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Context Impacts on the Confirmation Bias:

Evidence from the 2017 Japanese Snap Election Compared with American and German Findings

Much concern exists about individuals' tendency to favor attitude-consistent messages (confirmation bias) and the consequences for democracy; yet empirical evidence is predominantly based on U.S. data and may not apply to other cultural contexts. The current three-session online experimental study unobtrusively observed Japanese participants' ($N = 200$) selective exposure to political news articles right before the 2017 Japanese snap general election. The research design paralleled an earlier U.S. study and a German study, which allowed direct comparisons of confirmation biases among the three countries. Japanese exhibited a confirmation bias, but it was smaller than the confirmation bias among Americans, though comparable to that of Germans. The extent of the confirmation bias among Japanese participants was influenced by individual media trust, which provides new insight into causes of these cross-country differences. Attitudinal impacts resulted from selective exposure, in line with message stance, and persisted for two days.

Keywords: Selective Exposure, Confirmation Bias, Cross-cultural, Media-Party Parallelism, Media Trust, Election, Public Broadcasting Services

Context Impacts on the Confirmation Bias:

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There is a certain blind spot that most people exhibit when they encounter political information: Per the confirmation bias, individuals generally prefer attitude-consistent messages over attitude-challenging messages (Taber & Lodge, 2006). Granted, selectivity is inevitable in contemporary high-choice media environments, with virtually inexhaustible messages competing for attention. Hence, numerous forms of bias could occur whenever individuals can choose between messages. Yet the pattern that has likely drawn the most scholarly attention is the confirmation bias. It has widely been noted as problematic for public discourse in a democracy, as people may shield themselves from information that disagrees with their views. In turn, the electorate may become increasingly polarized, less tolerant, and lack information when engaging in democratic decision-making (e.g., Iyengar & Hahn, 2009; Levendusky, 2013a).

The present work addresses an important gap in this flourishing line of research, as current knowledge about the confirmation bias predominantly stems from U.S. data. Yet the U.S. situation is possibly specific in that it features many strongly partisan, popular media channels as well as a two-party system in which the election “winner takes all.” These characteristics may well instigate a particularly strong confirmation bias. In fact, recent surveys conducted in Sweden and the Netherlands that aimed to examine the phenomenon suggest a weaker confirmation bias (Bos, Kruikemeier, & de Vreese, 2016; Skovsgaard, Shehata, & Strömbäck, 2016), but the findings were not derived from rigorous cross-cultural comparisons, and also can be impaired by the limits of self-report (respondents’ imperfect recall, plus abstract descriptions of exposure categories may often be ambiguous to respondents). More critically, knowledge regarding the origins for these cross-national differences in the confirmation bias is still limited

at this point but could provide paths for remedies and towards greater political tolerance.

Against this backdrop, the current work presents an online experiment investigating the confirmation bias in Japan. The research design for the current study replicates an earlier U.S. study (see details, Knobloch-Westerwick, Johnson, & Westerwick, 2015) and a German study (see details, Knobloch-Westerwick, Mothes, Johnson, Westerwick, & Donsbach, 2015), which allows direct comparisons of confirmation biases in these three different countries. As an additional contribution, this study also examines factors that may lead to cross-national differences in the confirmation bias: Public broadcasting services (PBS) use and trust in media.

In the following, the confirmation bias in different country contexts will be introduced, setting a stage for theoretical arguments regarding possible influences from PBS use and media trust. Attitudinal outcomes of the confirmation bias, along with other influences from sources, will be discussed as well. Hypotheses will be tested based on observed selective exposure, collected before the 2017 Japanese general election. It is also a snap election, as Japan's Prime Minister Abe called an early vote ahead of schedule. Pre-election data from the earlier U.S. and German studies will be merged to test the cross-country comparative hypothesis specifically.

Context Factors Influencing the Confirmation Bias

The kind of selectivity bias, in which people tend to select political content consistent with preexisting attitudes, was first reported in Lazarsfeld and his colleagues (1944)'s 1940 U.S. general election studies, in which they coined the term "selective exposure." Yet contemporary use of the term is much broader, as it denotes any kind of bias reflected in what messages are actually chosen from the available options (Knobloch-Westerwick, 2015). The tendency to favor messages, which align with one's political views, is thus a particular kind of selective exposure, commonly labeled confirmation bias. Although the confirmation bias did not always garner

consistent empirical support (Donsbach, 2009), as informational utility can override confirmation bias, especially during election seasons, and produce different selective exposure patterns (Knobloch-Westerwick & Kleinman, 2012), research based on recent U.S. pre-election data has yielded relatively consistent evidence that the confirmation bias indeed shapes people's political information exposure (e.g., Knobloch-Westerwick, Johnson, et al., 2015; Stroud, 2008).

The reason why individuals would exhibit confirmation bias, however, is debated (see review by Stroud, 2014). Probably the most cited explanation is Festinger's (1957) cognitive dissonance theory. It suggests that encountering attitude-discrepant information instigates cognitive dissonance, a kind of mental discomfort. Thus, people are motivated to avoid or reduce the potential dissonance by selecting attitude-consistent information but avoiding information that conflicts with their attitudes. Similarly, "hot cognition" linked to motivated or affectively-charged thinking is a related explanation (Taber & Lodge, 2006).

