Confirmation Bias, Ingroup Bias, and Negativity Bias in Selective Exposure to Political Information

Silvia Knobloch-Westerwick¹, Cornelia Mothes¹, and Nick Polavin¹

Abstract
Selective reading of political online information was examined based on cognitive dissonance, social identity, and news values frameworks. Online reports were displayed to 156 Americans while selective exposure was tracked. The news articles that participants chose from were either conservative or liberal and also either positive or negative regarding American political policies. In addition, information processing styles (cognitive reflection and need-for-cognition) were measured. Results revealed confirmation and negativity biases, per cognitive dissonance and news values, but did not corroborate the hypothesis derived from social identity theory. Greater cognitive reflection, greater need-for-cognition, and worse affective state fostered the confirmation bias; stronger social comparison tendency reduced the negativity bias.

Keywords
selective exposure, confirmation bias, social identity, news values, political information

Audience members predominantly select what media messages they attend to and thus shape their individual information environments. Biases in political media coverage have long raised concerns among scholars (e.g., D’Alessio & Allen, 2000), but media users play a pivotal role in creating their own potentially biased information environment by selectively attending political messages. Specifically in the Internet age, where information selection has become particularly convenient due to online access,

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many scholars are concerned with factors that may result in biased message consumption (e.g., Bennett & Iyengar, 2008). Festinger’s (1957) theory of cognitive dissonance guided numerous studies that investigated whether media users prefer attitude-consistent content over attitude-discrepant messages (Donsbach, 2009). Another theory by Festinger (1954), social comparison theory, inspired social identity theory (Tajfel & Turner, 1979), which has guided some recent research into news selection and processing (e.g., Iyengar, Sood, & Lelkes, 2012; Stroud, Muddiman, & Lee, 2014). Per social identity theory, media consumers should prefer messages that present their ingroup in a favorable light, even though classic news factors research suggests that news consumers are generally more attracted to negative news.

In the following, these three theoretical perspectives will be reviewed to derive hypotheses. What information recipients choose to attend to is of central interest to this investigation. The term selective exposure is used here simply to denote that individuals choose from messages and exhibit preferences in those selections, which may take the form of a confirmation bias but can also demonstrate other leanings. An empirical study will examine the confirmation bias, the ingroup bias, and the negativity bias simultaneously in a selective exposure study in which American participants browsed online messages that aligned either with liberal or conservative stances and that either praised or critiqued the United States in comparison with another country.

Confirmation Bias: A Cognitive Dissonance Perspective

The postulation that individuals prefer messages that align preexisting attitudes over those messages that challenge them (Festinger, 1957) has not found consistent support throughout decades of research (Donsbach, 2009). Specific meta-analytic examination with focus on postdecision selective-exposure in controlled settings did indeed support Festinger’s (1957) propositions (D’Alessio & Allen, 2002). A recent surge of empirical investigations in particular for political news and information, with an emphasis on online contexts, has yielded more and more consensus that information users favor attitude-consistent messages (e.g., review by Knobloch-Westerwick, 2015). While debate exists on whether the avoidance of attitude-discrepant messages is as strong as the preference for attitude-consistent content (Garrett, 2009) and how the confirmation bias may foster political polarization (e.g., Iyengar et al., 2012; Stroud, 2010), the current view is that information users generally approach political messages with a confirmation bias. Hence, the present work also expects to find evidence of this bias.

**Hypothesis 1 (H1):** Selective exposure is greater for political messages that align with preexisting political attitudes than selective exposure to messages that challenge them (confirmation bias).

Given the concern that citizens may restrict themselves largely to attitude-consistent information with negative consequences for political discourse and polarization (Bennett & Iyengar, 2008; Knobloch-Westerwick, 2012), stable and situational factors that might moderate the extent of this confirmation bias need to be examined. Stable
interindividual differences have occasionally been examined (dogmatism, authoritarianism, chronic anxiety, and repression/sensitization; see reviews by Hart et al., 2009; Smith, Fabrigar, & Norris, 2008). Recent work suggests that information processing styles and the way in which attitude-consistent versus attitude-discrepant exposure is operationalized may affect the confirmation bias and its consequences for attitudes: Specifically, Taber and Lodge (2006) proposed that barring attitude-discrepant influences takes cognitive efforts. Simply put, selecting information that converges with preexisting views involves more cognitive engagement and preliminary processing of cues about the content of available messages than relatively mindless message choices. Thus, with the second hypothesis, the present work will also examine whether these stable interindividual differences in information processing styles influence the confirmation bias—also in light of the fact that the ample related research has only rarely considered such traits (Hart et al., 2009; Smith et al., 2008). Research by Kahan (2013) suggests that the tendency to override first intuitive conclusions in favor of more thoughtful processing as measured by Frederick’s (2005) cognitive reflection (CR) test favors even greater motivated processing along the lines of a confirmation bias, in line with Taber and Lodge’s notion. Furthermore, need for cognition (NFC) as the general motivation to engage in thorough processing should foster a greater confirmation bias accordingly, as proposed in the following.

**Hypothesis 2 (H2):** Information processing styles (a) CR and (b) NFC increase the extent of selective exposure to attitude-consistent messages (confirmation bias).

Moreover, affect as a *situational* factor will be considered because Festinger (1957) suggested that the confirmation bias results from a desire to reduce or avoid unpleasant states of dissonance; indeed, earlier work (Jonas, Graupmann, & Frey, 2006) demonstrated that a negative mood led to a stronger confirmation bias.

**Hypothesis 3 (H3):** A less positive affective state increases the extent of selective exposure to attitude-consistent messages.

