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Selective Use of News Cues: A Multiple-Motive Perspective on Information Selection in Social Media Environments

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This study investigated the effects of message and social cues on selective exposure to political information in a social media environment. Based on the heuristic-systematic model, we hypothesized that readers' selective consideration of specific cues can be explained by situational motivations. In an experiment (N = 137), subjects primed with motivational goals (accuracy, defense, or impression motivations, as well as a control group) were asked to search for information. Participants preferred attitude-consistent information and balanced information over attitude-inconsistent information, and also preferred highly recommended articles. Defense-motivated partisans exhibited a stronger confirmation bias, whereas impression motivation amplified the effects of social recommendations. These findings specify the conditions under which individuals engage in narrow, open-minded, or social patterns of information selection.

Keywords: Selective Exposure, Online News, Social Media, Social Recommendations, Heuristic-Systematic Model.

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The era of digital and social media can be characterized by an abundance of information from multiple sources and by increased opportunities for user participation. Compared with traditional mass media, Internet users have access to a much wider range of options and more control over the content they consume (Knobloch-Westerwick, Westerwick, & Johnson, 2015). In addition, they are easily able to observe others' recommendations and evaluations of the content that is available (Walther & Jang, 2012). These characteristics of the media environment

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may have important implications for citizens' selective exposure to information on politics and public affairs.

On one hand, this wealth of content offers great potential for an informed citizenry to locate relevant information with diverse viewpoints (see Dahlberg, 2011). On the other hand, people's freedom of choice may result in the selection of content that is likely to strengthen their initial viewpoints but unlikely to enhance their knowledge (Iyengar & Hahn, 2009; Stroud, 2011). Research on selective exposure online has yielded support for the notion of such attitude-consistent choices (e.g., Garrett, 2009a; Knobloch-Westerwick & Meng, 2009), but has also demonstrated patterns of more open-minded information selection with a preference for balanced content (Winter & Krämer, 2012).

Contemporary social recommendations, such as a variety of online rating mechanisms or Facebook "likes," also offer opportunities to guide users' information selection decisions (Messing & Westwood, 2014). With regard to the democratic potential of the Internet, following the opinions of others may not only be beneficial in overcoming attitude-consistent choices but also raises concerns that audience recommendations might gravitate toward tabloid or soft news content (Yang, 2016). Although most studies have looked at the effects of either information attitude-consistency or social recommendations in isolation, contemporary websites typically contain *both* types of information: When deciding which articles to select for further reading, users are routinely exposed to multiple cues on the stance of the text (e.g., supporting or opposing their view, or featuring both sides of a debate) and also to others' reactions toward the available messages. The present research aims to investigate the question of how these diverse cues affect users' selective exposure to political articles and under which conditions readers pay attention to different types of cues.

We argue that selective exposure and the consideration of available cues likely depend on situational variables, particularly with regard to the goals of the reader. As a theoretical basis to explain potential situational differences, we utilize the heuristic-systematic model (HSM), which describes multiple motives for information processing (Chaiken, Giner-Sorolla, & Chen, 1996). The model distinguishes between states in which people aim to arrive at well-founded judgments (accuracy motivation) and states of goal-oriented processing in which people are motivated to defend their worldviews and their self-concept (defense motivation), or to make a desirable impression on others (impression motivation). Given that the utility of specific types of information varies with the goal that people pursue, it is plausible that the consideration of different news information cues relates to readers' situational motivations. By transferring the assumptions of the HSM to the phase of information *selection*, we aim to offer a new theoretical framework for the analysis of selective exposure in cue-rich media environments and to specify the conditions under which people engage in narrow, open-minded, or more social patterns of information selection.

Message cues: Selection of consistent, inconsistent, and balanced news articles

The headline or summary of a news article often conveys whether the message is two-sided or one-sided and which stance toward a topic is advocated. This information is crucial in the decision of whether to read an article or not, which is typically based on rather quick heuristics, for instance on the presumed utility, newsworthiness, or credibility of the full article (Sundar, Knobloch-Westerwick, & Hastall, 2007; Winter & Krämer, 2014). Classic research in the selective exposure paradigm (Lazarsfeld, Berelson, & Gaudet, 1944) has demonstrated that people tend to prefer information that is consistent with their preexisting attitudes (“confirmation bias;” Hart et al., 2009). This pattern has also been shown in the setting of selecting political content online (e.g., Garrett, 2009a; Knobloch-Westerwick & Meng, 2009). While most scholars agree that attitude-consistent selective exposure exists, recent analyses (Hart et al., 2009) suggest that the extent of the confirmation bias is relatively small. Some studies also showed situations in which the assumptions of the confirmation bias do not apply, for instance if counterattitudinal articles are connected to high news value (Donsbach, 1991) or high utility (Atkin, 1973; Knobloch-Westerwick & Kleinman, 2012).

As a potential explanation of attitude-consistent choices, many studies refer to cognitive dissonance theory (Festinger, 1957), which states that inconsistencies in one’s beliefs arouse mental discomfort: Exposure to like-minded content (selective approach) could help to reduce these aversive states, and selective avoidance of attitude-inconsistent content would prevent further dissonance. Accordingly, research has demonstrated the selection of attitude-consistent news articles based on headlines over the selection of attitude-inconsistent options (e.g., Knobloch-Westerwick & Meng, 2009). Yet, although both tendencies may co-occur, Garrett (2009b) suggests disentangling selective approach and avoidance, arguing that reinforcement seeking is the more influential process, because a strict avoidance of any challenging information is too difficult and would also conflict with positive self-views and the desire to gather useful information (Frey, 1986). Indeed, a study with online news headlines (Garrett, 2009a) showed that the positive influence of perceived congruency of the content on the likelihood of selection was stronger than the negative influence of the perceived amount of attitude-challenging information. Based on the overarching evidence regarding selective exposure to consistent or inconsistent information, we propose:

H1: Readers will select attitude-consistent articles more frequently than attitude-inconsistent articles.