Regardless of what motivates the confirmation bias, it is generally attributed to internal psychological mechanisms, rather than contextual factors. Thus, the confirmation bias should be observed universally, regardless of country. Although most related studies were conducted in America, several surveys based on non-U.S. contexts indeed provided some support for the similar confirmation bias tendency (e.g., Bou-Hamad & Yehya, in press; Liu, 2009). Further, a few observational studies on the confirmation bias outside of the U.S. demonstrated the same pattern (Dvir-Gvirsman, Tsfati, & Menchen-Trevino, 2016; Marquart, Matthes, & Rapp, 2016).

To our knowledge, the confirmation bias, particularly in the political election context, has rarely been examined in Asia, except some survey-based research in Hong Kong, South Korea, and Taiwan (e.g., Chan & Lee, 2014; Kim, 2015; Kim, Kim, & Wang, 2016; Liu, 2009). It has not yet been examined in Japan, except for an analysis of general election survey data regarding

one particular issue (postal reform) (Kobayashi & Ikeda, 2009). This analysis found that respondents who frequently browsed the internet for political content were more likely to select attitude-consistent arguments on postal reform. In contrast, the present study utilizes unobtrusive observational data, collected one week before a snap general election, regarding exposure to content about four controversial political issues. Hence, the classic confirmation bias hypothesis will be tested in Japan, with preference for attitude-consistent and -discrepant messages operationalized in exposure time.

H1: Japanese spend more time on attitude-consistent political messages than attitude-discrepant political messages.

Additionally, the present work will compare it with the U.S. and Germany, while exploring possible explanations for differences in bias extent between countries. The underlying psychological mechanisms suggest that the confirmation bias should occur universally; however, context factors could shape its extent. Indeed, cross-cultural work by Knobloch-Westerwick, Mothes, et al. (2015) provided evidence that the extent of confirmation bias can differ by country (U.S. vs. Germany), although the causes are not well understood. Building on this evidence, the present study aims at “effect replication” (LeBel, McCarthy, Earp, Elson, & Vanpaemel, 2018). Effect replicability is examined when the methodology is the same as in earlier work, but it is applied to a different sample. The present work is a “close replication” in LeBel et al.'s terminology, because language and stimuli differed from earlier work.

The present study examines origins of cross-cultural differences in the confirmation bias by tapping into context factors. Indeed, numerous political communication scholars emphasized consideration of context factors, calling out work on selective exposure and high-choice media environments in particular (Bennett & Pfetsch, 2018; van Aelst et al., 2017). Specifically, the

investigation will draw on the concept of media-party parallelism (MPP), related to media trust and PBS use, in this replication of studies conducted in the U.S. and Germany with Japanese.

MPP has important implications, e.g., polarization through news exposure (Horwitz & Nir, 2015) as well as distrust in media (Ariely, 2015; Hanitzsch, van Dalen, & Steindl, 2018). The MPP concept refers to the extent to which specific media outlets in a society are associated with particular parties or with political tendencies. This extent varies across countries, which is of particular interest here for the three countries that data were collected in—the United States, Germany, and Japan. But it can also change across time: Traditionally, the U.S. has been a prime example for low MPP because of its two-party system, wherein “catch-all parties with vague ideological identities” (Hallin & Mancini, 2004; van Kempen, 2007) are also reflected in the media landscape. Accordingly, in the U.S., “catch-all newspapers predominate, indicating that these papers try to appeal to a wide public across social divisions. Institutional ties to political parties are avoided, and papers attempt to maintain balance and neutrality in their contents” (van Kempen, 2007, p. 304). Yet, with the rise of cable news (i.e., *Fox News*), MPP has become very pronounced in the U.S. (Lelkes, 2016). The current U.S. media include many prominent examples with talk-radio and national newspapers (i.e., *The New York Times*) that are strongly associated with partisan leanings. Additionally, the minor role that PBS have in the U.S. further adds to the extent of MPP (because PBS are generally not associated with particular parties and thus reduce MPP). Hence, MPP is now considerable in the U.S.

While some cross-cultural comparisons of MPP exist (Lelkes, 2016; van Kampen, 2007), these tend to compare European countries only. Germany has low MPP, with a strong PBS and commercial broadcasting legally bound to balanced reporting, even though some national newspapers are known for political leanings. MPP has faded in certain countries, including

Germany (van der Pas, van der Brug, & Vliegenthart, 2017). Analyses and comparisons of the Japanese media system and perceptions thereof (Krauss, 2000a; Krauss & Lambert, 2002; Yang et al., 2016) suggest a similarly low level of MPP, as broadcasting media do not take a partisan stance, and newspapers are only slightly linked to political party perspectives. Moreover, Japan also features a strong PBS (Krauss, 2000b).

In addition to MPP, the range of parties (i.e., two-party versus multi-party system), electoral system (i.e., “winner takes all” in the U.S.), and extent of party polarization (how distinct voters’ choices are) are crucial context factors; the United States differs strongly from Germany and Japan on these dimensions (e.g., Dalton, 2008).

The present investigation will replicate a research design to examine the confirmation bias in three countries and will thus not be able to parse out the influence of these differences in rigorous statistical terms. However, by capturing two variables that are related MPP but can be measured at the individual level, context factors will be considered: First, the present data collection will consider media trust as a proxy variable for context factors. Importantly, greater MPP is linked to lower media trust; media trust is also particularly low in the U.S. compared to Germany and Japan, as well as other countries (Ariely, 2015; Hanitzsch et al., 2018; World Value Survey Wave 6). Second, the existence of PBS reduces MPP and thus PBS use (which can be measured on the individual level) will serve as a second proxy variable for this context factor. Note that greater use of PBS is linked to greater media trust (Tsfati & Ariely, 2014). The next section will discuss possible influences from PBS use and media trust further.

