affect users' news selection (Donsbach, 1991; Eilders, 1997; Früh, 2010). Both of these news factors can be understood as general relevance indicators in human perception (Eilders, 1997, 2006). Eilders (2006) suggested three possible explanations of collective relevance assignment of news factors. First, from an evolutionary perspective, humans have learned more or less automatic reactions to stimuli that might be threatening. The second explanation refers to general psychological mechanisms that are inherent to all individuals—familiar objects, persons, or events will be recognized and taken into consideration, because there is already a mental matrix to relate to. Last, the effect of the news factors controversy and reach can be explained by social relevance. Selecting news containing reach or controversy means that users attribute relevance to this news for reasons of social significance; these news factors then receive a news value. For reach, social relevance refers to the number of people affected by an event. For controversy, social relevance refers to differences of opinion, opposing views on an issue, and disagreements that extend to physical violence and possible subsequent processes of political opinion forming.

Compared with news factors such as damage (which has an exceptionally marked impact), reach and controversy have similar effect sizes on users' selection processes (e.g., Früh, 2010), which is advantageous given our study design. Based on the previous considerations, we derive the following hypothesis:

H1: A higher intensity of controversy or reach in a news teaser will prompt more clicks than will lower intensities of controversy or reach.

Popularity Indicators

Popularity indicators are cues in the context of news teasers that refer to the behavior of other users as sources (Sundar, 2008). The influence of popularity indicators or other news cues on news judgments and selection is explained by dual-process models such as the elaboration likelihood model (Petty & Cacioppo, 1979). In this model, it is assumed that users have little motivation to engage in thorough information processing by relying on news cues. News cues can trigger *heuristics*: "judgment rules developed based on past experience or generalization of existing knowledge—to help individuals make quick judgments and identify content of interest from a potentially overwhelming set of choices"

(Xu, 2013, p. 758). Popularity indicators that appear in the context of news teasers trigger the *bandwagon* heuristic: "If others think that this is a good story, then I should think so too" (Sundar, 2008, p. 83).

Research into the influence of popularity indicators on users' judgments and news selection is sparse and somewhat contradictory. Xu (2013) found support for the bandwagon effect, showing that popularity indicators positively influence attention to news, perceived news credibility, bandwagon perception, perceived newsworthiness, click likelihood, and sharing behavioral intention. Furthermore, bandwagon perception and perceived newsworthiness served as two-step mediators for both the relationship between the number of "diggs"—that is, how many users have voted for the news—and click likelihood and the relationship between the number of diggs and sharing behavioral intention toward news (Xu, 2013). Knobloch-Westerwick and colleagues (2005) found that users picked more news items from a portal if it featured explicit recommendations and that the strength of the recommendation positively predicted the duration of exposure to the article. Messing and Westwood (2014) showed that news items including the number of recommendations were more likely to be selected than news items without this information. However, other studies do not support this interpretation of the bandwagon effect. In the study by Knobloch-Westerwick and colleagues (2005), cues on high click rates affected the selection of news items in a curvilinear way, with users associating high click rates with both low and high evaluations of article quality. Furthermore, Winter, Brückner, and Krämer (2015) showed that the article quality of news items posted on Facebook was not evaluated differently if they had a low versus high number of likes. These diverse findings may reflect more or less peripheral information processing of popularity cues; this could be caused by different situational factors in the experimental settings as well as by different types of popularity indicators. To our knowledge, no study has examined the possible effects of comment count. We assume that a higher comment count in the context of news teasers triggers the bandwagon heuristic. Due to these uncertainties, we formulate the following research question:

RQ1: To what extent will a higher comment count in a news teaser prompt more clicks on this teaser than a lower comment count?

Combinatory Effect of News Factors and Popularity Indicators

News factors and comment counts, discussed separately, do not exist isolated from each other on news websites. The final question we investigate concerns the extent to which both of these possible selection criteria work together. While the effect of news factors is explained by a social-relevance assignment as a collective phenomenon, social influences of other people expressed by high popularity indicators might complement an individual relevance assignment that may strengthen the selection of a news item. One could also assume that the collective relevance assignment already includes the individual relevance assignment, particularly because the impact of news factors seems to be empirically more stable than the impact of popularity indicators on news selection. Due to these different possibilities, we propose the following research question:

RQ2: To what extent do news factors and comment counts work together?

Method

The hypothesis and the research questions were explored using an online experiment in which two levels of news factor intensities and comment counts were manipulated. All participants ($N = 320$) were exposed to a set of six news teasers on a fictitious news website and to a set of closed questions about the news selection of the articles.

We conducted an online experiment applying a mixed design. We combined a 2×2 (news factor intensity \times number of comments) design with a 2×2 (news factor intensity \times number of comments) design to create a 4×4 mixed design. The combination of two 2×2 designs was necessary to create news options containing different characteristics for simulating the news decision. We applied experimental manipulations of news factor intensities in each 2×2 design part on the two different news factors of reach and controversy by combining a 2×2 design (news factor intensity of controversy \times number of comments) with another 2×2 design (news factor intensity of reach \times number of comments). Thus, news factor intensities and comment counts were both between-subject as well as within-subject factors. We therefore required 16 experimental groups. We used a fully cross-factorial design for the news factor intensities as well as for comment counts (see Table 1). To ensure external validity, we selected two news factors that have been shown to have similar effect sizes on certain news selection behaviors.