In addition to one-sided pro or con articles, some texts provide information and arguments on both sides of a controversial issue, yet to date few selective exposure studies have included the opportunity to choose balanced articles. Consistent with the argument for the superiority of selective approach over avoidance, such balanced forms of presentation would likely attract readers’ attention, as two-sided messages

include proportions of like-minded information for each point of view that should increase their overall likelihood of selection over purely counterattitudinal articles. Indeed, for online science articles research has shown that readers evaluate two-sided messages as more credible than one-sided messages and select them more frequently (Winter & Krämer, 2012). In an experiment about political content, Garrett and Stroud (2014) presented headlines with bar graphics that (ostensibly) indicated the amount of pro and con information: The likelihood of selection was positively related to the (graphic) amount of consistent information, but there was no significant negative relationship to the amount of inconsistent information—both balanced and attitude-consistent articles were preferred over attitude-inconsistent articles. Similarly, Metzger, Hartsell, and Flanagin (2015) found comparable selection rates for attitude-consistent and balanced news sources.

However, other theoretical assumptions may lead to contrary conclusions. Two-sided messages may be more difficult to process because readers have to deal with conflicting arguments (Hale, Mongeau, & Thomas, 1991). Also, readers' evaluation of the presented headlines may not always be objective: Research on the hostile media effect (Vallone, Ross, & Lepper, 1985) showed that partisans perceive balanced articles as biased against their point of view (e.g., Gunther, Edgerly, Akin, & Broesch, 2012), which would decrease the likelihood of selection. In fact, in a study in which participants were able to choose between articles with conservative, liberal, or neutral headlines (Jang, 2014), neutral articles were selected less frequently than articles that were in line with readers' political views. This discrepancy to findings by Garrett and Stroud (2014) might be explained by differences in the experimental manipulations (graphic bars vs. normal headlines) or the fact that the neutral articles in the latter study did not always explicitly refer to both opinions (e.g., "Abortion issue arises in budget debate"). In light of these mixed results, in RQ1 we propose to test the potential of two-sided or balanced news in the setting of participatory news websites:

RQ1: Does the frequency of selection differ between balanced and attitude-consistent articles?

Social cues: Selection of recommended articles

While online headlines and summaries may not be fundamentally different from their counterparts in traditional newspapers, contemporary websites have also incorporated new features that may guide information selection. Most online news sites offer options to recommend, rate, share, or comment on articles, and the corresponding voices of the audience and aggregate statistics (Walther & Jang, 2012) are routinely displayed below or adjacent to the main message.

Research on the perception of user-generated content has shown that readers pay attention to these social information cues and assess the credibility of online content based on statements from friends or unknown others (Metzger, Flanagin, & Medders, 2010). If an article has been evaluated favorably, this is likely to trigger the endorsement or bandwagon heuristic (Chaiken, 1987; Sundar et al., 2007), based on the belief that content or opinions that have been endorsed by others are likely to be valuable

or correct. The use of this heuristic may sometimes replace one's own evaluation of information and thereby reduce cognitive effort, which may work well when recommendations are given by a sufficiently large number of trustworthy peers but may also be susceptible to problems of crowd behavior (Metzger et al., 2010).

Regarding the effects of these social endorsements on selective exposure, Knobloch-Westerwick, Sharma, Hansen, and Alter (2005) showed that articles with positive ratings were read for longer. Yang (2016) demonstrated that readers of news sites make use of the "most viewed" sections and pay attention to highly recommended articles. Only a few studies, however, have investigated the juxtaposition of different news cues and the relative influence of social recommendations compared to more classic factors. A study with a mock news aggregator site showed stronger effects of source reputation compared to community ratings and the number of views (Winter & Krämer, 2014), whereas Messing and Westwood (2014) found that Facebook likes trumped the choice of preferred sources with a liberal or conservative leaning. The latter finding suggests that social recommendations might be able to reduce the confirmation bias in information selection. In order to test this pattern in a setting with a simultaneous variation of different message types (including attitude-consistent and inconsistent headlines, which offer more reliable cues about the slant of the article than the name of the source), we posit the following hypothesis:

H2: Readers will select articles with a high number of recommendations more frequently than articles with a low number of recommendations.

Selective consideration of news cues and motives for information search

The diversity of message, social, and other cues in contemporary media environments raises the question of what leads recipients to pay attention to particular cues (and to ignore others). Given the partly discrepant findings so far, it seems unlikely that there is a general superiority of one type of cue in information selection. Rather, the consideration of news cues probably depends on the specific usage situation, the platform, and individual preferences. Therefore, as argued by Smith, Fabrigar, and Norris (2008), selective exposure research would benefit from a stronger consideration of moderator variables.

One situational factor that has been shown to be an important predictor of people's information processing (but that has not been considered extensively with regard to selection) is news readers' motivations. The HSM (Chaiken et al., 1996) describes different motivations that are relevant to the selection of information. As a basic motivation, the first version of the HSM (Chaiken, 1987) held that the goal of information processing is to come to accurate attitudes and beliefs: To do so, readers with sufficient motivation and capacities check the quality of arguments thoroughly (systematic processing); otherwise, they rely on mental shortcuts (heuristic processing). Chaiken et al. (1996) later amended this to say that people may not always be concerned with arriving at an adequate and unbiased understanding of the world (i.e.,

an accuracy motivation); they can also be motivated to preserve their worldviews and their self-concept (i.e., a defense motivation) or to make a desirable impression on others (i.e., an impression motivation). According to this multiple-motive model, both heuristic and systematic processing are able to serve these goals. We next discuss the mechanisms of information selection and the importance of specific cues for each type of motivation.

Accuracy-motivated information selection

Accuracy motivation is defined as “the desire to hold attitudes and beliefs that are objectively valid” (Chaiken *et al.*, 1996, p. 556). The basic assumption is that accuracy-motivated readers carefully scrutinize information (systematic processing) or, in situations in which their general motivation is lower, use the best available heuristic. Of course, this does not mean that they are always successful in forming well-founded judgments—despite their good intentions, they might still use misleading heuristics—but their overarching goal does not privilege a specific viewpoint from the outset.

Transferring these assumptions to the phase of information selection, it can be expected that accuracy goals promote the choice of more balanced articles as this would be a prerequisite for an unbiased understanding of the issue at hand. Research on postdecisional selective exposure has shown that the confirmation bias is weaker if the decision is relevant (Hart *et al.*, 2009), which has been interpreted as an accuracy motivation. According to Fischer and Greitemeyer (2010), this reduction of the confirmation bias only occurs if the accuracy goals are related to the outcome of the decision: If people are asked for an accurate information search, they might still exhibit a confirmation bias as they evaluate congenial information as more credible (Fischer, Jonas, Frey, & Schulz-Hardt, 2005). However, as everyday news media usage is not often related to specific decisions, findings on postdecisional exposure (typically involving scenarios of buying a product or business decisions) might not fully capture the motivations that are prevalent when selecting news articles. Here, accuracy goals rather refer to the quality of the conclusion that will be drawn after reading an article (for instance, arriving at an informed opinion that is based on good arguments).