Another lens in studying selection biases in political information use has applied a social identity perspective to the phenomenon. For example, source cues have often served to lead media users to anticipate attitude-consistent versus attitude-discrepant messages (e.g., Iyengar & Hahn, 2009)—Relatedly, source and media perceptions have recently been interpreted from a social identity perspective because media users tend to be more familiar with sources that are aligned with their political views and may perceive them as ingroup sources (Stroud et al., 2014). This line of work utilized partisanship as a type of social identity. To extend this approach, the next section will explore the social identity perspective with regard to nationality.

**Ingroup Bias: A Social Identity Perspective**

Numerous scholars have drawn upon social identity theory to study news content (Jones & Sheets, 2009; Rivenburgh, 2000) and consumption (e.g., Gilmore, Meeks, & Domke,
Social identity theory suggests that individuals categorize themselves and others into groups, with those groups they consider themselves to be a part of as ingroups and the others as outgroups (Tajfel & Turner, 1979). Hence, individuals think of themselves as having not only an individual “personal identity” but also a “social identity” defined by these group memberships. The theory further postulates ingroup favoritism such that individuals aim to derive positive self-esteem from differentiating their ingroups from relevant comparison outgroups such that the comparison sheds a favorable light on the ingroup. Several studies have fruitfully applied this perspective to news exposure. For example, Hoffner and Rehkoff (2011) interpreted voters’ perceptions of pre-election coverage and found that Republicans perceived the outgroup, defined as partisans of a nonpreferred party, to be more influenced by the news coverage. Work by Appiah, Knobloch-Westrick, and Alter (2013) demonstrated that African American news users spent more time with news that presented African Americans positively and news that presented Whites negatively, in line with the ingroup favoritism hypothesis. Moreover, Knobloch-Westrick and Hastall (2010) found that Germans from an older age group preferred reading negative news about younger individuals and positive news about same-age individuals, again corroborating ingroup favoritism. The authors suggested that this bias might be particularly strong among members of a group who perceive the comparison group to have higher status.

Nationality as a group identity should be highly relevant for news coverage and consumption, given that much public and international affairs coverage pertains to international relationships and comparisons. For example, Rivenburgh (2000) found that news media tend to present the nation of their readership in a favorable light, which would stand to reason in light of social identity theory, if readers prefer news content that reflects positively on their social group defined by nationality. In light of these theoretical considerations and some evidence on an ingroup bias in news selection, we extend this line of work to examine how national identity affects selective exposure to news.

**Hypothesis 4a (H4a):** Selective exposure is greater for political messages that praise the message recipients’ country in comparison with another country over messages that critique it (ingroup bias).

Moreover, the social identity perspective suggests that the ingroup bias should be stronger among individuals that identify more strongly with their nation as a social group. In addition, social identity theory has its foundation in social comparison theory (as mentioned above), which implies that the social identity impact should be greater among those who generally tend to contrast themselves with others as an individual social comparison tendency (Gibbons & Buunk, 1999).

**Hypothesis 5 (H5):** Stronger national identity among individual recipients increases their selective exposure to messages that praise the message recipients’ country.

**Hypothesis 6 (H6):** Greater tendency to engage in contrasting social comparisons increases selective exposure to messages that praise the message recipients’ country.
Negativity Bias: A News Value Perspective

Interestingly, the above outlined social identity perspective, which implies that news consumers favor positive news about their own group, challenges well-established conceptualizations of what makes an event relevant for news coverage and consumption. News values (Shoemaker, 1996) such as negativity of the portrayed events are thought to not only affect what events are chosen to be covered in the news but to also shape individuals’ selective news exposure (Eilders, 2006). Oftentimes, an evolutionary perspective is used to explain this overarching effect (Shoemaker, 1996; Soroka & McAdams, 2015), arguing that humans are hardwired to watch out for threats in the interest of survival and respond more strongly to negative stimuli with greater attention and stronger emotional responses.

Hence, negative news is generally thought to garner more attraction, which has been supported by selective exposure studies on general news (e.g., Zillmann, Chen, Knobloch, & Callison, 2004; Zillmann, Knobloch, & Yu, 2001). But also for political news, the negativity concept has garnered much attention (see review by Lengauer, Esser, & Berganza, 2012). Furthermore, some selective exposure research has detected a negativity bias in different political information contexts: In a study by Meffert, Chung, Joiner, Waks, and Garst (2006), participants were presented with a mock election campaign for which information was presented through an electronic information board. The participants generally favored negative news items, while a confirmation bias in selecting messages was less pronounced. A study by Donsbach (1991) yielded a similar result: Based on a Starch test with German newspaper users, the author found that readers preferred attitude-consistent over attitude-discrepant articles mainly if those articles framed political messages in a positive way. For negative articles, instead, the confirmation bias almost disappeared. Given that the negativity bias along with this news values perspective appears to alleviate the ingroup bias as outlined in H4a, a competing hypothesis on a negativity bias will be examined.

Hypothesis 4b (H4b): Selective exposure is greater for political messages that critique the message recipients’ country in comparison with another country over messages that praise it (negativity bias).