Table 1. Properties of the Teasers Shown to All 16 Experimental Groups.

Experimental group	Three teasers featuring controversy in the topics of politics, advice, and sports		Three teasers featuring reach in the topics of politics, advice, and sports	
	Comment count	Intensity of news factor	Comment count	Intensity of news factor
1	1	1	1	1
2	1	1	0	1
3	1	1	1	0
4	1	1	0	0
5	0	1	1	1
6	0	1	0	1
7	0	1	1	0
8	0	1	0	0
9	1	0	1	1
10	1	0	0	1
11	1	0	1	0
12	1	0	0	0
13	0	0	1	1
14	0	0	0	1
15	0	0	1	0
16	0	0	0	0

Note. For comment count, 1 = *high*, 0 = *low*. For the intensity of news factor, 1 = *high*, 0 = *low*. For example, participants in experimental group 1 were presented with three controversy teasers, each of which featured a different topic with a high intensity of controversy and a high comment count; they were also presented with three reach teasers, each of which featured a different topic with a high intensity of reach and a high comment count.

For each of the two 2 × 2 design parts, we provided three teasers, representing the same three different topic domains: politics (an example of public affairs), advice (news items offering suggestions and recommendations about everyday concerns such as health or finance), and sports (an example of non-public affairs; Boczkowski & Mitchelstein, 2012). Each participant was thereby exposed to six teasers; for example, (1) “methane extraction in the North Sea” (politics–controversy), (2) “opiates in pain therapy” (advice–controversy), (3) “high-speed bobsled run at Königssee” (sports–controversy), (4) “high school diploma reform” (politics–reach), (5) “how to protect against pertussis infection” (advice–reach), and (6) “soccer World Championship on pay TV” (sports–reach). In this experiment, we were not interested in the selection criteria of a specific topic or a specific news factor, but rather in the selection criteria of news factor intensities and/or comment counts.

This procedure controlled for the effect of participants’ different levels of interest in topics and news factors while testing the influence of news factor intensities and comment counts; this obviated the need to assess and control for personal interests and also created a more realistic situation for news selection. Although teasers were based on topics familiar to the German general public, the actual information reported was fabricated (cf. Tables 2 and 3). The order in which teasers were presented on the fictitious website was randomized to control for order effects (cf. Eilders, 2006).

Table 2. Stimulus Versions of Teasers Containing the News Factor Controversy.

News factor: <i>Controversy</i> Intensity: high	News factor: <i>Controversy</i> Intensity: low
<p>1a. Politics: comment counts: 2 or 50</p> <p>Controversial Extraction Method in the North Sea Protests against methane extraction escalating A rally of environmental activists against the extraction of methane hydrate from the North Sea has led to riots. The protesters accuse the government of not sufficiently considering the risks of the extraction process. . . .</p>	<p>1b. Politics: comment counts: 2 or 50</p> <p>Controversial Extraction Method in the North Sea Environmental experts warning against methane extraction Environmental experts are warning against the extraction of methane hydrate from the North Sea. In an open letter, they accuse the government of not sufficiently considering the risks of the extraction process. . . .</p>
<p>2a. Service: comment counts: 4 or 56</p> <p>Dope on Prescription Fierce controversy about a new medication in pain therapy Health experts of Germany’s CDU and CSU parties spoke out vehemently against the painkiller dronabinol, and moved to act against the planned simplification of its distribution. The medication is based on agents from the cannabis plant, and is used in the therapy of chronic pain. In contrast, physicians and lobby groups for pain patients</p>	<p>2b. Service: comment counts: 4 or 56</p> <p>Dope on Prescription Concerns about a new medication in pain therapy Health experts of Germany’s CDU and CSU parties are criticizing the planned simplifications in the distribution of the painkiller dronabinol, and point out the possibility of abuse. The medication is based on agents from the cannabis plant, and is used in the therapy of chronic pain. In contrast, physicians and lobby groups for pain patients</p>

urgently demand the free trade of dronabinol. They have used protest campaigns to draw attention to the situation of the patients. People suffering from chronic pain should now seek advice. . . .

argue in favor of its success in pain therapy. Patients should take advice now. . . .

3a. Sport: comment counts: 9 or 62

3b. Sport: comment counts: 9 or 62

Speed or Safety?

Speed or Safety?

Scandal about high-speed bobsled run at Königssee

New high-speed bobsled run at Königssee

Yesterday, a scandal arose over the alteration of the Olympic bobsled run at Königssee. Safety experts left the committee meeting of the county of Berchtesgadener Land in protest, after the tourism authority and the administrators of the bobsled run gained acceptance for their demands for the bobs to go faster. Now parts of the run will be modified in such a way as to increase the speed of the bobs. In the view of the safety experts, the lives of the bob pilots will be irresponsibly endangered in order to increase the attractiveness of the site Berchtesgaden for international competitions. . . .