Along these lines, participants in a study by Lundgren and Prislin (1998) were told that they would engage in a discussion in which their logic and reasoning abilities would be evaluated. The anticipation of such a discussion led to a reduced confirmation bias in information selection. In one of the few studies on motivated online selectivity, Kim (2007) used instructions that stressed the importance of having an accurate view toward political candidates, which reduced exposure to the websites of preferred candidates. Building upon and extending this research, we test the patterns of accuracy-motivated selection on contemporary social media sites. Given that balanced articles (that include both points of view) as well counterattitudinal articles (which might contain arguments that have been unknown so far) are likely to increase readers' awareness of and tolerance toward different positions (Mutz, 2006),

the selection of such content appears to be more promising for the goal of reaching an accurate understanding of the topic than using only attitude-consistent choices. Hence, we posit the following:

H3: Accuracy-motivated readers will show a stronger preference for balanced articles than defense-motivated readers and readers with generally lower motivation (i.e., the control group).

H4: Accuracy-motivated readers will show a higher selection rate of attitude-inconsistent articles than readers in other motivational states.

Defense-motivated information selection

Although accuracy-motivated readers might come closest to the ideals of an informed citizenry, a large body of research (e.g., Kunda, 1990) has shown that people are often driven to preserve their self-concept or worldviews, which may happen consciously or unconsciously with the illusion of still being objective. Chaiken *et al.* (1996) defined this mindset of defense motivation as “the desire to hold attitudes and beliefs that are congruent with existing self-definitional attitudes and beliefs” (p. 557). Indeed, one could argue that research in the classic selective exposure paradigm with a focus on attitude-consistency portrays defense motivation as the default mode of media reception.

The HSM predicts that defense-motivated readers process information selectively and privilege cues and arguments that reinforce their prior attitude. In support of this notion, Giner-Sorolla and Chaiken (1997) showed that defense-motivated readers judge congenial cues as more reliable than cues that contradict their opinion. With regard to information or cues that challenge existing beliefs, two mechanisms are proposed by the HSM: Defense-motivated readers may either ignore the inconsistent content (defensive inattention) or find reasons why the attitude-challenging information is not correct (defensive counterarguing). The latter process, however, is only likely to occur if the content seems easy to refute (Lowin, 1969).

Few studies, however, have engaged in a comparison of different modes of motivation. Lundgren and Prislun (1998), for example, found a higher selection rate for consistent arguments if the topic was personally relevant to participants. In the online realm, research shows that people who expected disagreement in a discussion visited more congruent Web pages than those who expected agreement (Edgerly *et al.*, 2014). Considering the juxtaposition of cues on contemporary websites, the HSM leads to the assumption that defense-motivated readers exhibit a stronger confirmation bias (inattention to inconsistent information) and should particularly avoid challenging information that has been evaluated positively by others and thus appears difficult to refute. We therefore propose:

H5: Defense-motivated readers will show a stronger preference for consistent articles than readers in different motivational states.

H6: Defense-motivated readers will show the weakest preference for attitude-inconsistent information with a high number of recommendations.

Impression-motivated information selection

As a further directional goal of information processing, the HSM proposes impression motivation as a contextual state characterized by “an orientation toward holding and expressing beliefs dictated by the current interpersonal situation” (Chaiken et al., 1996, p. 554). Under these circumstances, individuals may adjust their information processing to arrive at a conclusion that helps them to make a positive impression on others. For instance, if one knows the interaction partner’s opinion, best strategy would be to hold and express the same opinion, as agreement typically facilitates liking. However, in most cases, the opinions of a potential interaction partner or a broader audience are not fully known. In that case, one could express a moderate opinion, which would reduce the danger of high levels of disagreement and allow greater flexibility toward both sides (Chaiken et al., 1996).

Compared to accuracy and defense motivations, empirical research on impression-motivated reasoning is scarce. In an experiment by Tetlock (1983), participants shifted their attitudes toward those of the target if they expected an interaction. People who anticipated a discussion with an unknown partner formed more moderate opinions, regardless of the quality of arguments that were presented (Leippe & Elkin, 1987). Similarly, advisors showed a stronger bias in their evaluation of information based on the advisee’s opinion if they were primed toward impression motivation (Kastenmüller, Jonas, Fischer, Frey, & Fischer, 2013).

In the contemporary media environment, impression-motivated readers have many options when preparing for social interactions with unknown others or with a broad set of interaction partners. Consistent with the assumption that moderate opinions minimize disagreement, they could strive for a relatively neutral opinion (Leippe & Elkin, 1987). For this purpose, balanced messages would be most helpful, as they provide readers with an overview and arguments for both sides. Furthermore, they could help one to present oneself as a thoughtful person who is a relatively neutral expert. Therefore, we predict that:

H7: Impression-motivated readers will show a stronger preference for balanced articles than defense-motivated readers and readers with generally lower motivation (i.e., the control group).

Social media sites also offer additional strategies for impression-motivated readers through the display of cues about the popularity of content, which indicates information about the dominant position in the general public (Walther & Jang, 2012). Knowing popular content and opinions may be particularly useful in social situations in which people aim to appear likeable and agreeable. Therefore, it can be expected that higher degrees of impression motivation will lead to higher efforts in assessing public opinion and a stronger susceptibility toward the endorsement heuristic (Metzger et al., 2010), triggered by recommendations and Facebook “likes.” Thus, we propose:

H8: Impression-motivated readers will show a stronger preference for articles with a high number of recommendations than readers in other motivational states.

Method

To test the hypotheses, we conducted a laboratory experiment in which participants were asked to select and read news articles on a website. The articles covered government surveillance in the United States through the programs of the National Security Agency (NSA) for collecting information about citizens' telephone calls, e-mails, and other online communications. After revelations by whistleblower Edward Snowden, the NSA programs were a controversial and highly discussed issue at the time of the study. The design of the experiment included message valence (pro, con, and balanced) and social recommendations (high and low) as within-subject factors, and readers' situational motivations (accuracy, defense, impression motivation, and control group) as a between-subject factor.