Impacts from Public Broadcasting Services Use and Media Trust

PBS use may affect the confirmation bias, as PBS, compared to commercial TV outlets, are known to provide quality political news with more diverse, balanced viewpoints (e.g., Esser

et al., 2012; Wessler & Rinke, 2014). Their consumers, then, are more likely to encounter information that diverges from their views, and more importantly, are less likely to actively *avoid* attitude-challenging information if habituated to it (Dilliplane, Goldman, & Mutz, 2013). Recent studies from contexts with strong PBS support this notion: Survey data from Sweden and the Netherlands found weak partisan confirmation bias (Bos et al., 2016; Skovsgaad et al., 2016). Arguably, frequent users of PBS attend balanced political messages and thus, figuratively speaking, create a low MPP environment for themselves. Hence, the second hypothesis postulates:

H2: Greater use of PBS reduces the confirmation bias.

Furthermore, media trust depends on MPP (Ariely, 2015) and could influence the extent of confirmation bias as well. As a concept of attitudes toward the institutional news media on the whole (Ladd, 2010), as well as expectations toward news media's performances (Tsfati, 2014), media trust is a key element in determining how people select and use media. Tsfati (2010) further offered the following definition for mistrust in media: "the feeling that the mainstream media are neither credible nor reliable, that the news media get in the way of society rather than helping society" (Tsfati, 2010, p. 23). Although mechanisms underlying the association between media distrust and partisan selective exposure have not been fully disentangled, one could be that the hostile media perceptions play a mediating role. Indeed, lower media trust is linked to a more salient perception of media hostility (Choi, Yang, & Chang, 2009), i.e., perceiving media content as biased against one's own views. This perception can then prompt people to view attitude-consistent partisan news as more attractive and consume them more (Barnidge, Gunther, Kim, & Hong, in press). In other words, people who distrust the media can exhibit a stronger confirmation bias in the exposure to media messages. Thus, we propose:

H3: Greater trust in media reduces the confirmation bias.

As argued above, both PBS and levels of general media trust are connected with MPP and have been regarded as important context factors (e.g., Hallin & Mancini, 2004; Tsfaty & Ariely, 2014); thus, H2 and H3 could actually extend from the individual level to the country level and serve to derive a prediction regarding the extent of confirmation bias in different countries. Specifically, the confirmation bias should be weaker in countries that have a strong PBS compared to countries that do not have or have a weaker PBS (related to H2), and also should be weaker in countries where people hold greater trust in the media than in countries where people generally trust the media less (related to H3). Accordingly, as both Japan and Germany have strong PBS with substantial market shares, in contrast to the relatively weak U.S. PBS, while trust in media is much higher in Japan and Germany than in the U.S., we posit the following hypothesis:

H4: The confirmation bias among Japanese is smaller than among Americans (H4a), but comparable with the confirmation bias among Germans (H4b).

Attitudinal Impacts of Attitude-Consistent and -Discrepant Exposure

Aside from the confirmation bias itself, the consequences from resulting exposure have drawn intense research interests. Drawing on existing evidence derived from both U.S. and non-U.S. contexts that habitual use of partisan news outlets that align with own partisanship have a polarizing impact (e.g., Kim, 2015; Levendusky, 2013b), the fifth hypothesis (see below) on the attitude reinforcement effect of attitude-consistent exposure will be tested with Japanese data. However, in addition to re-testing this attitude reinforcement effect in another national context, this study adds to the literature by examining the *duration* of the effect. Although studying the persistence of effects is a crucial topic in the research realm of media persuasion (Hill, Lo,

Vavreck, & Zaller, 2013; Kalla & Broockman, 2018), empirical evidence regarding how well the attitude reinforcement effect can endure is surprisingly scarce. Impacts that persist beyond right after message exposure are indicative of careful processing (Petty & Cacioppo, 1986).

One exception is Levendusky (2013b), who exposed participants to partisan news aligned with participants' partisanship and measured attitude reinforcement two days later. However, it used a forced-exposure design, which can exaggerate reinforcement effects (Arceneaux & Johnson, 2013). Besides, a recent study by Westerwick, Johnson, & Knobloch-Westerwick (2017) examined impacts of congruent exposure in a selective exposure setting and consistently observed that pro-attitudinal messages, especially from a slanted-source, reinforced attitudes days later. Yet results were derived from a convenience student sample, limiting generalizability. The present research extends earlier findings by testing the following hypothesis with Japanese adults.

H5: Selective exposure to attitude-consistent messages has immediate (H5a) and persistent (H5b) reinforcing impacts on existing attitudes that are related to the messages' topics.

Further, attitudinal impacts from attitude-discrepant exposure will be examined. In contrast to reinforcing effects from attitude-consistent exposure, impacts of attitude-discrepant exposure have been inconsistent (see discussion by Knobloch-Westerwick, Johnson, et al., 2015). Westerwick et al. (2017) further tested an idea that the inconsistent findings might result from discrepancies in studies' designs, specifically, different types of source cues used in those studies. Following this argument, results of the current study should be consistent with the earlier U.S. and German studies, since the designs for the three studies are parallel. Moreover, because greater trust in media will increase the likelihood of acceptance of media messages (Ladd, 2011), it is reasonable to anticipate that Japanese, who are from a context that features a very high

media trust, are relatively more likely to accept, rather than resist, attitude-discrepant content from media. Hence, we hypothesize that attitude-discrepant exposure weakens pre-attitudes.

H6: Selective exposure to attitude-discrepant messages has immediate (H6a) and persistent (H6b) weakening impacts on preexisting attitudes that are related to the messages' topics.