The discussions about the alteration of the Olympic bobsled run at Königssee continued yesterday. At the committee meeting of the county of Berchtesgadener Land, the tourism authority and the administrators of the bobsled run gained acceptance for their demands to modify parts of the run in a way that makes the bobs go faster. Safety experts censure that this will compromise the safety of the bob pilots in order to increase the attractiveness of the site Berchtesgaden for international competitions. . . .

Note. The teaser pictures for each topic are identical for news factors of low and high reach. For reasons of space, the pictures have been omitted from this table.

Table 3. Stimulus Versions of Teasers Containing the News Factor Reach.

News factor: reach Intensity: high	News factor: reach Intensity: low
<p>1a. Politics: comment counts: 1 or 49</p> <p>Reform of High School Diploma in Germany? Federal Ministry of Education fights for standardization of high school diploma in Germany</p> <p>The Federal Ministry of Education and Research demands the implementation of a standardized high school diploma in Germany. Up until now, the exams have been set by the Ministries of Education and Cultural Affairs in the respective federal states, or even by individual class teachers. It is claimed that this practice has led to vast differences in the tests. . . .</p>	<p>1b. Politics: comment counts: 1 or 49</p> <p>Reform of High School Diploma in Rhineland-Palatinate? Rhineland-Palatinate fights for standardization of high school diploma</p> <p>The Association of School Administrators of Germany demands the implementation of a standardized high school diploma in Rhineland-Palatinate. Up until now, and in contrast to the other federal states, the exams have been set by the individual class teachers. It is claimed that this practice has led to vast differences in the tests. . . .</p>
<p>2a. Service: comment counts: 5 or 57</p>	<p>2b. Service: comment counts: 5 or 57</p>

How to Protect Yourself

Amount of pertussis infections at a record level

No longer regarded as just a childhood disease, in Germany more and more adults are suffering from pertussis. The number of infected cases has nearly quadrupled in 2013 to about 17,000. Physicians urgently recommend a vaccination. . . .

3a. Sport: comment counts: 8 or 61

Soccer World Championship 2018

All group matches only on pay TV?

It was revealed today that FIFA is considering new strategies for the marketing of the broadcasting rights for the Soccer World Championship in 2018 in Russia. All group matches will only be available on pay TV. In the event that the German team qualifies, its matches would also be affected. All soccer fans would be obliged to visit sports bars and public viewing areas—or buy a subscription. . . .

How to Protect Yourself

Amount of pertussis infections slightly gone up

No longer regarded as just a childhood disease, in Germany more and more adults are suffering from pertussis. The number of infected cases has increased slightly in 2013 to about 5,000. Physicians recommend a vaccination. . . .

3b. Sport: comment counts: 8 or 61

Soccer World Championship 2018

Group matches of foreign teams only on pay TV?

It was revealed today that FIFA is considering new strategies for the marketing of the broadcasting rights for the Soccer World Championship in 2018 in Russia. Some group matches will only be available on pay TV. In the event that the German team qualifies, its matches would not be affected. Only fans of foreign teams would be obliged to visit sports bars and public viewing areas—or buy a subscription. . . .

Note. The teaser pictures for each topic are identical for news factors of low and high reach. For reasons of space, the pictures have been omitted from this table.

Experimental Manipulation

The teasers on the fictitious websites were randomly arranged in two vertical columns with three teasers each, one below the other. We manipulated two factors: First, the intensity of the news factors in the teasers was either high or low. Because more detailed differentiations (e.g., using a 5-point Likert-type scale) in news factors have not been found to strengthen the relationship between factor intensity and news selection (Kepplinger & Ehmgig, 2006), division into high and low levels provided sufficient discrimination for our experiment. High controversy is, for example, given in the teaser “Protests against methane extraction escalating,” whereas low controversy is expressed in the teaser “Environmental experts warning against methane extraction” (see Table 2). Although both teaser variants include controversy in different intensities, the conflict sides are the same in both teaser variants—namely, environmental activists against the government. Second, the comment count was either high (49–62 comments) or low (one to nine comments), based on the results of a study by Weber (2014).

Both of the teaser’s manipulated independent variables—news factor intensities and comment counts—were combined with the type of news factor: controversy or reach. If the comment count was

higher for the three teasers containing reach, we coded it -1 (Experimental Groups 5, 7, 13, and 15 in Table 1); if the comment count was higher for the three teasers containing controversy, we coded it $+1$ (Experimental Groups 2, 4, 10, and 12); and if comment counts of all teasers containing reach or controversy were equally high (Experimental Groups 1, 3, 9, and 11) or low (Experimental Groups 6, 8, 14, and 16), we coded it 0. We built the variable of news factor intensity in a similar way: -1 for higher news factor intensities of the three teasers containing reach (Experimental Groups 9, 10, 13, and 14), $+1$ for higher news factor intensities of the three teasers containing controversy (Experimental Groups 3, 4, 7, and 8), and 0 if all teasers containing reach or controversy were equally high (Experimental groups 1, 2, 5, and 6) or equally low (Experimental Groups 11, 12, 15, and 16). This recoding allowed us to bundle teasers of the same variable manipulations and to contrast them with different variable manipulations within a single experimental group. This in turn allowed us to explore teaser manipulations across various topics and two news factor types, improving external validity.