Sample

One hundred and forty-six undergraduate students (87 female) from a large U.S. university took part in the study. Their ages ranged from 18 to 29 ($M = 19.97$, $SD = 1.75$). 47.3% of participants were White/Caucasian, 21.2% Asian, 17.8% Hispanic, and 4.1% African American. As their preferred party, 46.6% named the Democrats and 15.8% the Republicans (2.1% Green, 0.7% Tea Party, 17.1% independent, 17.8% other).

Stimulus material

The overview (aka "splash") page of the website showed six headlines between five and eight words each and summaries (approximately 50 words) of articles on the topic of government surveillance (see Figure 1). By clicking on the headline, participants were able to read any entire article (approximately 500 words). Message valence and social recommendations were systematically varied as within-subject factors. Concerning message valence, the headline and summary either indicated that the article included arguments in favor of government surveillance (pro: e.g., "How surveillance protects our nation"), against surveillance (con: e.g., "NSA surveillance program violates Constitution"), or featured both opinions (balanced: e.g., "The double-edged sword of surveillance"). Social recommendations were operationalized via the number of Facebook likes, which was either high or low. This 3×2 design resulted in six combinations, all of which were visible on the splash page and accessible without scrolling. In order to minimize position effects, the six headlines and summaries were displayed in two different orders. Within each article type (pro/con/balanced), one article was shown with a high number of likes and the other with a low number (in a randomized rotation, half of the sample received text A of one category with many likes and text B with few likes, and vice versa for the other half of the sample).

Pilot test of stimulus materials

To ensure that the articles were clearly perceived as pro, con, or balanced, we conducted a pilot study with 46 additional participants (39 female, 1 not specified; mean age 19.35, $SD = 1.18$) drawn from the same population as the main study. For this



Figure 1 Screenshot of the website that was used as stimulus material.

purpose, nine headlines and summaries about the topic of government surveillance¹ were used. Respondents were asked to rate a subset of these short articles (displayed in random order): For each headline and summary, they assessed the position advocated in the article from 1 (*strongly supports government surveillance*) to 5 (*strongly opposes government surveillance*), which type of arguments they would expect in the whole articles from 1 (*very one-sided*) to 6 (*very balanced*), and whether the texts are interesting and easy to understand (on 5-point scales). Based on the results, we selected six headlines/summaries that matched our criteria. Table 1 summarizes the results for the materials selected.

Furthermore, participants were asked what number of likes they would consider a high and low number for a typical news story that is posted on the Facebook page of news media organizations (with a slider from 0 to 10,000). Results showed a mean of 7,158.02 ($SD = 2,240.83$) for the typical high number of likes and a mean of 412.38 ($SD = 309.57$) for the low number. For the main study, numbers about one standard deviation above the mean for the highly recommended texts and one standard deviation below the mean for the texts with low levels of social recommendation were employed.

Experimental groups and procedure

Readers' motivations were varied as a between-subjects factor with four conditions (accuracy, defense, impression, and control group). The experiment was announced as a study on how people feel and communicate about current issues in the news. The study description specified that participants would be asked to search for information on an online news site and join a discussion on a specific topic. First, a questionnaire asked for participants' opinions on several current news issues such as immigration, minimum wages, and government surveillance, and their general usage of news and social networking sites. Then, specific instructions about the (ostensible) upcoming

Table 1 Results of the Pilot Study: Evaluation of Article Headlines and Summaries

Title of Article	Stance of the Article (support [1]–oppose [5])	Sidedness of the Article (one-sided [1]–balanced [6])	The Article Is Interesting (1–5)	The Article Is Easy to Understand (1–5)
How surveillance protects our nation	1.18 (0.50)	1.95 (1.00)	3.50 (1.01)	3.77 (0.81)
Why data intelligence is necessary to prevent terror	1.29 (0.91)	2.29 (1.46)	3.58 (0.97)	3.79 (1.14)
The double-edged sword of surveillance	2.96 (0.20)	5.29 (0.86)	3.58 (0.83)	3.75 (0.94)
The balance between privacy and security	3.08 (0.28)	5.46 (0.83)	3.58 (0.97)	3.96 (1.23)
NSA intrusion of privacy threatens liberty	4.70 (0.93)	1.87 (1.14)	3.78 (0.80)	4.00 (0.80)
NSA surveillance program violates constitution	4.74 (0.92)	1.74 (0.92)	3.87 (0.82)	3.96 (0.88)

discussion were displayed: Participants were told that the topic would be the NSA debate and that they would be asked to do a brief search for information on a test version of a new online news website showing several articles on this topic from various national news sources. After that, they were told they would have a face-to-face discussion with another participant in a separate room.

The motivational states were induced via specific instructions about each participant's goal in the upcoming discussion that emphasized the importance of displaying accurate logic and reasoning (accuracy motivation), justifying one's own opinion (defense motivation), or making a positive impression and demonstrating agreeableness in social situations (impression motivation). Participants were told that those who were judged best at showing the specific requested skills in the discussion (e.g., accuracy, defense, or impression) would receive a \$50 gift card for Amazon.com. The scripts for accuracy and impression motivation (see Appendix A for the full versions) were partly based on instructions by Lundgren and Prislin (1998) and Wang (2013), and the induction of defense motivation was adapted from studies by Kim (2007) and Westerwick, Kleinman, and Knobloch-Westerwick (2013). Subjects in the control group were told that they would not take part in the discussion themselves but that they would have the role of an observer and notetaker, which was aimed to induce

a generally lower level of motivation but included the same task of browsing through the webpage.

After participants confirmed that they understood the instructions, the experimenter opened the website. Reading time was limited to 4 minutes (as in recent studies on online selection, e.g., Knobloch-Westerwick & Johnson, 2014). Sessions were unobtrusively saved with screen-recording software. After that, participants filled out a second questionnaire that included questions about their evaluation of the webpage and the articles, their thoughts about the topic, a second assessment of their attitudes toward government surveillance, manipulation check items, as well as questions about characteristics of the reader and demographics. In the end, participants were fully debriefed and the experimenter explained that there would be no actual face-to-face discussion. Finally, participants had the opportunity to enter their e-mail address for the \$50 gift card lottery.