Source Credibility and Its Impact on Exposure

In line with the earlier U.S. and German studies, the current study will also vary source credibility to examine its impact on exposure. In a different pattern of selective exposure than the confirmation bias, media users may spend more time with messages from high-credibility sources than with messages from low-credibility sources. Indeed, source credibility has been found to shape selective exposure as well (Westerwick, Kleinman, & Knobloch-Westerwick, 2013). However, citizens rarely scrutinize information's credibility in their daily practices (Moody, 2011), which provides a contradictory implication that source credibility may not play a critical role in information seeking. On the other hand, in the context of the present study, investigating the impacts of source credibility is also motivated by the potential influence of media trust. It is plausible that individuals who trust media more will be less sensitive to source cues than people with little trust in media. Thus, the influence of source credibility may not be as influential in a country where media trust is very high, like Japan. Based on past incongruent findings, and possible influence from the broader contextual factors, a research question will be examined:

RQ1: Do Japanese spend more time on information from high-credibility sources than information from low-credibility sources?

Method

To test hypotheses, an online study ($N = 200$) with a 4x2x2 within-subjects design (topic

x stance x credibility) was conducted during the run-up to the 2017 Japanese general election of October 22, 2017. As mentioned, the election was a snap election: It was called by the Prime Minister in late September; the election campaign launched October 10, 2017. Data collection started on October 13, 2017. Although cross-country comparisons face many challenges, the present study was designed to be as comparable as possible to the earlier U.S. and German studies. Strong efforts were made to control factors that have been suggested to influence the confirmation bias: All three studies were conducted in a pre-election context, target topics chosen for studies were all controversial issues related to the upcoming election, and the experimental designs were parallel. However, the present study deviated from the German and the American data collection by adding a third session (i.e., session 3, as explained below). In the following, any inconsistencies that existed compared to the earlier studies will be specified.

Participants

A sample of Japanese residents was recruited via Nippon Research Center, a professional local survey company affiliated with Gallup International Association. The sample was drawn from the list of potential participants that the company owned, and stratified by gender and age cohorts (18-29, 30-39, 40-49, 50-59, and 60-69). To ensure the Japanese data were comparable to the earlier U.S. and German data, 98 participants who did not complete the session 2 before the election, or spent over 100 seconds on at least one overview page (i.e., inattentive outliers), were excluded from analyses. The final Japanese sample consisted of 200 cases.

The Japanese sample provides a satisfactory level of diversity: The mean age was 44.93 ($SD = 14.16$), range 18-69; 62% male; 59% had a college degree. The postal code variable indicated that 52% of participants resided in eastern Japan, 27% in western Japan, and 3% in northern Japan. Also, 29% were LDP supporters, 25% supported other parties, and 47%

Independents. On average, the Japanese sample was older and had more male participants compared to the U.S. sample and the German sample. [The U.S. sample consisted of 227 non-student participants who were recruited through an e-mail snowball sampling technique, 49% male; $M_{\text{age}} = 35.94$, $SD = 10.31$. The German sample consisted of 121 non-student participants who were recruited via multiple routes, 42% male; $M_{\text{age}} = 35.81$, $SD = 15.41$.]

Data from the current study were merged with the earlier U.S. study ($N = 227$) and German study ($N = 121$) to test H4 based on a sample with 548 cases total; other remaining hypotheses were all tested based on the Japanese sample.

Procedure

A platform developed with Microsoft Silverlight served to display the questionnaires and stimuli, track selective exposure, and record survey responses. Each of the three sessions took about 20-30 minutes, and was conducted at least 2-3 days apart from each other.

Session 1. Participants received a personalized URL to session 1 and completed the online questionnaire assessing their attitudes (tI) towards four target topics and eight distracter topics, along with general media use, partisanship and demographics. Parallel to the earlier studies, target topics were selected among controversial issues related to the upcoming election. For Japan, married couples' surnames, restart of nuclear plants, constitutional amendment, and foreign workers acceptance were chosen as target topics [target topics in the U.S. study: universal healthcare, minimum wage, abortion, and gun control; target topics in German study: universal healthcare, minimum wage, military deployment abroad, and immigration restrictions]. The distracter topics helped to veil the research interest. Before starting the survey, participants were carefully instructed to pay attention. For attitudes, both dichotomous and Likert-type attitudes were measured, in addition to attitude certainty and perceived issue knowledge.

Session 2. Participants were invited to session 2 three days after completing session 1. Session 2 also began with instructions that cautioned participants to avoid distractions. Then, an overview page presenting headlines and leads of four news articles related to one target topic were displayed. Specifically, each news article featured a supporting or opposing stance and was randomly associated with a high- or low-credibility source. Participants could freely choose which article to read, and then clicked the related links to access the articles in detail. By clicking a button on the article page, participants could return to the overview page to choose other articles as desired. Selective reading was unobtrusively tracked and recorded by software. The time restriction for each topic was two minutes. Participants were informed that reading time was limited, without specifying the time span. Once two minutes elapsed, a message popped up and instructed participants to proceed to the next topic. After the browsing task, participants' t_2 attitudes (dichotomous and Likert scales) toward the twelve issues were assessed again. Additionally, political interest and knowledge were captured.

Session 3 [only in Japanese study]. Two days after completing session 2, participants received a link for session 3. Their t_3 attitudes (dichotomous and Likert scales), along with PBS use and media trust were captured. Lastly, a debriefing was displayed.