Method

Overview

Hypotheses were tested in a laboratory experiment with 156 student participants at a large U.S. Midwestern university in 2015. Participants first answered an online questionnaire that measured their social identity and attitudes toward eight controversial political target issues of gay marriage, minimum wage, universal healthcare, gun ownership, immigration, social welfare, national defense spending, and abortion (alongside distractor topics), as well as other variables such as affect measures. Upon completion of the questionnaire, respondents were asked to browse an online news magazine that displayed headlines and leads of eight articles, one for each political topic, on its overview
page. The display order of article leads on the overview page was randomized to avoid any order effects. The articles were manipulated in a 2 × 2 within-subjects design, U.S. stance (pro US vs. contra US) × partisan stance (liberal vs. conservative), with two articles for each combination—one article per news topic. Thus, four articles conveyed a positive image of the United States in comparison with another country (“pro US”), and four articles cast the United States in a negative light as compared with another country (“contra US”). Among the four “pro US” and the four “contra US” articles, each featured an either liberal or conservative view on the topic. The articles thus varied in the extent to which they praised or criticized the United States and whether the presented view was in line with a liberal or conservative stance on the issue.

The news magazine was presented to participants for 5 minutes. Within the given time, participants were free to navigate between the overview page, which displayed article headlines and leads, and the linked full texts. While browsing the online news magazine, participants’ selective exposure to each article was unobtrusively logged. Following the browsing period, respondents completed a second questionnaire with measures of NFC, CR, and social comparison tendency, among other variables.

Participants

American student participants were recruited through instructors of introductory communication classes and a research participant pool at a Midwestern university in the United States. Student participants received course credit or extra credit for their participation. Upon sign-up, students were invited to schedule an appointment for the laboratory session. This procedure led to an initial sample of 197 cases. Two participants took the study twice, so their second entries were removed from the dataset. Three cases with incomplete data entries due to technical errors were removed as well, for a final sample of 192 complete cases. Furthermore, data were screened for participants who indicated that they have not lived in the United States since birth (n = 36), for they may not perceive their U.S. identity as an equally important ingroup factor as participants who were born in the United States.

The final sample thus consisted of 156 complete and valid cases. The mean age was 20.56 (SD = 1.60), and 62.2% of participants were female. The sample was 85.9% White/Caucasian, 3.8% Asian, 3.2% African American, and 3.2% Hispanic or Latino; further 2.6% of participants had a multiracial background. One percent indicated an “other” ethnicity. Twelve percent of participants had a bachelor’s degree, 19.2% a 2-year college degree, and 69.2% some high school degree. With regard to their party affiliation, 44.9% of participants indicated they feel closer to the Democratic party, 39.1% felt closer to the Republican party, and 16% were undecided.

Procedure

The study was administered in a laboratory session of about 30 minutes. A Microsoft Silverlight application was specifically developed for the browsing task. The application displayed the article leads on the overview page of the online news magazine in
randomized order, and recorded browsing activity for each participant. Pre- and post-selective exposure questionnaires were set up with standard commercial online survey software (Qualtrics).

Participants obtained a personalized respondent ID in order to merge their responses with their browsing data after completion of the study. The first questionnaire solicited measures of participants’ social identity, political attitudes, partisanship, and affect, among others. After completing the first questionnaire, participants were automatically redirected to the Microsoft Silverlight application that administered the news browsing task and displayed the news magazine overview page with article leads about eight different topics. Participants were asked to avoid any distractions and freely choose to read whatever they are interested in. They were further briefed that they will only have a limited time to browse the online news magazine, but not informed about the specific amount of time. The study allotted 5 minutes for news browsing. Once browsing was concluded, participants answered a second questionnaire measuring NFC, CR, social comparison orientation, as well as demographics and other variables.

**Stimuli and Pretest**

The news browsing stimuli were specifically developed and pretested for the present study. Stimuli pertained to eight different political topics and were shown in the context of an online news magazine (for an illustration, see Figure 1). The eight article leads, which appeared on the news magazine overview page, and their related full texts varied in a $2 \times 2$ within-subjects design, U.S. stance (pro US vs. contra US) $\times$ partisan stance (liberal vs. conservative), with two articles per combination. Four article leads praised the United States in contrast to another country (e.g., “America’s National Defense and Spending Is Far Superior to UK’s”); the other four criticized the United States while praising another country’s policy (e.g., “France Has Universal, Efficient Healthcare and Outperforms America”). Two of the four “pro US” and “contra US” leads conveyed a liberal view on the issue, whereas the other two “pro US” and “contra US” leads took a conservative stance on the given issue.

The headlines and leads of each of the eight articles were presented on the overview page of the online news magazine. The display order of news leads on the overview page was randomized in order to avoid any confound between article content and article position. Participants could click on the leads to get to the respective full articles. From there, they could go back to the overview page at any time by clicking a return button.

The news articles that participants could choose to read were taken from news and opinion webpages and edited for length, U.S. support/criticism, and partisan stance. All articles were composed of a headline ($M_{\text{words}} = 9.13$, $SD = 0.99$), a short article lead with an average of 27.38 words ($SD = 1.06$), and a body of $M = 799.25$ words ($SD = 1.75$).

All news leads were pretested in a preceding survey with 15 American undergraduates ($M_{\text{age}} = 21.4$, $SD = 0.51$; 20% male). The pretest results confirmed that the manipulation of article leads worked as intended. The average ratings for the item “Does the article with this lead criticize or praise America?” ($1 = \text{criticize America}; 11 = \text{praise America}$) were between $M = 8.60$ and $M = 9.47$ for the “pro US” leads and
between $M = 2.53$ and $M = 3.53$ for the leads of the “contra US” articles; details are reported in the first column of Table 1. As a within-group factor in a repeated-measures ANOVA, the “pro US” versus “contra US” differentiation was significant, $F(1, 14) = 88.93, p < .001, \eta^2 = .864$.