Measures

Prior attitude toward the topic

On 7-point scales, participants indicated how interested ($M = 5.14$, $SD = 1.39$) and knowledgeable ($M = 2.89$, $SD = 1.50$) they are with regard to the topic of government surveillance (Hampton et al., 2014). Their attitude was assessed with the question whether they oppose or favor NSA programs that collect citizens' communications ($M = 3.03$, $SD = 1.33$) and four additional items ("The U.S. government's surveillance program to collect the communications of U.S. citizens is a necessary part of antiterrorism efforts," "All data collection for the antiterrorism program of the government should be stopped" (reverse-coded), "Americans need to be willing to give up privacy in order to be safe from terrorism," "The government should be allowed to spy on American citizens to protect them from terrorism"), which were rated on a 7-point Likert scale between "strongly disagree" and "strongly agree." We averaged these five measures as a representation of participants' prior attitude toward the topic ($M = 3.45$, $SD = 1.19$, Cronbach's $\alpha = 0.87$).

Selective exposure

Based on the screen-recordings, the selection of articles, the order in which they were viewed, and how long they were viewed were assessed. This resulted in variables for the frequency of selection for each article (selected: yes or no), reading time (in seconds), and order of selection (if an article was chosen first, it was coded as 1 and correspondingly for other positions; if an article was not selected, it was coded as 6). For each participant, variables were generated representing a reader's preference for highly recommended articles (number of clicks on articles with many likes minus number of clicks on articles with few likes). Based on the prior attitude scores (and the scale midpoint of 4), the pro and con articles were categorized as attitude-consistent or attitude-inconsistent for each participant (this was not possible for 13 participants who had an exact 4.00 in the attitude variable). Variables reflecting readers' preference for balanced articles (number of clicks on balanced articles minus number of

clicks on other articles) as well as their preference for consistent information (minus inconsistent information) were also created. Corresponding difference scores were also calculated for reading time.

Reader characteristics

As dispositional variables, the questionnaire assessed participants' political interest (Otto & Bacherle, 2011) with five items such as "I observe political events with great interest," $M = 4.04$, $SD = 1.56$, $\alpha = 0.93$, and their general fear of negative evaluation in social situations (Leary, 1983) with 10 items such as "I am afraid that others will not approve of me," $M = 4.15$, $SD = 1.15$, $\alpha = 0.90$ (rated on a 7-point scale). Further, 18 items (e.g., "I really enjoy a task that involves coming up with new solutions to problems"), rated on a 5-point scale, measured participants' need for cognition (Cacioppo, Petty, & Kao, 1984), $M = 3.27$, $SD = 0.53$, $\alpha = 0.87$. The average number of Facebook friends for the sample was 615.89 ($SD = 446.95$).

Motivations

Fourteen items, partly adapted from the study by Lundgren and Prislun (1998), assessed the motivations that were salient during participants' search for information. Based on a principal component analysis with Varimax rotation, they were grouped into three factors representing accuracy (four items such as "come to an accurate conclusion," $\alpha = 0.85$), defense (four items such as "find information to help you defend your own opinion," $\alpha = 0.91$), and impression motivation (five items such as "locate information that will help you to be likeable," $\alpha = 0.92$), explaining 71.52% of the variance, one item with double loadings was excluded. A multiple-choice question at the end of the questionnaire showed that 129 of 146 participants correctly remembered the instruction about their role in the expected discussion. Participants were also asked to what extent they based their selection of articles on the number of likes the stories had received (on a 5-point scale from "not at all" to "a whole lot").

Results

Descriptive results and manipulation check

During the 4 minutes of reading time, participants selected an average of 3.34 articles ($SD = 1.26$) for further reading. In the postquestionnaire, participants reported that they based their selection decisions only to a very low extent on the number of likes ($M = 1.58$, $SD = 1.04$).

Based on the manipulation check questions, we tested whether the experimental conditions induced different motivational states. As anticipated, the highest mean levels for each motivation were observed in the expected conditions (see Table 2). Planned contrast analyses (comparing the experimental group of the target motivation with the three other groups) showed that the reported accuracy motivation in the accuracy condition was significantly higher than in the other conditions, $t[142] = -2.13$; $p = .018$ (one-tailed). Participants in the defense condition reported

Table 2 Manipulation Check ($N = 146$): Effects of Experimental Conditions on the Levels of Reported Motivations (means and standard deviations)

	Reported Accuracy Motivation	Reported Defense Motivation	Reported Impression Motivation
Accuracy condition	5.55 (1.16)	5.08 (1.46)	4.05 (1.64)
Defense condition	5.05 (1.18)	5.64 (1.44)	3.64 (1.64)
Impression condition	4.96 (1.24)	5.15 (1.21)	4.83 (1.36)
Control group	5.13 (1.37)	4.16 (1.57)	3.63 (1.43)

higher levels of defense motivation than in the other conditions, $t[142] = -3.10$; $p = .001$ (one-tailed), and levels of impression motivation were higher among subjects in the impression condition, $t[142] = -3.59$; $p < .001$ (one-tailed). These overall results suggest that the manipulation was generally successful in inducing the motivational states as intended. To remove bias from individuals who were not effectively motivated by the stimuli, we excluded participants who expressed very low scores (scores of 2 or below on a 7-point scale) in the motivation of their experimental condition (i.e., those people who were not sufficiently motivated in the fashion intended). We also excluded participants who expressed extremely high scores for nontarget motivations that were also greater than the targeted experimental motivation (i.e., those with scores of less than 7 on the targeted motivation and 7 on the nontargeted motivation). On this basis, the data of nine participants were removed from subsequent analyses.² Contrast analyses on this final sample showed even more pronounced differences between the target condition and the other experimental groups, across all motivations.

Effects of message valence and social cues on selection

To test the effects of message and social cues on readers' selective exposure patterns, we conducted repeated measures analyses of variance (ANOVAs). Message valence (pro/con/balanced) and the number of social recommendations (high/low) were entered as independent within-subject factors; furthermore, we controlled for the effect of the induced motivations by entering the experimental condition as a between-subject factor. For the dependent measure of number of clicks, a significant main effect of the number of likes emerged ($F[1, 133] = 7.76$, $p = .006$, $\eta_p^2 = 0.06$): Articles with a high number of recommendations (estimated marginal means: $M = 0.61$, $SE = 0.03$) were clicked on more frequently for further reading than articles with a low number of recommendations ($M = 0.51$, $SE = 0.03$). Furthermore, a marginal interaction between the number of likes and experimental condition emerged ($F[3, 133] = 2.55$, $p = .058$, $\eta_p^2 = 0.05$), which will be analyzed in further detail in the next section. The dependent measure of reading time was similarly affected by the number of likes ($F[1, 133] = 7.89$, $p = .006$, $\eta_p^2 = 0.06$ /high number of likes: $M = 38.80$, $SE = 1.60$ /low number: $M = 30.12$, $SE = 1.56$) and a