Stimuli and Stimuli Pretest

The stimuli were displayed in the context of a news website named "WIRED" presenting relevant news articles for a political topic (see Figure 1). *WIRED* is an actual media outlet who publishes offline and online news content in America, while having local-language editions in both Japan and Germany, which serves to ensure ecological validity of the stimulus. Page design was exactly the same as the earlier studies, except for Japanese translation of text. For each target topic, four text leads associated with source information were displayed and varied in a 2x2

(issue stance x source credibility) within-subjects design: Each lead featured an issue-supporting or -opposing stance and was linked to a high- or low-credibility source. Within each topic, source assignment was rotated in a Latin square design; the presentation order of articles was randomized as well. The sequence of topics was fixed: married couples' surnames, restart of nuclear plants, constitutional amendment, and, lastly, foreign workers acceptance.

The stimuli content came from actual news reports, and were edited for length and style. Each article consisted of a headline ($M_{\text{characters}} = 9.38$, $SD = 0.62$), lead ($M_{\text{characters}} = 68.19$, $SD = 0.83$), and body ($M_{\text{characters}} = 1830.19$, $SD = 0.75$). The lengths of Japanese articles was comparable to the lengths of the earlier U.S. and German articles. [See Knobloch-Westerwick, Johnson, et al. 2015 and Knobloch-Westerwick, Mothes, et al., 2015, for the word counts of U.S. and German articles. The factor for converting Western word count to Japanese character count was 0.40.] Also, parallel to the earlier studies, high-credibility sources were selected from professional institutions, while low-credibility sources were mostly private websites or blogs.

The stimuli were carefully pretested. A total of 68 local Japanese undergraduate students ($M_{\text{age}} = 20.51$, $SD = 0.97$; 59% male), who did not participate in the main study, served to establish the effective manipulations. Specifically, the headlines and leads shown on overview pages were pretested with 39 students; results confirmed they were perceived as clearly holding a supporting or opposing stance while being equally interesting. An additional 29 students helped to test the manipulation of source credibility and confirmed significant differences in credibility perceptions as desired. See wording and pretest results in detail in Online Appendices A and B.

Measures

For this section, Online Appendix C reports topic-specific descriptive statistics.

Selective exposure. Time spent on each selected article was recorded by the research

platform in seconds. The dichotomous attitude measures from session 1, along with the associated source information, served to categorize the exposure further into attitude-consistent/-discrepant selective exposure on article(s) from high-/low-credibility sources.

Attitudes (dichotomous and Likert scales). For dichotomous measures in all three sessions, participants categorized target and distracter political issues into *Oppose* or *Support* by pressing the “z” and “/” keys on the computer keyboard. Further, attitudes toward all issues were measured with Likert-type scales from 1 = *strongly oppose* to 7 = *strongly support*. Dichotomous attitudes were highly correlated with attitudes measured with Likert-type scales in session 1, ranging from $r = .73, p < .001$, to $r = .80, p < .001$, across the four topics. Furthermore, few participants (10% to 14%) chose the scale midpoint in Likert-type measures in session 1.

Attitude extremity. These Likert-scores were recoded for extremity (i.e., 1&7=3, 4=0).

Attitude certainty. Participants indicated how certain they were about their opinions on all issues with a scale ranging from 1 = *not at all certain* to 7 = *extremely certain* in session 1.

Perceived issue knowledge. Participants indicated how well they were informed about issues with a scale ranging from 1 = *not informed at all* to 7 = *very well informed* in session 1.

Attitude shifts. To derive a variable for immediate attitude shifts, the scores of the Likert-scale attitude measures in session 1 were subtracted from the repeated measures in session 2 ($t_2 - t_1$). The derived score was further multiplied by -1 if participants selected “oppose” in the dichotomous attitude measure in session 1. Thus, positive scores indicated reinforced attitudes for all observations, while negative scores indicated weakened attitudes. The same procedure was employed to produce persistent attitude shifts, for which the scores obtained in session 1 were subtracted from scores in session 3 ($t_3 - t_1$). The immediate and persistent attitude shift across all four topics was $M = -0.26$ ($SD = 0.73$) and $M = -0.29$ ($SD = 0.71$), respectively.

PBS use. A program list technique proposed by Dilliplane et al. (2013) served to investigate participants' PBS use. A total of 26 programs, including five PBS programs and 21 commercial programs, were listed on two separate screens. To improve measurement accuracy, participants were instructed to check off any program(s) that they had watched *in the past week* on the lists, while “none of the above” option was also offered. The number of watched PBS program(s) was calculated for each participant. The overall mean was $M = 1.15$ ($SD = 1.39$).

Media trust. Based on the concept of attitudes toward the institutional news media on the whole, media trust was measured with the prompt “how much do you trust in media” on a Likert scale ranging from 1 = *don't trust at all* to 7 = *highly trust*. This measurement is similar to Tsftati and Ariely's (2014) approach and was also embedded in questions on trust in other societal institutions. The mean was 3.64 ($SD = 1.42$). To illustrate the effect suggested in H3, the score was further collapsed into three groups for low media trust (score ≤ 2 , $n = 42$), medium ($2 < \text{score} \leq 4$, $n = 93$) and high media trust (score > 4 , $n = 65$) by applying k-means clustering.

Covariates. Partisanship strength, political interest and knowledge were assessed as control variables. Wording and descriptives for these items are available in Online Appendix D.