Participants and Procedure

We recruited 20 German Internet users for each of the 16 groups. All participants reported at least occasionally using news websites. For each group, our goal was to recruit 10 highly educated (i.e., had qualified for university admission) and 10 less educated (i.e., had not qualified for university admission) individuals, 10 men and 10 women, and 10 younger (ages 18–33) and 10 older (ages 34–49), with these age groups corresponding to the audience segments of news websites (Pew Research Center, 2008). The final sample across all groups was 49% older, 51% men, and 57% highly educated. This quota-based sample composition resulted in a much better balance than typical self-selective samples from the Internet, ensuring that all sociodemographic variables were normally distributed both within and between the experimental groups.

All participants followed a hyperlink to an online survey (<https://www.soscisurvey.de/>). Links were personalized and assigned participants to experimental groups according to their demographic profile. If a person did not use his or her link or exited the survey before completing the questionnaire, a new person with the same sociodemographic profile was recruited and a new link was created. The survey began with a question about individual news consumption. Participants were then shown the fictitious news website and were asked to choose one of the six teasers to read first. The survey closed with questions on further control variables and sociodemographic characteristics to confirm successful quota-based sampling.

Measures

Manipulation Checks

In the treatment check, we assessed the intensity of the news factors of reach ("The topic concerns many people") and controversy ("The teaser is all about conflict") as well as the number of comments ("Many people commented on this article"). We also included two items to determine the extent to which different manipulations affected the comprehensibility and the credibility of our teasers: "The teaser is formulated clearly and comprehensibly" and "The content of the teaser is credible." All

items were scored on a 5-point Likert-type scale from 1 (*does not apply at all*) to 5 (*applies completely*). Before the experiment, we conducted a pretest. Participants were students from various university courses who completed either version A or B of the questionnaire ($N = 46$). Both versions included news teasers with high and low news factor intensities for different news factors and topics. The results of the first pretest showed that the news factor intensities of our advice- and sports-related teasers were incorrectly or not sufficiently differentiated. These findings led us to create new teaser versions with more exaggerated differences between the low and high news factor intensities. Again, we recruited students from various university courses ($N = 41$) to take part in a follow-up pretest. The results of this pretest indicated that we had successfully differentiated between these two types of teasers. Table 4 shows the results of both pretests.

Table 4. News Factor Perceptions, Comprehensibility, and Credibility of Manipulated News Teasers in Both Pretests.

	News factor perception		Comprehensibility		Credibility	
	Low intensity (pretest: first, $n = 24$; second, $n = 22$)	High intensity (pretest: first, $n = 22$; second, $n = 19$)	Low intensity (pretest: first, $n = 24$; second, $n = 22$)	High intensity (pretest: first, $n = 22$; second, $n = 19$)	Low intensity (pretest: first, $n = 24$; second, $n = 22$)	High intensity (pretest: first, $n = 22$; second, $n = 19$)
Politics–controversy	3.41**	4.33**	3.45	3.96	3.82	4.25
Advice–controversy	3.67	3.73	4.22	4.00	4.08	3.95
Sports–controversy	2.45	2.88	4.05	4.46	3.50	3.59
Politics–reach	3.13**	3.91**	3.96	3.73	4.25	4.05
Advice–reach	3.68**	4.33**	4.09	4.33	3.64	4.08
Sports–reach	4.00**	3.14**	4.42	4.00	3.83*	3.14*
Advice–controversy ^a	3.05*	3.73*	4.11	3.55	3.89	3.64
Sports–controversy ^a	2.95**	3.89**	4.41*	3.74*	3.86	3.21
Sports–reach ^a	3.47*	4.32*	4.31	4.32	3.58	3.36

Note. Each type of teaser is a combination of topic and news factor. $N = 87$.

^a Results of the second pretest.

Unpaired t -tests: * $p < .05$, ** $p < .01$.

In both of the pretests, high comment counts ranged from 29 to 40 comments, and low counts ranged from one to nine comments. Although the participants' perceptions differed significantly between the high and low versions, $M_{low} = 2.04$; $M_{high} = 3.54$; $t(1, 274) = -13.34$; $p < .001$, the full 5-point scale range for this item was clearly not exhausted. We therefore decided to increase the number of comments to 49 to 62 for the high-level versions in the experimental survey to increase contrast.

Dependent Variables

News selection was operationalized as each user's intended choice of articles between teaser bundles containing reach or controversy (i.e., clicking intention on one of the six teasers). Participants were instructed: "Here you can see a news website. Imagine you are surfing this website during your usual Internet use. Which news item would you read first? Please click on the appropriate news teaser!" According to our 4 × 4 design, the selection of one of the six teasers was an aggregated decision between a teaser of the first 2 × 2 design part (news factor intensity of controversy × number of comments) and the second 2 × 2 design part (news factor intensity of reach × number of comments). The dependent variable was therefore a decision between one of three teasers containing controversy (Code 0) and one of three teasers containing reach (Code 1). The reading time of news items—an indicator frequently used in selective exposure research (e.g., Knobloch-Westerwick & Kleinman, 2012)—was not applied, because reading time goes beyond the first step of perceiving news factor intensities or comment counts and clicking intention on a teaser, and it can be influenced by factors of the news item outside of the manipulated teaser characteristics.