main effect of message valence ($F[2, 266] = 5.01, p = .007, \eta_p^2 = 0.04$) occurred, such that balanced articles ($M = 42.19, SE = 2.54$) were read for longer than pro ($M = 29.70, SE = 2.57$ /post hoc comparison with Bonferroni correction: $p = .018$) and con articles ($M = 31.51, SE = 2.34, p = .029$). As the variable for the order in which participants selected the articles does not consist of interval-level data, we employed Friedman's nonparametric ANOVA for ranks. Results showed a significant difference ($\chi^2(1) = 4.36; p = .037$) in that articles with many likes (mean rank = 1.41) were selected earlier than articles with few likes (mean rank = 1.59). These consistent effects of the number of likes on the number of clicks, reading time, and order of selection are in clear contrast to readers' own assessment in which they indicated a very low importance of popularity cues, as noted earlier.

When considering readers' prior attitude toward the topic and classifying articles as attitude-inconsistent or -consistent, ANOVA also revealed significant effects of message valence ($F[2, 240] = 10.63, p < .001, \eta_p^2 = 0.08$) on the frequency of selection. Inconsistent articles ($M = 0.45, SE = 0.04$) were clicked on less frequently than consistent articles ($M = 0.66, SE = 0.03, p < .001$) or balanced articles ($M = 0.59, SE = 0.03, p = .008$), while the latter two did not differ significantly from each other. Similarly, the consistency and sidedness of the articles significantly affected reading time ($F[2, 240] = 11.24, p < .001, \eta_p^2 = 0.09$): Articles with balanced ($M = 40.96, SE = 2.65, p < .001$) or consistent headlines ($M = 39.85, SE = 2.64, p < .001$) were read for longer than texts that appeared to be counterattitudinal ($M = 22.67, SE = 2.26$). In addition, a marginal interaction between message valence and experimental condition occurred ($F[6, 240] = 1.92, p = .079, \eta_p^2 = 0.05$). Friedman's test for the order of selection ($\chi^2(2) = 14.64; p < .001$) revealed that consistent articles (mean rank = 1.87) as well as balanced articles (mean rank = 1.86) were selected earlier than inconsistent articles (mean rank = 2.27). The significant main effects of the number of likes reported above also appeared in the analyses that included the classification of attitude-(in)consistency.³ In summary, H1 on the preference for attitude-consistent articles and H2 on the preference for highly recommended articles are supported by these findings. Regarding RQ1, both balanced and consistent articles are preferred over counterattitudinal articles.

Effects of motivations on selection

To investigate the effects of different motivational states on readers' selection behavior, we conducted ANOVAs with the experimental conditions as the independent variable and readers' preferences for specific articles as dependent variables. Post hoc power analyses indicated that the given sample sizes were sufficient to detect medium effects, as reported in prior selective exposure studies.⁴ For the preference for balanced articles (number of clicks on balanced articles minus number of clicks on one-sided articles as well as difference score of corresponding reading times), there were no significant effects. Therefore, H3 and H7, which predicted a higher selection rate of balanced messages for accuracy-motivated and impression-motivated readers, are not supported by the data.

Table 3 Effects of Experimental Conditions on Readers' Preference for Attitude-Consistent (minus inconsistent) Articles and Articles With Many (minus few) Recommendations (means and standard deviations)

	Preference for Consistent Articles (clicks)	Preference for Consistent Articles (reading time)	Preference for Highly Recommended Articles (clicks)
Accuracy condition	0.56 (0.98)	48.47 (75.10)	0.22 (1.42)
Defense condition	0.65 (1.43)	54.97 (125.78)	-0.15 (1.02)
Impression condition	0.43 (1.07)	34.21 (77.24)	0.65 (1.33)
Control group	0.06 (0.79)	-0.18 (83.36)	0.44 (1.08)

For the preference for consistent (minus inconsistent) articles in terms of number of clicks, a marginally significant effect of readers' motivations occurred (Welch's $F[3, 64.29] = 2.42, p = .075$).⁵ The mean values (see Table 3) indicate a higher selection rate of confirmatory information for defense motivation and also accuracy and impression motivation in comparison to the control group; however, the post hoc comparisons were not significant. Similarly, results showed a marginal effect of the experimental conditions on the reading time spent on consistent versus inconsistent articles (Welch's $F[3, 65.56] = 2.46, p = .071$). Again, mean values suggest that participants in the three motivation conditions spent more reading time on consistent content than participants in the control group, but only the post hoc contrast (with Games-Howell correction) between accuracy motivation and the control group approached significance ($SE = 19.67, p = .074$).

As a follow-up analysis, we further investigated the patterns of the confirmation bias in the subsample of participants who have a clear opinion toward the topic. Therefore, we classified prior attitudes in three groups (con, medium, pro) based on the distribution in the sample and only considered participants in the lower and higher thirds ($n = 85$; thus, participants who are either clearly against or in favor of government surveillance). Results showed more pronounced effects of the experimental condition on the preference for consistent information in reading time ($F[3, 81] = 6.35, p = .001, \eta_p^2 = 0.19$) among these subjects. Defense-motivated participants ($M = 80.00, SD = 115.34/SE = 26.59, p = .001$, with Bonferroni correction) as well as accuracy-motivated participants ($M = 62.38, SD = 81.52/SE = 26.59, p = .008$) spent more time on attitude-consistent versus inconsistent articles than the control group ($M = -25.84, SD = 75.44$), whereas impression-motivated readers ($M = 20.89, SD = 83.38$) did not differ from the other groups. In addition, a significant effect for the number of clicks on consistent versus inconsistent information occurred (Welch's $F[3, 42.01] = 3.67, p = .020$), showing higher rates for defense ($M = 0.86, SD = 1.39/SE = 0.34, p = .049$) and accuracy motivation ($M = 0.67, SD = 1.06/SE = 0.28, p = .057$) in comparison to the control group ($M = -0.08, SD = 0.81$). In summary, these findings contradict H4, which proposed

that accuracy-motivated readers would more often select inconsistent articles, but are consistent with H5 in showing a stronger confirmation bias for defense-motivated participants among readers with a pronounced opinion toward the topic.