The average ratings for the item “Does the article with this lead align with the view of the Democratic party or the Republican party?” (1 = Democratic party; 11 = Republican party) were between $M = 4.20$ and $M = 5.80$ for the “liberal” leads and between $M = 6.87$ and $M = 7.80$ for the “conservative” leads. A repeated-measures ANOVA with partisan stance as a within-group factor revealed significant differences between “liberal” and “conservative” leads, $F(1, 14) = 9.53, p = .008, \eta^2 = .405$. Thus, the manipulation of the leads’ partisan stance also worked as intended (for further details, see second column of Table 1).

The eight news leads did not significantly differ on the item “How interesting is this article lead to you personally?” (1 = not interesting at all; 11 = extremely interesting), $F(1, 14) = 0.100, p = .756$. “Liberal” leads and “conservative” leads were perceived as being equally interesting, $F(1, 14) = 2.055, p = .174$. The “pro US” and “contra US” leads did not significantly differ in their level of being interesting, either, $F(1, 14) = 1.280, p = .277$; details are reported in the third column of Table 1.

**Measures**

The appendix presents a correlation matrix, means, standard deviations, and reliability information of the measures.

**National identity.** To capture participants’ perceived relevance of being American, participants rated various social identity characteristics with regard to their importance to
participants’ sense of who they are. The items were adopted from Cheek, Tropp, Chen, and Underwood (1994), adapted for the purpose of the present study, and measured on single-item scales ranging from 1 = not at all important to 9 = very important. The two items “My feeling of pride in my country” and “Being an American citizen” served as indicators of participants’ national identity. Both items were highly correlated ($r = .67$, $p < .001$) and averaged for a preliminary national identity score ($M = 6.93$, $SD = 1.93$).

Eight further items described additional group identity components (e.g., “My religion” or “My sexual orientation, whether heterosexual, homosexual, or bisexual”). These items were averaged to obtain a social group identity score (Cronbach’s $\alpha = .87$) that goes beyond participants’ national identity ($M = 6.99$, $SD = 1.41$). To capture the relative importance of participants’ national identity for their reading behaviors, in comparison with other identity facets, the group identity index was subtracted from the national identity score ($M = -0.07$, $SD = 1.40$).

**Political attitudes.** Participants’ political attitudes on the eight target issues served to categorize selective exposure to each presented article as attitude-consistent or attitude-inconsistent. Before the browsing task, participants were asked to indicate their opinion on eight target issues, alongside four distractor topics, on one-item scales ranging from 1 = strongly oppose to 8 = strongly support. For each topic, participants answered the question “How strongly do you oppose or support the following policies?” Descriptive statistics for target attitudes are reported in the appendix.
Selective exposure. While participants browsed the online articles, the online software tracked their choices and how long they spent on individual article pages. On average, participants selected $M = 2.91 \ (SD = 1.57)$ of the eight displayed articles. For each presented article, the exposure to the article was categorized as attitude-consistent if an individual had given an attitude rating in the range of 5 to 8 as indicating support of the promoted policy. For example, the article about abortion policies with the headline “Unlike the U.S., Australia Has It Right With Pro-Life Policy” was categorized as attitude-consistent if a participant had answered the question “How strongly do you oppose or support: Anti-abortion law?” with a response option of 5, 6, 7, or 8 on an eight-point scale with the labels $1 = \text{strongly oppose}$ and $8 = \text{strongly support}$. It is important to note that this approach created varying numbers of attitude-consistent messages for each person (in contrast to other studies that presented messages for both stances of each issue, for example, Knobloch-Westerwick & Meng, 2009). Per this definition, the participants had on average $M = 3.69 \ (SD = 1.68)$ attitude-consistent articles available for selection and further reading.

In addition to attitude consistency, the selective exposure times were differentiated by U.S. support, such that four selective exposure measures were computed: (a) attitude-consistent pro U.S. messages, (b) attitude-discrepant pro U.S. messages, (c) attitude-consistent contra U.S. messages, and (d) attitude-discrepant contra U.S. messages. Within these four categories, the number of selected articles was summed up (for number of selected articles as dependent variable) or the reading times (for selective exposure in seconds as dependent variable) were accumulated, respectively. It should be noted that the number of available attitude-consistent articles varied based on individuals’ attitudes on the issues.

CR. Participants completed the CR test, adopted from Frederick (2005). The test consisted of three questions that indicate the amount of conscious deliberation participants are willing to invest in cognitive elaboration. Each question is designed in a way that implies a seemingly obvious, but wrong answer if participants rely on their spontaneous thoughts, whereas the right response requires a more reflective approach to solve the given problem (for example, “A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?”). For each respondent, correct answers (e.g., “5 cents” for the above mentioned example) were coded as 1, and wrong responses were coded as 0. The answers were summed into an additive index, ranging from $0 = \text{no correct responses}$ to $3 = \text{three correct responses}$ (Cronbach’s $\alpha = .65$). On average, participants answered 0.66 questions correctly ($SD = 0.95$). Only 6.4% of participants gave three correct answers, 14.7% answered two questions correctly, 17.3% had one correct response, and a majority of 61.5% scored 0 on the CR index.

NFC. In addition to participants’ actual cognitive processing styles as reflected in their CR scores, participants indicated their general interest in cognitive elaboration by answering a short NFC scale developed by Epstein, Pacini, Denes-Raj, and Heier
Participants answered the following four items on 5-point scales (1 = completely false, 5 = completely true): “I don’t like to have to do a lot of thinking” (reverse coded), “I try to avoid situations that require thinking in depth about something” (reverse coded), “I prefer to do something that challenges my thinking abilities rather than something that requires little thought,” and “I prefer complex to simple problems.” The four items were averaged to create an overall index of NFC ($M = 3.38, SD = 0.67$) that reached an acceptable reliability of Cronbach’s $\alpha = .70$.