Covariates

In addition to sociodemographic variables, we measured participants' usage of news websites on the previous day using a 5-point ordinal scale to ensure that the duration of news consumption was randomly and equally distributed across all experimental groups. The participants selected 1 (*no news items read online*), 2 (*up to an hour*), 3 (*up to two hours*), 4 (*up to three hours*), or 5 (*more than three hours*). We included this variable because less experienced users might be less familiar with popularity indicators. Finally, the participants were asked on a 4-point ordinal scale whether and how often they had commented on news items in the last six months: 1 = *never*, 2 = *one or two times*, 3 = *three to 10 times*, and 4 = *more than 10 times*. Users who frequently write comments on news websites might pay more attention to comment counts than users who do not write comments. Both control variables were included in our analyses.

Data Analysis

The hypothesis and research questions were investigated by analyzing the separate and the combined impact of news factors and comment counts on news selection by conducting chi-square tests and calculating phi coefficients. Additionally, we conducted a logistical regression model controlling for variations in teaser length, individual level of news consumption on the Internet, and individual comment behavior on news websites. First, we analyzed the result of contingency tables with chi-square tests. Experimental groups were only considered in data analysis to the extent that they showed variance in their respective factor manipulations between the two teaser bundles in the within-subject condition (Table 1). Additionally, results of the logistical regression model were included to secure the results of chi-square tests by accounting for covariates. Predictors of teaser selection are given as odds ratios (ORs), providing an interpretation of the effect size of the coefficients generated by the logistical regression. The odds ratio for each independent variable denotes the change in the probability of the dependent variable given a one-unit change in the independent variable. Odds ratios greater than one indicate the percentage

increase in the count of the dependent variable, while odds ratios below one represent the percentage decrease in the count of the dependent variable.

Results

In H1, we reasoned that a higher intensity of controversy or reach in a news teaser would prompt more clicks on this teaser than would lower intensities of reach or controversy. As shown in Table 5, teasers containing reach were more frequently selected if the intensities of this new factor were more pronounced (62% to 38%). Likewise, teasers containing controversy were more frequently chosen if the controversy intensity was more pronounced (65% to 35%). The chi-square test is highly significant, and the phi coefficient suggests a moderate relationship, $\chi^2(1) = 11.34$, $p = .001$, $\phi = -.27$, $1 - \beta = .92$. Thus, H1 is supported by the results of the chi-square test.

RQ1 asked to what extent a higher comment count in a news teaser would prompt more clicks on this teaser than a lower comment count. If teasers containing reach were manipulated to have higher comment counts, teasers containing controversy were still more frequently selected (43% to 57%; Table 6). The same effect occurred for teasers containing controversy and high comment counts (57% to 43%). Thus, comment counts did not influence the selection of teasers in our study, $\chi^2(1) = 3.03$, $p = .082$, $\phi = .14$, $1 - \beta = .43$.

Table 5. Influence of News Factor Intensities on News Selection.

News factor intensity	Teasers containing controversy (%)	Teasers containing reach (%)
Higher intensity for teasers containing reach (compared with teasers containing controversy)	35	62
Higher intensity for teasers containing controversy (compared with teasers containing reach)	65	38
Total	100	100

Basis. $n = 160$ (excluding Experimental Groups 1, 2, 5, 6, 11, 12, 15, and 16) with equally high or low manipulations of news factor intensities between the two teaser bundles, $\chi^2(1) = 11.34$, $p = .001$, $\phi = -.27$, $1 - \beta = .92$.

Table 6. Influence of Comment Counts on News Selection.

Comment counts	Teasers containing controversy (%)	Teasers containing reach (%)
Higher comment count for teasers containing reach	57	43
Higher comment count for teasers containing controversy	43	57
Total	100	100

Basis. $n = 160$ (excluding Experimental Groups 1, 3, 6, 8, 9, 11, 14, and 16) with equally high or low manipulations of comment counts between the two teaser bundles, $\chi^2(1) = 3.03$, $p = .082$, $\phi = .14$, $1 - \beta = .43$.

RQ2 asked to what extent news factors and comment counts may work together. To answer this question, we combined the influences of news factor intensities and comment counts on news selection. As shown in the upper part of Table 7, teasers containing reach were more frequently selected when their comment counts were higher and their news factor of reach was more intense (71% to 29%), $\chi^2(1) = 3.96$, $p = .047$, $\phi = -.31$, $1 - \beta = .50$. Teasers containing controversy were also more frequently selected when their comment counts were higher and their news factor of controversy was more intense (65% to 35%), $\chi^2(1) = 2.56$, $p = .110$, $\phi = -.25$, $1 - \beta = .35$. However, because the test power of both results is low, there is the likelihood of a small effect despite the nonsignificant findings. The answer to our research question is that we found no empirical evidence for an interactional effect of news factor intensities and comment counts on news selection.