The selection rate of attitude-inconsistent articles with a high number of recommendations was not affected by the experimental conditions. Therefore, H6, which predicted that defense-motivated readers would strongly avoid this content, is not supported by the data.

The preference for articles with a high (vs. low) number of likes (frequency of selection) was significantly related to readers' motivations (Welch's $F[3, 72.60] = 2.97$, $p = .037$). According to the mean values (see Table 3) and post hoc comparisons (Games-Howell), impression-motivated readers showed a significantly stronger preference for highly recommended content than defense-motivated participants ($SE = 0.30$, $p = .047$), whereas the accuracy group and the control group did not differ significantly from the other conditions.⁶ This finding partially supports H8.

Discussion

This study investigated selective exposure to news articles on contemporary social media sites, in the pursuit of two main goals. First, we aimed to examine the relative importance of message cues (one-sided [attitude consistent and inconsistent] as well as balanced articles) and social cues (in the form of the number of Facebook likes), as they can be found in juxtaposition in current cue-rich environments. Second, we analyzed whether the consideration of specific news cues in the selection of information depends on situational motivations of the reader (i.e., accuracy, defense, and impression motivations).

With regard to main effects of the news cues, results highlight the importance of both message valence and social recommendations. Readers exhibited a confirmation bias in that they more frequently selected attitude-consistent than attitude-challenging articles, in line with prior findings on online content selection (Knobloch-Westerwick et al., 2015). However, balanced messages in which both sides of a debate were present also attracted considerable attention: They were read more frequently than inconsistent articles and about as frequently as consistent messages. This portrays readers as more open-minded than in Jang's (2014) study with pro, con, and neutral headlines and corroborates findings by Garrett and Stroud (2014) in a more natural setting, supporting the notion that, even though readers prefer and approach like-minded content, they do not necessarily avoid non-like-minded content (Garrett, 2009b). This pattern leaves room for exposure to inconsistent information within the balanced messages, which might temper fears of an increased polarization through online selectivity (e.g., Iyengar & Hahn, 2009).

Social recommendations also elicited clear effects on readers' selection behavior. Articles that were accompanied by a high number of Facebook likes were clicked on more frequently, selected earlier, and read for longer than articles with a low number,

which is in line with prior considerations of endorsement heuristics in Web 2.0 environments (Messing & Westwood, 2014; Metzger *et al.*, 2010). Participants indicated a relatively low importance of likes in a subsequent self-report questionnaire (which clearly contradicts the observation of readers' behavior), and this suggests that the effects of social recommendations might operate on a less conscious level. In contrast to the study by Messing and Westwood (2014) that employed a manipulation of source instead of message cues and presented articles from liberal or conservative sources along with high and low numbers of likes, the effects of message cues in the present setting have not been overridden by the social cues. The confirmation bias (and the preference for balanced content) still occurred, which might indicate that headlines and summaries provide stronger cues about the consistency of content than sources that are on the liberal or conservative side of the spectrum. It appears that both message and social cues exert independent effects that do not work in interaction and that one type of cue is not generally stronger than the other.

Concerning the goal of analyzing the effects of readers' motivations, the consideration of specific states allowed further insights into the conditions under which readers pay attention to specific cues. Based on the multiple-motive approach of the HSM (Chaiken *et al.*, 1996), the present work investigated patterns of open-minded information processing (accuracy motivation) and directional goals of defending one's views (defense motivation) or creating a positive relationship with others in social situations (impression motivation).

Consistent with the HSM's prediction that when the desire to preserve one's beliefs is salient readers particularly privilege congenial information, defense motivation amplified the confirmation bias among participants with a clear pro or con opinion toward the topic: Readers tried to bolster their opinion and prepare for a discussion in which they expected disagreement (Edgerly *et al.*, 2014). With regard to the mechanisms of defense-motivated selection, the results provide support for defensive inattention to counterattitudinal content (Chaiken *et al.*, 1996). However, participants did not consider the number of likes to assess the potential strength of counterattitudinal information, although low popularity might indicate content that is easy to refute and could therefore help defensive counterarguing (Lowin, 1969).

The induction of an accuracy motivation, with the goal to arrive at logical and well-founded conclusions, however, did not lead to a higher selection of either balanced or attitude-inconsistent articles. Results even showed the tendency for a stronger confirmation bias for accuracy-motivated participants in comparison to the control group. This unexpected pattern, which is in contrast to findings by Lundgren and Prislin (1998) and Kim (2007), could be connected to the self-confirmation heuristic (Metzger *et al.*, 2010): Even when readers have the goal of finding the best information, they might not be able to judge information credibility from a neutral point of view and therefore evaluate congenial (but biased) information as more credible. As a consequence, accuracy motivation that focuses on the search might even strengthen the preference for consistent versus inconsistent information (Fischer & Greitemeyer, 2010).

If accuracy is only directed toward the outcome (e.g., when making an important decision; Hart et al., 2009), readers might be more open-minded in their selection behavior. Even though the instructions in this study mostly focused on the upcoming discussion, future research could employ a stricter distinction to disentangle the different foci. When considering the generally high level of accuracy motivation reported by participants and the main effect of a high selection rate for balanced news (which was not qualified by effects of the situational motivations), the overall pattern of information selection provides a more optimistic picture than the findings for the accuracy condition. Nevertheless, future work is necessary to identify motivational states that further encourage exposure to inconsistent and balanced articles.

Under conditions of impression motivation, when people have the goal of appearing likeable and developing a positive relationship with others (whose opinions are not fully known), results showed a higher consideration of social recommendations (articles with a high vs. low number of Facebook likes) than among defense-motivated participants. This can be interpreted as an attempt to identify popular positions in the general public, which would enhance the likelihood of pleasant interactions (Tetlock, 1983). The alternative strategy of striving for moderate positions which allow flexibility toward both sides (Leippe & Elkin, 1987) could have been fulfilled with balanced messages but this was not particularly pronounced among impression-motivated participants: Due to the overall high selection rates of balanced articles, this might have also been due to a ceiling effect. The possibility that people who aim to create a likeable impression in future interactions search for more popular content has not been stated explicitly in the HSM (perhaps because social recommendations of content, as they can be found today, were less common at that time) but is perfectly consistent with the original considerations of the agreement-facilitates-liking heuristic (Chaiken et al., 1996): Impression-motivated individuals strive for positive relationships and tend to follow others' opinions — and if these opinions are not known, they use the available bandwagon cues that convey information about the views of the general audience and allow for a better assessment of socially accepted or popular opinions (Metzger et al., 2010).