Results

Preliminary Analyses

To examine whether topic selection, which naturally differed by country, could affect confirmation bias extent in the three countries, baseline attitude extremity measures from the U.S., German, and Japanese studies were merged. A multilevel model was constructed with the GAMLj 1.0.0 package for Jamovi 0.9.5.16 to specify random effects across the clustering variables of topic ($k = 12$), person ($k = 548$), and country ($k = 3$), on the outcome of attitude extremity. Random effects were allowed to correlate with each other. Likelihood ratio tests

compared the contribution to model fit of each random effect intercept per Akaike information criterion. Results showed that attitude extremity was influenced by person, $\chi^2(1) = 107.30, p < .001$, and by topic, $\chi^2(1) = 73.79, p < .001$, but not by country, $\chi^2(1) = 0.81, p = .369$. Likewise, the intraclass correlations (ICC) for each random component suggested that extremity scores were not especially differentiated by country, $r = .03$, compared to topic, $r = .07$, and person, $r = .20$. Attitude extremity was most likely to be explained at the individual level, followed by differences in topics, but there was no substantive impact of country.

Impacts of Attitude Consistency and Credibility on Selective Exposure in Japan

To address the first hypothesis and the research question, an ANOVA was conducted with selective exposure as repeated measures per the 4x2x2 within-subjects design. The within-subjects factors differentiated selective exposure by topic (married couples' surnames, restart of nuclear plants, constitutional amendment, foreign workers acceptance), attitude consistency (attitude-consistent vs. attitude-discrepant) and source credibility (high vs. low).

Attitude consistency had a significant impact on selective exposure, $F(1, 199) = 21.43, p < .001, \eta^2_{\text{partial}} = .10$, as participants spent on average $M = 216$ s ($SD = 89$) on attitude-consistent messages, compared to $M = 165$ s ($SD = 81$) for attitude-discrepant messages. Thus, a confirmation bias indeed emerged, supporting H1. Regarding RQ1, the main effect of source credibility did not approach significance ($p = .440$), as exposure to information from high-credibility sources was not longer than exposure to information from low-credibility sources.

Further significant effects emerged in this analysis, but were not relevant for hypothesis testing: In line with earlier findings (Knobloch-Westernwick, Mothes, et al., 2015), topic had an effect on exposure, $F(3, 597) = 69.79, p < .001, \eta^2_{\text{partial}} = .26$, because the overall time spent on the overview pages decreased (i.e., articles reading time increased) for the later topics, as

participants likely became more familiar with the page design and the procedure. The interaction between topic and attitude consistency also reached significance, $F(3, 597) = 3.81, p = .010$, $\eta^2_{\text{partial}} = .02$; the confirmation bias was significant at 10% level for all topics except for foreign workers acceptance ($p = .770$; with Sidak correction for multiple comparisons).

Impacts of PBS Use and Media Trust on the Confirmation Bias

The next ANOVA model incorporated PBS use and media trust scores as covariates to test H2 and H3. It once more demonstrated the confirmation bias, $F(1, 197) = 9.14, p = .003$, $\eta^2_{\text{partial}} = .04$. However, the interaction between attitude-consistency and PBS use was not significant, $p = .099$. Thus, H2 was not supported. Interestingly, the interaction between source credibility and PBS use was significant, $F(1, 197) = 5.27, p = .023$, $\eta^2_{\text{partial}} = .03$, because frequent PBS users spent more time with messages associated with high-credibility sources. Indeed, the number of viewed PBS program(s) was positively associated with difference scores between selective exposure spent on high- vs. low-credibility sources, $r = .15, p = .029$.

The interaction between attitude-consistency and media trust was significant, $F(1, 197) = 4.09, p = .045$, $\eta^2_{\text{partial}} = .02$. Figure 2 illustrates that individuals who trusted media less exhibited a clear confirmation bias (low trust: $p < .001$; medium trust: $p = .013$), whereas individuals with greatest media trust did not exhibit a significant confirmation bias ($p = .125$). Hence, H3 was supported. On a side note, the interaction between source credibility and media trust was not significant ($p = .279$).

Comparing the Extent of Confirmation Bias in the Three Countries

H4 postulated that the extent of the confirmation bias differs between countries and was tested based on a merged dataset including adults from Japan, the U.S., and Germany. Based on the definition of the confirmation bias that individuals prefer attitude-consistent information *over*

attitude-discrepant information, a difference score between selective exposure to attitude-consistent articles and selective exposure to attitude-discrepant articles (i.e., attitude-consistent selective exposure - attitude-discrepant selective exposure) served as the dependent variable in an ANOVA. The country of data collection served as between-group factor.

As illustrated in Figure 3, the differences between countries regarding the extent of confirmation bias indeed materialized, $F(2, 545) = 6.98, p = .001, \eta^2_{\text{partial}} = .03$. Post-hoc tests using the Sidak correction for multiple comparisons further revealed that Japanese differed from Americans in the extent of their confirmation bias, at $p = .012$, while Japanese did not differ significantly from the Germans, $p = .796$. Additionally, the Americans' confirmation bias tendency was significantly greater than the Germans', $p = .003$ (as reported earlier by Knobloch-Westerwick, Mothes, et al., 2015). Thus, both H4a and H4b were supported.

To further test whether contextual factor (i.e., country) or situational factor (i.e., topic) had more influence on the confirmation bias, the ANOVA model was extended to incorporate topic as a within-subjects factor. The result of significant effect of country remained exactly the same; however, topics as situational factor did not yield a significant effect ($p = .504$).

Impacts of Attitude-Consistent and -Discrepant Exposure on Attitude Shift

OLS regression analyses were run for each target topic to test H5 and H6. To prevent multicollinearity, effects of attitude-consistent exposure and attitude-discrepant exposure were investigated in separate models, which controlled for demographic factors (i.e., gender, age, education level). The results are reported in Table 1.