Table 7. Influence of News Factor Intensities and Comment Counts on News Selection.

Combined predictors		Teasers containing controversy (%)	Teasers containing reach (%)
Higher comment count for teasers containing reach	Higher intensity for teasers containing reach	39	71
	Higher intensity for teasers containing controversy	62	29
Higher comment count for teasers containing controversy	Higher intensity for teasers containing reach	35	61
	Higher intensity for teasers containing controversy	65	39

Basis of upper table part. $n = 40$ (only including Experimental Groups 7 and 13) with manipulations in opposite directions for the two teaser bundles within a group, $\chi^2(1) = 3.96$, $p = .047$, $\phi = -.31$, $1 - \beta = .50$. *Basis of lower table part.* $n = 40$ (only including Experimental Groups 4 and 10) with manipulations in opposite directions for the two teaser bundles within a group, $\chi^2(1) = 2.56$, $p = .110$, $\phi = -.25$, $1 - \beta = .35$.

Additionally, we estimated a logistical regression model ($N = 280$). Experimental Groups 1 and 16 were excluded, because they did not show any variance in the manipulated factors (Table 1). In a first step, we included three control variables in the model: the variation in teaser length per word count (OR = 1.02; $p = .069$), the individual duration of news consumption on the Internet (OR = 1.00; $p = .965$), and individual comment behavior on news websites (OR = 0.856; $p = .250$). A second step included the experimental factors. The model showed that the comment count did not influence the selection of a news teaser (OR = 1.345; $p = .074$), but that the news factor intensity significantly affected the selection of a news teaser (OR = 0.418; $p < .001$). This means that if the intensities of the news factor controversy were strongly pronounced in teasers compared with the teasers with weakly pronounced news factor of reach, teasers containing high controversy intensity were selected 58.2% more often than teasers containing low reach intensity. Finally, the regression model did not show any impact of the interaction term between comment counts and news factor intensities on the news selection (OR = 1.02; $p = .922$). The overall regression model was significant, $\chi^2(6) = 19.512$, $p = .003$, $N = 280$, but the explained variance by Nagelkerke's R^2 showed a rather weak effect of the manipulated variables on users' news

teaser selection ($R^2 = .091$). Altogether, the results generated by chi-square tests of contingency tables were confirmed by the logistical regression model that also included control variables.

Discussion

This study investigated the influences of news factors and comment count on users' article selection on news websites. While news factors represent the relevance criteria of journalists, expressed through teaser content, the number of comments depends on other users and is frequently embedded in the context of teasers on media or social media platforms.

In our study, comment counts—one form of popularity indicator—did not affect users' news selection. One reason for this may be that comment counts are a specific type of popularity indicator suggesting that news that has been commented on by many other people may not be more worth reading than news that has been less commented on. It is possible that comment counts have a different meaning for users compared with click rates or recommendation frequencies. Wendelin and colleagues (2017) distinguish between various forms of audience selection that can be reflected by popularity indicators: selective reception (e.g., clicks on news articles), selective multiplication (e.g., the recommendation or sharing of news), and selective participation (e.g., comment counts). It may be that the subsequent news choice of the bandwagon heuristic is applied differently for reception, multiplication, and participation behaviors, because users more frequently read and recommend news articles than they comment on them, and they are therefore more experienced with these reception and multiplication behaviors.

Another explanation for the absence of the comment count effect in this study is that the manipulated numbers of comments was not as high as it is in real news contexts; it may be that there is a threshold for popularity indicators to have an impact on various outcomes, including news selection. It is also possible that comment counts have a nonlinear impact on news selection. Indeed, Knobloch-Westerwick and colleagues (2005) showed a curvilinear effect, with low and high average ratings of news articles fostering article selection. To further investigate this issue, it would be necessary to analyze the impact of different comment count levels on certain specific selection behaviors and to replicate this study with a more powerful sample size. In this study, we cannot conclude with certainty whether comment count truly had a null effect on news selection. Perhaps this effect was simply small and would be detected at a higher level of test power.

Finally, we considered the impact of overt behavioral variables with underlying cognitive processes on news selection. In this context, the bandwagon heuristic can be viewed as a part of Sundar's (2008) MAIN (modality, agency, interactivity, and navigability) model. According to this model, the bandwagon heuristic is quite powerful in influencing credibility, because it implies collective endorsement and popularity of the underlying content by many other users. According to the theory of interactive media effects (or TIME), credibility judgments are a precondition of other news-related perceptions or selection behaviors (Sundar, Jia, Waddell, & Huang, 2015). So it is possible that the relationship between popularity indicators such as comment counts and news selection is mediated by cognitive variables. Investigating these underlying psychological variables could help to describe the gap between media-content-related characteristics and news selection by the audience.