**Affect.** To capture participants’ affective state before browsing the news articles, participants were asked to indicate how they are feeling right now with regard to four positive emotions (i.e., “proud,” “strong,” “confident,” and “happy”) and four items describing negative feelings, such as “tense” or “uncomfortable.” Participants indicated their affect on 7-point Likert-type scales (1 = does not apply at all; 7 = applies very much). The four positive items formed a reliable scale (Cronbach’s $\alpha = .87$) and were averaged for an overall index of positive affect ($M = 4.60, SD = 1.22$). (The negative affect items also formed a reliable index (Cronbach’s $\alpha = .85, M = 2.74, SD = 1.33$) that was negatively correlated with positive affect ($r = -.31, p < .001$). Analyses reported below utilize only the positive affect index; using the negative affect index largely mirrored their findings.)

**Partisanship and partisanship strength.** To measure partisanship, participants answered the question “Which party do you feel closer to?” The scale for this item ranged from 1 = Democrats to 7 = Republicans. On average, participants showed a neutral political stance with a slight preference for the Democratic party ($M = 3.78, SD = 1.80$). In addition, a measure of partisanship strength was derived from this response, with the most extreme response options 1 and 7 recoded to 4 as the highest score for partisanship strength, then 2 and 6 recoded to 3, 3 and 5 recoded to 2, and 4 recoded to 1 ($M = 2.54, SD = .95$).

**Social comparison tendency.** As general social comparison orientations may affect selective exposure to the news articles presented in this study, participants indicated their social comparison tendency with regard to eight items that were adopted from Gibbons and Buunk (1999). Social comparison orientation consists of two distinct factors, one of which reflects the tendency to find similarities with others (e.g., “I often try to find out what others think who face similar problems as I face.”), whereas the second factor represents the tendency to contrast one’s own attitudes and behaviors with others (e.g., “If I want to find out how well I have done something, I compare what I have done with how others have done.”). Participants indicated their agreement with each statement on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The four items included to represent the first dimension formed a highly reliable score (Cronbach’s $\alpha = .75$) and were averaged to create an overall index of “affiliation” orientation ($M = 3.97, SD = 0.61$). The four items on the second dimension also reached high reliability (Cronbach’s $\alpha = .79$) and were averaged for an index of “contrast” orientation ($M = 3.57, SD = 0.78$).
Results

Impacts of Attitude Consistency and U.S. Stance on Selective Exposure

Two ANOVAs, each with four repeated selective exposure measures regarding (a) attitude-consistent pro U.S. messages, (b) attitude-discrepant pro U.S. messages, (c) attitude-consistent contra U.S. messages, and (d) attitude-discrepant contra U.S. messages, were conducted (see means illustrated in Figure 2) while controlling for the number of attitude-consistent articles that were available on an individual basis. The first ANOVA used number of selected articles in each of the four selective exposure categories, whereas the second utilized the selective exposure times.

Based on the number of selected articles, the first ANOVA showed a strong confirmation bias in line with H1, $F(1, 154) = 103.06, p < .001, \eta^2 = .401$. The simple comparison between average number of selected attitude-consistent articles ($M = 1.47, SD = 1.17$) with the average number of selected attitude-discrepant articles ($M = 1.45, SD = 1.23$) does not illustrate this effect well, because it was strongly qualified by how many attitude-consistent articles were available on an individual basis, $F(1, 154) = 116.13, p < .001, \eta^2 = .430$, as the more were available the more were selected, $r = .47, p < .001$. Furthermore, in line with H4b and in contrast to H4a, participants selected articles that praised other countries ($M = 1.69, SD = 1.03$) more frequently than they selected articles that praised the United States ($M = 1.23, SD = 1.03$), $F(1, 154) = 6.05, p = .015, \eta^2 = .038$. No other impacts approached significance in this analysis; no interaction between confirmation bias and negativity bias emerged.
Using selective exposure times, the second ANOVA again yielded a strong confirmation bias, \( F(1, 154) = 48.96, p < .001, \eta^2 = .241 \), in line with H1. On average, participants spent \( M = 144 \text{ s} (SD = 101) \) on attitude-consistent messages compared with \( M = 115 \text{ s} (SD = 100) \) for attitude-discrepant messages. The extent of the confirmation bias depended on how many attitude-consistent articles were available, \( F(1, 154) = 45.21, p < .001, \eta^2 = .227 \), as the confirmation bias was greater the more attitude-consistent messages were available for perusal \((r = .48, p < .001)\). The stance (pro or contra US) again yielded a significant impact, \( F(1, 154) = 7.41, p = .007, \eta^2 = .046 \), because in line with H4b and in contrast to H4a, participants spent their reading time primarily with messages critiquing the United States, namely \( M = 157 \text{ s} (SD = 92) \) compared with \( M = 101 \text{ s} (SD = 88) \) for messages praising the United States. No other impacts approached significance in this analysis; no interaction between confirmation bias and negativity bias emerged.\(^1\)

**Impacts on the Extent of the Confirmation Bias**

Regression analyses examined selective exposure to attitude-consistent messages, with the predictors CR and NFC per H2 and positive affect as per H3. Furthermore, national identity (per H5) and social comparison tendency (per H6) were included in the regression models. In addition, biological sex and number of available attitude-consistent articles served as control variables, along with (per reviewer request) partisanship and partisanship strength.