Although this study tried to induce prototypical patterns of motivations, it will also be important to ask how prevalent accuracy, defense, and impression motivation are in people's actual media usage and which circumstances elicit various motivations. As the manipulation check data show, the three exemplary motivations are not mutually exclusive and may appear in different combinations. The salience of self-presentation in social media might lead to a generally high level of impression motivation and a stronger consideration of social recommendations. With regard to the democratic potential of online information, it is debatable whether such a social form of news consumption has predominantly positive or negative consequences. On one hand, highly recommended articles do not necessarily conform to one's own viewpoint and thereby might increase exposure to diverse or new information (Messing & Westwood, 2014), at least if friend lists on social media are more diverse than assumptions of echo chambers suggest. On the other hand, the more democratic

nature of gatekeeping might lead to a focus on soft news (Yang, 2016) and neglect less popular but relevant political content. It will be an interesting endeavor for future research to further analyze the interplay of news content, social cues, readers' dispositions, and motivations as well as algorithmic features of social media sites with regard to selection, information processing, and outcomes of political knowledge and participation.

Limitations to this study should be considered alongside the interpretation of its results. This study employed a student sample and an experimentally manipulated website that, although similar to current websites, does not capture the full diversity of information and opportunities of user interaction that can be found online. In order to reduce variance that could be induced by different attitudes toward existing sources, source descriptions, which are usually shown in contemporary social media channels, were not visible on the stimulus website. In addition, the experiment only dealt with one topic (the NSA debate), which limits generalizability. Ideally, the measurement of prior attitudes would have been conducted in a separate session to avoid a solidifying effect of attitude expression—however, this concern was mitigated by asking respondents about their opinions on a number of current issues (before revealing the actual topic of the session). The manipulation of motivations was based on hypothetical scenarios about an upcoming discussion that might have appeared artificial to some participants and might have differed from the natural usage situation.

In summary, the present research advances our understanding of selective exposure in two ways. First, the findings highlight the significant role of both message cues and social recommendations for information selection on contemporary interactive sites. Readers prefer attitude-consistent but also two-sided messages, which highlight the potential of balanced news, as well as articles that have been evaluated favorably by other readers. Second, results show that differences in the selective consideration of news cues can partly be explained by readers' situational motivations. While defense motivation among readers with a clear pro or con attitude amplifies the confirmation bias, impression motivation leads to a stronger preference for highly recommended articles. On a theoretical level, the multiple-motive approach of the HSM can therefore be seen as a valuable framework for the analysis of selective exposure in contemporary media environments, which extends the scope of the theory from persuasion and attitude formation to the phase of information selection. Thereby, we hope to encourage further research that incorporates motivational aspects as relevant moderators and provide a more differentiated and nuanced picture of the increasingly important phenomenon of selective exposure in social media environments.

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Endnotes

- 1 Additionally, we tested nine headlines and summaries about immigration. For the main study, we opted to use the NSA topic because it appeared to be slightly more relevant and interesting for subjects and pilot study participants showed a more diverse distribution of opinions on both sides.
- 2 We therefore report the results for the final sample of 137 participants (83 female, age: $M = 20.01$, $SD = 1.76$). As a further test, however, we conducted the same analyses with the full sample without any exclusions and report any differences in the pattern of results.
- 3 The analysis with the full sample produced the same pattern of main effects.
- 4 According to analyses with G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007), 120 participants were necessary to detect an effect of the size that was reported in Kim's study (2007) in an ANOVA with four conditions with a power of 95%. For a medium effect of $f = .030$, a minimum sample size of 128 was recommended to achieve a sufficient power level of 80%.
- 5 In cases of significant Levene tests, Welch's test for the assumption of nonequal variances and Games-Howell test for post hoc comparisons are reported.
- 6 In the analysis with the full sample without any exclusions, a similar pattern of effects emerged. The effects of readers' motivations on the selection rate of consistent (minus inconsistent) articles (Welch's $F[3, 70.65] = 2.77$, $p = .048$) and on the reading time of consistent (minus inconsistent) articles (Welch's $F[3, 71.19] = 2.73$, $p = .051$) were slightly more pronounced than in the final version that excluded participants who were not motivated in the intended direction. The effect of motivations on the consideration of highly recommended articles was slightly weaker (Welch's $F[3, 78.44] = 2.61$, $p = .057$).

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Appendix

Induction of motivations (instructions in the experimental conditions)

In a moment, you will be asked to do a brief search for information on a test version of a new online news website. On this website, you will see several articles on a topic from various national news sources. After you perform your search, you will have a face-to-face discussion with another participant in the study about the news topic.

Accuracy motivation

We are interested in understanding people's skills in finding and using the most accurate information possible. Therefore, during the upcoming discussion, your job is to be an expert and to present arguments that are as accurate as possible about the topic. We will analyze your behavior during the discussion with regard to how well you are

able to use accurate information in your discussion. The five participants who are evaluated as displaying the most accurate logic and reasoning will receive a \$50 Amazon gift card.

Defense motivation

We are interested in understanding people's skills in defending their own opinions as strongly as possible. Therefore, during the upcoming discussion, your job is to defend your viewpoint and to justify your opinion over opposing opinions, even if you think the other side has valid points. We will analyze your behavior during the discussion with regard to how well you are able to defend your opinion, not on the accuracy of the information you cite or your claims. The five participants who are evaluated as defending their viewpoint best will receive a \$50 Amazon gift card.

Impression motivation

We are interested in understanding people's skills at making positive impressions and communicating their likability and agreeableness in social situations. Therefore, during the upcoming discussion, your job is to try to make a good impression on your interaction partner and to develop a positive relationship with her/him. We will analyze your behavior during the discussion with regard to whether you are able to make a good impression in your discussion. The five participants who are evaluated as making the best impression on their partner will receive a \$50 Amazon gift card.

Control group

In a moment, you will be asked to do a brief search for information on a test version of a new online news website. On this website, you will see several articles on a topic from various national news sources. After you perform your search, you will join a discussion of other participants about the news website, for example, how it looks and how easy it is to use. During the discussion, your job is to watch and evaluate the discussion among the other participants—that is, you will not take part in the discussion yourself. Instead, your role will be that of an observer and a notetaker on what the participants say.