Higher intensities of different news factors that function as journalistic relevance criteria were found to have a moderate influence on users' decision to click on a teaser. From the perspective of the news value theory, this means that news factors still have an impact for users' news selection on news websites, despite the fact that these websites may offer many other news cues that may function as additional user relevance criteria. However, we only analyzed the impact of a single news factor per news teaser compared with comment counts on news selection. According to the assumptions of the news value theory, news items containing more than one news factor should increase the newsworthiness of a news item, and therefore also the clicking likelihood. Our results cannot be generalized on decisions between news options containing more than a single news factor.

The stronger effect of news factors on news selection compared with comment counts might be justified with different theoretical explanations that underlie news factors and popularity indicators. The effect of news factors is explained not only as an individual relevance assignment but also as collective or general relevance indicators in human perception. Consequently, news factors may be understood as general valid selection criteria of the audience that has been empirically confirmed by previous studies. The effect of popularity indicators is based on the assumption that individuals follow judgments or behaviors of (many) other people, because it is an easy way to find relevant news. This mechanism is expressed by the bandwagon heuristic (Sundar, 2008). Bandwagon effects are more likely if people process information in a peripheral way. However, the bandwagon heuristic may not be understood as a general mechanism in human perception. It depends on situational and personal factors. From a situational perspective, peripheral information processing of news selection on news websites is more likely if the involvement of users concerning issues at hand is low (Petty & Cacioppo, 1979). Additionally, previous results relating to the impact of popularity indicators show that currency is often an important influencing factor of news selection and can result in a low number of popularity indicators (Knobloch-Westerwick et al., 2005; Sundar et al., 2007). Besides the situational perspective, it is still unknown to what extent personality traits may dampen or inhibit the bandwagon heuristic. Nonexistent or contradictory results regarding the bandwagon heuristic might be explained, for example, by the theory of optimal distinctiveness, which assumes that people in larger groups seek distinctiveness from other people (Brewer, 1991), or by the theory on uniqueness-seeking, which argues that people pursue a sense of moderate self-distinctiveness (Snyder & Fromkin, 1980). Future research should take into account these considerations.

Taken together, our findings suggest that the gatekeeping role of traditional editorial selection is not challenged by the popularity indicator of comment counts. If media organizations want to maintain their strong gatekeeping role, they do not have to change anything. Our findings indicate that it is irrelevant whether media organizations publish comment counts in the context of news teasers, since they do not impact news selection. However, if media organizations want to encourage their audience to read the comments of other users, or even to discuss the published issues with other users, the publication of comment counts in the context of news teasers alone seems insufficient for attracting the users' attention and participation.

From a normative viewpoint, and referring to deliberation theories, our findings may be evaluated in both positive and negative ways. It is a positive result, because journalists are still able to guide users

according to their professional criteria. This ensures that the issues discussed in public are of public rather than individual interest. On the other hand, it is a negative result, because news selection due to comment counts and the underlying opinions and perspectives of other users could complement the journalistic viewpoint. However, it seems that complementary users' perspectives may not to be a primary criterion of news selection.

In interpreting our findings and the possible implications, several limitations need to be considered. First, we tested the influence of news factor intensities using only two news factors that have been empirically confirmed, both of which are grounded in the justification of shared socialization. Other news factors might have different effects when compared with comment counts. Second, in investigating the influence of comment counts, we chose a specific popularity indication that is common for users who retrieve news directly from news websites or social media. However, users who access news via search engines do not see comment counts when selecting articles (Reuters Institute for the Study of Journalism, 2015), making other selection criteria more relevant (cf. Sundar et al., 2007). Third, the effect sizes of our independent variables may have been limited by the small perceived differences between high and low news factor intensities and comment counts in the manipulated teasers.

Future research should investigate the conditions and mechanisms that strengthen or weaken the relative impact of news factor intensities and popularity indicators. Content-related factors, such as news factor types or different combinations of news factors, may be one reason for a changing relative impact of news factors and popularity indicators, in addition to other news characteristics such as different topics or the type of popularity indicators published in teaser contexts. It could also be that situational factors such as the type of information processing or different individual qualities of news use on websites could explain the presence or strength of interaction effects.

References

- Boczkowski, P. J., & Mitchelstein, E. (2012). How users take advantage of different forms of interactivity on online news sites: Clicking, e-mailing, and commenting. *Human Communication Research*, 38(1), 1–22. doi:10.1111/j.1468-2958.2011.01418.x
- Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and Social Psychology Bulletin*, 17(5), 475–482. doi: 10.1348/014466610X519683
- Donsbach, W. (1991). *Medienwirkung trotz Selektion: Einflussfaktoren auf die Zuwendung zu Zeitungsinhalten* [Media impact despite selection: Influencing factors on the attention for newspaper content]. Cologne, Germany: Böhlau.
- Eilders, C. (1997). *Nachrichtenfaktoren und Rezeption: Eine empirische Analyse zur Auswahl und Verarbeitung politischer Information* [News factors and reception: An empirical analysis on the selection and processing of information about politics]. Opladen, Germany: Westdeutscher Verlag.