This regression model was used for both number of selected articles (per reviewer request), as reported in the upper half of Table 2, and for selective exposure in seconds, reported in the lower half of Table 2. Because the number of selected articles did not appear to be sensitive enough as dependent measure, further explanation focuses on analyses with selective exposure in seconds as dependent variable.

The overall regression model (with 10 residual \( df \), 145 regression \( df \), and 155 total \( df \)) for selective exposure attitude-consistent messages in seconds was significant, \( p < .001 \), with \( R^2 = .369 \) (details are reported in the first column of Table 2). H2a was supported because greater CR led to a stronger confirmation bias, \( \beta = .18, p = .018 \). Furthermore, in line with H2b, greater NFC fostered a stronger confirmation bias as well, \( \beta = .14, p = .05 \). A more positive affective state reduced the confirmation bias, \( \beta = -.15, p = .034 \), in line with H3. Participants who tended to contrast themselves with others more showed a stronger confirmation bias, \( \beta = .20, p = .014 \). Last, partisanship affected the confirmation bias, \( \beta = .15, p = .045 \), as a greater leaning toward the Republican party fostered the confirmation bias, and naturally the number of attitude-consistent messages that were available did as well, \( \beta = .57, p < .001 \). No additional significant effects emerged from the analysis.

When the same regression model was used for exposure to attitude-discrepant messages, the results mirrored these findings, just with reversed direction of the impacts (see second column of Table 2). Given that the support for H2b was just at cutoff for significance, it is relevant to note that greater NFC led to significantly shorter exposure to attitude-discrepant messages, \( \beta = -.18, p = .017 \), which further supports H2b.
Additional regression analyses investigated the exposure to messages praising the United States, with national identity (H5) and social comparison tendency (H6) as predictors while controlling for partisanship and partisanship strength. Furthermore, CR, NFC, and positive affect were included in the model, as well as biological sex and number of available attitude-consistent articles, as control variables. Again, while regression analyses with articles selected as criterion variable were conducted and are reported in the upper half of Table 2, further explanations focus on the analyses with selective exposure in seconds as more sensitive criterion variable.

The overall regression model (with 10 residual df, 145 regression df, and 155 total df) with selective exposure to articles praising the United States in seconds was significant, $p = .029$, with $R^2 = .126$ (see third column of Table 2). In line with H6, individuals with the tendency to engage more in contrasting social comparisons spent more time

**Table 2. Impacts on Selective Exposure to Political News ($N = 156$).**

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<th>Attitude-consistent</th>
<th>Attitude-discrepant</th>
<th>Pro US</th>
<th>Contra US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of articles selected</td>
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<td></td>
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<tr>
<td>Cognitive reflection</td>
<td>.06 (.416)</td>
<td>−.15 (.052)</td>
<td>−.08 (.352)</td>
<td>−.03 (.763)</td>
</tr>
<tr>
<td>Need for cognition</td>
<td>.11 (.171)</td>
<td>−.01 (.897)</td>
<td>.10 (.288)</td>
<td>.01 (.889)</td>
</tr>
<tr>
<td>Positive affect</td>
<td>−.09 (.224)</td>
<td>.07 (.345)</td>
<td>−.06 (.510)</td>
<td>.04 (.639)</td>
</tr>
<tr>
<td>National identity</td>
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<td>−.05 (.555)</td>
<td>−.01 (.888)</td>
<td>−.15 (.075)</td>
</tr>
<tr>
<td>Contrast orientation</td>
<td>.17 (.046)</td>
<td>−.09 (.296)</td>
<td>.12 (.220)</td>
<td>−.04 (.708)</td>
</tr>
<tr>
<td>Affiliation orientation</td>
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<td>−.01 (.920)</td>
<td>−.10 (.316)</td>
<td>−.08 (.375)</td>
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<tr>
<td>Partisanship</td>
<td>.17 (.032)</td>
<td>−.21 (.009)</td>
<td>.08 (.377)</td>
<td>−.14 (.119)</td>
</tr>
<tr>
<td>Partisanship strength</td>
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<td>−.02 (.773)</td>
<td>−.01 (.930)</td>
<td>−.03 (.733)</td>
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<tr>
<td>Gender (0 = male)</td>
<td>−.07 (.352)</td>
<td>.16 (.039)</td>
<td>−.09 (.326)</td>
<td>.20 (.023)</td>
</tr>
<tr>
<td>Available attitude-consistent articles</td>
<td>.54 (&lt;.001)</td>
<td>−.49 (&lt;.001)</td>
<td>−.02 (.828)</td>
<td>.04 (.614)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.297</td>
<td>.288</td>
<td>.037</td>
<td>.102</td>
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<th>Contra US</th>
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<td>Seconds spent reading</td>
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<tr>
<td>Cognitive reflection</td>
<td>.18 (.018)</td>
<td>−.17 (.020)</td>
<td>.04 (.646)</td>
<td>−.03 (.711)</td>
</tr>
<tr>
<td>Need for cognition</td>
<td>.14 (.052)</td>
<td>−.18 (.017)</td>
<td>.10 (.235)</td>
<td>−.13 (.129)</td>
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<tr>
<td>Positive affect</td>
<td>−.15 (.034)</td>
<td>.18 (.014)</td>
<td>−.08 (.337)</td>
<td>.10 (.224)</td>
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<td>National identity</td>
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<td>−.04 (.562)</td>
<td>.10 (.259)</td>
<td>−.10 (.246)</td>
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<td>.18 (.049)</td>
<td>−.12 (.184)</td>
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<tr>
<td>Affiliation orientation</td>
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<td>.04 (.642)</td>
<td>−.09 (.335)</td>
<td>.04 (.672)</td>
</tr>
<tr>
<td>Partisanship</td>
<td>.15 (.045)</td>
<td>−.19 (.013)</td>
<td>.12 (.186)</td>
<td>−.15 (.093)</td>
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<tr>
<td>Partisanship strength</td>
<td>−.01 (.863)</td>
<td>.06 (.426)</td>
<td>.04 (.605)</td>
<td>.01 (.934)</td>
</tr>
<tr>
<td>Gender (0 = male)</td>
<td>−.12 (.106)</td>
<td>.10 (.151)</td>
<td>−.25 (.004)</td>
<td>.22 (.011)</td>
</tr>
<tr>
<td>Number of attitude-consistent articles</td>
<td>.57 (&lt;.001)</td>
<td>−.56 (&lt;.001)</td>
<td>−.01 (.886)</td>
<td>.03 (.713)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.369</td>
<td>.361</td>
<td>.126</td>
<td>.124</td>
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</table>