As expected, attitude-consistent exposure generally reinforced preexisting attitudes as captured immediately after the selective exposure task, while attitude-discrepant exposure indeed weakened preexisting attitudes (see details in Table 1). Nevertheless, these effects were not

significant for one of the four issues (restart of nuclear plants). An additional regression analysis with a condensed attitude change measure, using the average change across all four topics, yielded a significant result for both attitude-consistent exposure, $\beta = .17, p = .017$, and attitude-discrepant exposure, $\beta = -.30, p < .001$.

Further, analyses using attitude shift between *t3 and t1* as dependent variable revealed that the reinforcing effect of attitude-consistent exposure and the weakening effect of attitude-discrepant exposure persisted for two days (see Table 1). The nuclear plants topic now yielded marginally significant impacts on delayed attitude measures for both attitude-consistent and -discrepant exposure. Once more, regression models were run with a change score averaged across topics; they revealed impacts of both attitude-consistent exposure, $\beta = .21, p = .004$, and attitude-discrepant exposure, $\beta = -.26, p < .001$. Hence, both H5 and H6 were overall supported.

Controlling for partisanship strength, political interest, general political knowledge, attitude certainty, perceived issue knowledge, and exposure credibility gave similar results.

Discussion

The present investigation is the first experimental study on selective exposure to political information in Japan, conducted right before the 2017 Japanese snap general election. Results derived from the Japanese context replicated several findings in earlier work with U.S. and German data and showed that Japanese participants indeed exhibited a confirmation bias by spending more time on attitude-consistent political messages than attitude-discrepant messages (supporting H1). This observation corroborates that the confirmation bias is a global phenomenon. The present work also replicated earlier findings according to which attitude-consistent exposure reinforces attitudes, whereas attitude-discrepant exposure weakens attitudes (supporting H5/6a). In line with earlier work, these impacts persisted for two days (supporting

H5/6b). Although attitudes are generally thought to be difficult to influence, these findings demonstrate that a mere 40 seconds of selective exposure to counter-attitudinal information (on average per topic) produced persistent persuasive effects. On the other hand, the present work did not replicate the influence of source credibility on selective exposure among Japanese participants (per RQ1). While the interaction between media trust and source credibility was not significant, PBS use fostered selection of messages from high-credibility sources in Japanese data; thus perhaps context factors (i.e., public broadcasting system) influence responses to source credibility cues. For example, the relatively low media-party parallelism in Japan along with comparatively low levels of use of social media for news might shape how the Japanese utilize source cues. Another consideration is that the Japanese study was conducted 4-5 years later than the other data collections, which could affect the extent to which online habits (i.e., increasing exposure to news through social media) shape responses to source cues. Yet further investigation of interdependencies of general media trust and specific source credibility perceptions is desirable.

Importantly, by comparing Japanese results with the earlier U.S. and German findings, the current investigation again demonstrated that cross-country differences existed in confirmation bias extent. Per H4, the confirmation bias among Japanese was less pronounced than among Americans, but showed no difference compared to Germans. The concept of media-party parallelism (MPP) helps to explain these differences, as it is plausible that the decidedly partisan media in the U.S. (high MPP) allow Americans retreating into an ongoing stream of attitude-aligned information, whereas the by law balanced TV channels in Japan and Germany (low MPP) ensure that citizens are used to encountering attitude-challenging content (Castro-Herrero, Nir, & Skovsgaard, 2018). Thus, even though Japan is similar to the U.S. regarding a

trend towards “soft news” and personalization of politics (Taniguchi, 2007), MPP is pivotal. This finding further implies that the smaller confirmation bias in Japan than in America should not be simply attributed to a difference between Eastern and Western cultures, or more specifically, a difference between collectivistic cultures and individualistic cultures, because the extents of confirmation bias in Japan and in Germany are not significantly different. Nevertheless, collectivistic versus individualistic cultural values were not captured in the current study and warrant consideration in future investigations. As it stands, reducing MPP promises to reduce the confirmation bias and ultimately polarization.

Indeed, by examining the impacts with individual-level data, the present work further corroborated that media trust, which is associated with MPP, reduced the confirmation bias (supporting H3). Although the relevant data stemmed from Japan only, the current evidence on media trust influence provides new insight regarding growing concern on confirmation bias and polarization, in light of declining trust in media among Americans (Gallup, 2016). Attempts to restore media trust could thus be crucial for democracy. On the other hand, PBS use, the other related variable, did not influence the confirmation bias (H2 not supported). Impacts of PBS on the confirmation bias could be difficult to detect on the individual-level, because PBS has a spillover effect on commercial channels (Reinemann, Stanyer, & Scherr, 2017) and thus the difference in impacts from PBS versus commercial channels use could be relatively small. Also note that commercial TV in Japan (and Germany) does not take a political stance per regulation. Future work should re-investigate this impact with country-level data.

An open question concerns why some results differed across topics. Specifically, the confirmation bias was not observed for exposure to messages on foreign workers acceptance, while the attitudinal impacts did not occur for restart of nuclear plants. The former could be due

to less crystallized pre-exposure attitudes, and the latter might be related to the particularity of the issue itself. Foreign worker acceptance was a relatively new issue in 2017 election, reflected in the low attitude certainty as well as perceived knowledge (see Online Appendix C); informational utility thus possibly overrode the confirmation bias. The lack of observation of the confirmation bias could also be simply due to fatigue, as foreign worker acceptance was the last topic in the browsing task. Restart of nuclear plants, however, is an issue that originated from the nuclear meltdown caused by Japan's 2011 earthquake and tsunami. The first-hand experiences of such a disaster could then make attitude impacts on this issue less likely. Besides, in contrast to the other three topics which are more about values or economy, restart of nuclear plants is associated health risks, which could possibly make the impacts act differently as well.