- Eilders, C. (2006). News factors and news decisions: Theoretical and methodological advances in Germany. *Communications: The European Journal of Communication Research*, 2(1), 5–24. Retrieved from <https://doi.org/10.1515/COMMUN.2006.002>
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition*. New York: McGraw-Hill.
- Früh, H. (2010). *Emotionalisierung durch Nachrichten: Emotionen und Informationsverarbeitung in der Nachrichtenrezeption* [Emotionalization through news: Emotions and information processing in the news reception]. Baden-Baden, Germany: Nomos.
- Galtung, J., & Ruge, M. H. (1965). The structure of foreign news. *Journal of Peace Research*, 2(1), 74–91. Retrieved from <http://www.jstor.org/stable/423011>
- Iyengar, S., & Hahn, K. S. (2009). Red media, blue media: Evidence of ideological selectivity in media use. *Journal of Communication*, 59(1), 19–39. doi:10.1111/j.1460-2466.2008.01402.x
- Kepplinger, H. M., & Ehmig, S. (2006). Predicting news decisions: An empirical test of the two component theory of news selection. *Communications: The European Journal of Communication Research*, 31(1), 25–43. Retrieved from <https://doi.org/10.1515/COMMUN.2006.003>
- Knobloch-Westerwick, S., & Kleinman, S. B. (2012). Preelection selective exposure: Confirmation bias versus informational utility. *Communication Research*, 39(2), 170–193. doi:10.1177/0093650211400597
- Knobloch-Westerwick, S., Sharma, N., Hansen, D. L., & Alter, S. (2005). Impact of popularity indications on readers: Selective exposure to online news. *Journal of Broadcasting & Electronic Media*, 49(3), 296–313. Retrieved from http://dx.doi.org/10.1207/s15506878jobem4903_3
- Messing, S., & Westwood, S. J. (2014). Selective exposure in the age of social media: Endorsements trump partisan source affiliation when selecting news online. *Communication Research*, 41(8), 1042–1063. doi:10.1177/0093650212466406
- O'Neill, D., & Harcup, T. (2009). News values and selectivity. In K. Wahl-Jorgensen & T. Hanitzsch (Eds.), *The handbook of journalism* (pp. 161–174). New York, NY: Routledge.
- Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology*, 37(10), 1915–1926. Retrieved from <http://dx.doi.org/10.1037/0022-3514.37.10.1915>
- Pew Research Center. (2008, August 17). *Audience segments in a changing news environment: Key news audiences now blend online and traditional sources*. Washington, DC: Author. Retrieved from <http://www.people-press.org/2008/08/17/a-news-audience-segmentation/>

- Reinemann, C., Stanyer, J., Scherr, S., & Legnante, G. (2012). Hard and soft news: A review of concepts, operationalizations and key findings. *Journalism*, 13(2), 221–239. Retrieved from <http://dx.doi.org/10.1177/1464884911427803>
- Reuters Institute for the Study of Journalism. (2015). Pathways to news: How audiences discover news online. In *Digital News Report 2015*. Oxford, UK: Author. Retrieved from <http://www.digitalnewsreport.org/survey/2015/pathways-to-news-2015/>
- Snyder, C. R., & Fromkin, H. L. (1980). *Uniqueness: The human pursuit of difference*. New York, NY: Plenum.
- Strömbäck, J., Djerf-Pierre, M., & Shehata, A. (2013). The dynamics of political interest and news media consumption: A longitudinal perspective. *International Journal of Public Opinion Research*, 25(4), 414–435. doi: 10.1093/ijpor/eds018
- Sundar, S. S. (2008). The MAIN Model: A heuristic approach to understanding technology effects on credibility. In M. J. Metzger & A. J. Flanagin (Eds.), *Digital media, youth, and credibility* (pp. 73–100). Cambridge, MA: MIT Press. doi: 10.1162/dmal.9780262562324.073
- Sundar, S. S., Jia, H., Waddell, T. F., & Huang, Y. (2015). Toward a theory of interactive media effects (TIME): Four models for explaining how interface features affect user psychology. In S. S. Sundar (Ed.), *The handbook of the psychology of communication technology* (pp. 47–86). Malden, MA: Wiley-Blackwell.
- Sundar, S. S., Knobloch-Westerwick, S., & Hastall, M. R. (2007). News cues: Information scent and cognitive heuristics. *Journal of the American Society for Information Science and Technology*, 58(3), 366–378. doi: 10.1002/asi.20511
- Thorson, E. (2008). Changing patterns of news consumption and participation: News recommendation engines. *Information, Communication & Society*, 11(4), 473–489. doi: 10.1080/13691180801999027
- 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
- Wendelin, M., Engelmann, I., & Neubarth, J. (2017). User rankings and the journalistic news selection: Comparing news values and topics. *Journalism Studies*, 18(2), 135–153. doi: 10.1080/1461670X.2015.1040892
- Winter, S., Brückner, C., & Krämer, N. C. (2015). They came, they liked, they commented: Social influence on Facebook news channels. *Cyberpsychology, Behavior, and Social Networking*, 18(8), 431–436. doi: 10.1089/cyber.2015.0005

Xu, Q. (2013). Social recommendation, source credibility, and recency: Effects of news cues in a social bookmarking website. *Journalism & Mass Communication Quarterly*, 90(4), 757–775.
doi: 10.1177/1077699013503158