Note. Beta weights with $p$ values in parentheses.

**Impacts on the Extent of Ingroup Versus Negativity Bias**

Additional regression analyses investigated the exposure to messages praising the United States, with national identity (H5) and social comparison tendency (H6) as predictors while controlling for partisanship and partisanship strength. Furthermore, CR, NFC, and positive affect were included in the model, as well as biological sex and number of available attitude-consistent articles, as control variables. Again, while regression analyses with articles selected as criterion variable were conducted and are reported in the upper half of Table 2, further explanations focus on the analyses with selective exposure in seconds as more sensitive criterion variable.

The overall regression model (with 10 residual df, 145 regression df, and 155 total df) with selective exposure to articles praising the United States in seconds was significant, $p = .029$, with $R^2 = .126$ (see third column of Table 2). In line with H6, individuals with the tendency to engage more in contrasting social comparisons spent more time
with messages praising the United States $\beta = .18, p = .049$. The only additional impact emerged for biological sex, $\beta = -.25, p = .004$, as men spent more time with messages praising the United States than women did. When the same regression model was used for exposure to messages critical of the United States, the only effect resulted from biological sex, $\beta = .22, p = .011$ (for further details, see fourth column of Table 2).

**Discussion**

The present work tested hypotheses regarding selective exposure to political online news articles that postulated a confirmation bias, an ingroup bias, and a negativity bias. The biases under examination were proposed to be influenced by various media user characteristics and circumstances—information processing styles, affective states, national identity, and social comparison tendencies. American participants selected from online news reports with either liberal or conservative stance on eight different topics that either praised or critiqued the United States. Attitude-consistent exposure was defined based on topic-specific attitudes reported before the online browsing task. Because each topic was featured in only one news report with a particular stance, the number of attitude-consistent messages that were available varied across participants (which is a methodological difference compared with other studies that defined attitude-consistent exposure based on tracked selection of specific messages, as prior studies featured several messages on each topic with opposing stances; for example, Knobloch-Westerwick & Meng, 2009; Westerwick, Kleinman, & Knobloch-Westerwick, 2013).

The results yielded a strong confirmation bias in line with H1, which was greater if an individual had more attitude-consistent messages to choose from. Less positive affect also led participants in engaging in longer attitude-consistent exposure (supporting H3). This finding complies with earlier research (Jonas et al., 2006) and corroborates Festinger’s (1957) assumption that individuals entertain confirmation biases mainly to enhance affective states or to avoid negative mood, as attitude-discrepant messages may amplify cognitive dissonance and thus psychological discomfort.

More recently, bolstering one’s social identity defined per partisanship has also been suggested as an explanation for the confirmation bias (e.g., Knobloch-Westerwick & Meng, 2011; Stroud et al., 2014). Compatible with this view, participants who tended to contrast themselves with others more through social comparisons showed a stronger confirmation bias—They may feel more challenged by the notion that another group may be right about a political issue.

In line with H2, both greater CR (per Frederick’s, 2005, CR test) and greater NFC produced a stronger confirmation bias. This pattern corroborates the notion that “Being a motivated reasoner takes effort” (Taber & Lodge, 2006, p. 757) because individuals with the tendency to overcome intuitive but incorrect heuristics per CR engaged in more attitude-confirming exposure, and so did individuals who tend to enjoy engaging in complex thinking.

The support regarding H2—that those with greater thinking ability and motivation exhibit a greater confirmation bias—might be particularly disturbing. If advanced thinkers tend to fall victim to the confirmation bias when selecting political information, chances of balanced consideration and contemplation on political issues in a
democracy appear slim. It is possible, however, that the interaction with information processing styles further depends on how much cognitive effort is required in a given situation. In the present study, participants were presented with messages on eight different controversial topics; thus, relatively high complexity was presented. In a simpler context, individuals with high CR or high NFC might be more open to engaging with discrepant information, which might be more easily refuted when the stimulus environment is less involving. Furthermore, a significant negativity bias in line with H4b materialized, because participants generally preferred messages that critiqued their country, which contradicts the ingroup bias expected per H4a. The only indication that influences per social identity theory and intergroup competition might affect selective exposure to news emerged in form of an impact of individuals’ tendency to contrast themselves more with others through social comparisons (in line with H6), which led to longer exposure to news reports that praised the United States.

But overall, the general preference for U.S.-critical messages contradicts the social identity framework—It appears that the ingroup bias was overridden by an interest to watch out for problems for one’s own group along the lines of the negativity bias. Moreover, the U.S.-critical messages may seem to carry greater informational utility (e.g., Knobloch-Westerwick, 2008) along the lines of how one’s own country could improve regarding the discussed political issue. Yet another consideration is that, per news values framework (Shoemaker, 1996), U.S.-critical messages may have greater novelty, as content analyses suggest that U.S. news coverage tends to present the United States in a favorable light (Rivenburgh, 2000). Furthermore, Taber and Lodge’s (2006) notion of a disconfirmation bias might suggest that individuals may spend more time with a message that challenges their views because they are investing cognitive effort to discount the message; yet the consideration that participants spent more time with ingroup-critical messages to discount them does not match up with our findings, because we did not find longer selective exposure times for outright counterattitudinal messages (as H1 was confirmed), even when focusing the analysis on reading times for articles an individual had selected in the first place.

When considering earlier empirical findings that supported a social identity perspective on an ingroup bias in selective news exposure, it becomes clear that low-status groups in particular exhibited such a bias (Appiah et al., 2013; Knobloch-Westerwick & Hastall, 2010)—possibly, the other featured countries did not seem like a sufficiently relevant comparison group to the American participants or did not represent a higher status group to them that might have triggered an ingroup as in these earlier studies. When it comes to national political topics without reference to other nations, political parties and partisanship should be a very salient ingroup/outgroup cue, which was not present in the current stimuli/investigation. Thus, the social identity perspective should not be discounted based on our findings because partisan identity could still be of major influence, and the salience of different identity facets is likely to vary based on stimuli present. It is possible that the ingroup bias per national identity did not emerge because of American exceptionalism beliefs (e.g., Lipset, 1996). Further research is needed to test this assumption in an international context by including nations with a less pronounced understanding of their nationality as an exceptional ingroup factor.
### Appendix

**Correlation Matrix, Means, Standard Deviations, and Cronbach’s Alphas.**

|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | M | SD |
|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 1.40 | 1.12 |
| 2 | 147.28 | 103.44 |
| 3 | 1.39 | 1.20 |
| 4 | 11.81 | 10.05 |
| 5 | 1.17 | 0.96 |
| 6 | 102.28 | 90.01 |
| 7 | 1.66 | 1.00 |
| 8 | 16.32 | 92.50 |
| 9 | 3.78 | 1.80 |
| 10 | 2.54 | 0.95 |
| 11 | 4.53 | 2.08 |
| 12 | 5.59 | 2.02 |
| 13 | 4.87 | 2.61 |
| 14 | 3.78 | 2.62 |
| 15 | 4.40 | 1.91 |
| 16 | 6.73 | 2.46 |
| 17 | 5.07 | 2.30 |
| 18 | 4.32 | 1.97 |
| 19 | 3.66 | 1.68 |
| 20 | 4.60 | 1.22 |
| 21 | 0.07 | 1.40 |
| 22 | 3.57 | 0.78 |
| 23 | 3.97 | 0.61 |
| 24 | 1.62 | 0.49 |
| 25 | 0.46 | 0.95 |
| 26 | 3.38 | 0.67 |

**Note.** Reported on the diagonal are reliabilities. ACSE AS = attitude-consistent selective exposure article selection; ACSE TS = attitude-consistent selective exposure time spent; ADSE AS = attitude-discrepant selective exposure article selection; ADSE TS = attitude-discrepant selective exposure time spent; Pro US SE AS = pro U.S. selective exposure article selection; Pro US SE TS = pro U.S. selective exposure time spent; Pro AB SE AS = pro abroad selective exposure article selection; Pro AB SE TS = pro abroad selective exposure time spent; Illegal immigration = support helping undocumented young immigrants; Minimum wage = support a minimum wage; Gun ownership = support gun ownership; Antiabortion = support antiabortion laws; Social welfare = support extending social welfare; Gay marriage = support gay marriage; National healthcare = support universal healthcare; Defense spending = support increasing national defense spending; AACA = available attitude-consistent articles; CR = cognitive reflection; NFC = need for cognition.

*p < .05. **p < .01. ***p < .001.
Acknowledgments
The authors thank Travis Filicky, Erin Gottsacker, Melissa Kaminski, Park Lukich, Xirui Mao, and Shan Xu for their help with the data collection, testing of the research application, and stimuli preparation.

Declaration of Conflicting Interests
The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding
The authors received no financial support for the research, authorship, and/or publication of this article.

Note
1. A reviewer suggested to run additional analyses based just on the articles a participant had selected, to examine whether the disconfirmation bias postulated by Taber and Lodge (2006) would be evident in that attitude-discrepant articles would have longer reading times. Thus, the same ANOVA model was run with selective exposure times derived only from articles that a participant had selected. It yielded no significant effects.

References


Author Biographies

**Silvia Knobloch-Westerwick** (PhD, Hanover University of Music, Drama and Media, Germany) is a professor at the School of Communication, The Ohio State University, and serves as editor of COMMUNICATION RESEARCH. Her 2015 monograph, “Choice and Preference in Media Use: Advances in Selective Exposure Theory and Research,” was published by Routledge. She has written or coauthored over 100 peer-reviewed articles and book chapters on media uses and effects in the contexts of news and political communication, science communication, health communication, entertainment, and new communication technologies.
**Cornelia Mothes** is a visiting professor at the Department of Media and Communication, TU Dresden, Germany. Before, she was a postdoctoral research fellow at the School of Communication at The Ohio State University, funded by the German Academic Exchange Service (DAAD). Her main research interests lie in the field of political communication, media psychology, and journalism.

**Nick Polavin** is a PhD student at The Ohio State University. His primary research interests concern the role of communication in decision making, particularly in the context of juries and law.