Limitations of the present work need to be acknowledged. Although the media trust impact in the Japanese data provide important insight, the findings cannot directly speak to its role in cross-national differences in confirmation bias extents due to lack of media trust measures in the earlier data collections in the U.S. and Germany. While the measurement for media trust used here is similar to what influential work on the concept did as well (Tsfati & Ariely, 2014), the single-item approach is not ideal in terms of reliability. Further, the conclusion that media trust affected the confirmation bias, based on evidence that media trust is stable (Ladd, 2010), could be called into question because it is possible that instead the selective exposure task impacted the media trust scores collected two days later. Also, as mentioned earlier, Japan is similar to Germany but in contrast to America on several other dimensions besides MPP; to fully disentangle context factor impacts in statistical terms, a much greater number of countries would be necessary. Moreover, in line with the earlier studies, the present study used a socio-demographically diverse non-student sample, although inconsistencies exist in recruitment and

sample structures regarding age and gender distributions. Although these inconsistencies should not affect results dramatically, more careful controls are desirable.

The present close replication compared pre-election confirmation biases in North America (U.S.), a European country (Germany), and an Asian country (Japan). Importantly, selected topics were comparable in controversiality across countries. Responding to scholars' call for work on contextualization, it demonstrated that contexts indeed matter. It further showed that media trust, related to the MPP context, differentiates the bias. To better understand and address the confirmation bias and its consequences, more evidence from non-U.S. contexts, along with further comparative research into causes for the cross-cultural differences, is needed. Importantly, the present work neglects the many nondemocratic contexts (Economist Intelligence Unit, 2019) around the world.

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 日本はエネルギー生産に必要な資源を輸入に依存するため、世界情勢の影響を受けやすい。安定した国家運営を実現するために原発の活用が求められる。 [記事を読む](#)

出典: 核情報 (kakujocho.net)
危険な原発 停止望む
 これまで福島第一原発事故等の原発関連事故が度々発生した。ずさんな運営体制や上流工程での環境汚染、莫大なコストが掛かる原発はやめるべきだ。 [記事を読む](#)

出典: 原発のニュース&まとめ (ameblo.jp/genpatu-kiroku)
温暖化対策に原発を
 地球温暖化問題が深刻化し、世界的に対策が求められている。対策とエネルギー供給を両立するために温室効果ガスが出ない原子力発電が必要になる。 [記事を読む](#)

出典: 日本エネルギー経済研究所 (eneken.ieej.or.jp)
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 原発は巨大なリスクを伴ううえ、そのリスクを一部地域に偏在させる側面がある。皆が安心して暮らせる社会にするために原発は速やかに廃止すべきだ。 [記事を読む](#)

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Figure 1: Example Screenshot of Overview Page Presenting Stimuli Articles

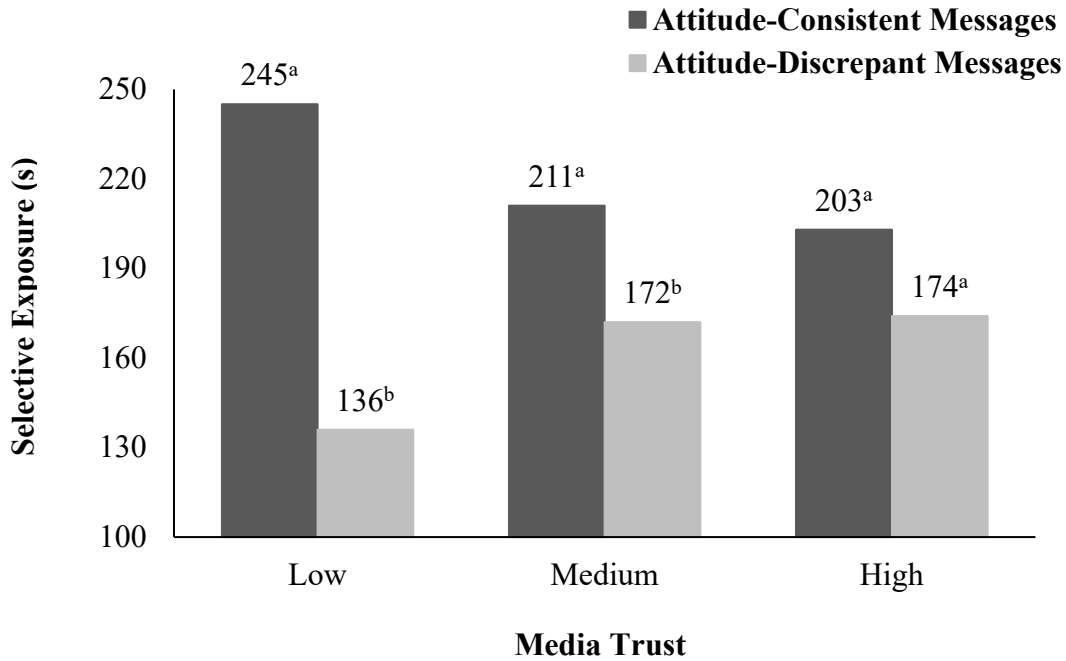


Figure 2. Selective exposure as a function of attitude-consistency and media trust. Means for the same category of media trust with different superscripts a and b differ significantly at $p < .05$ (Sidak correction for multiple comparisons).

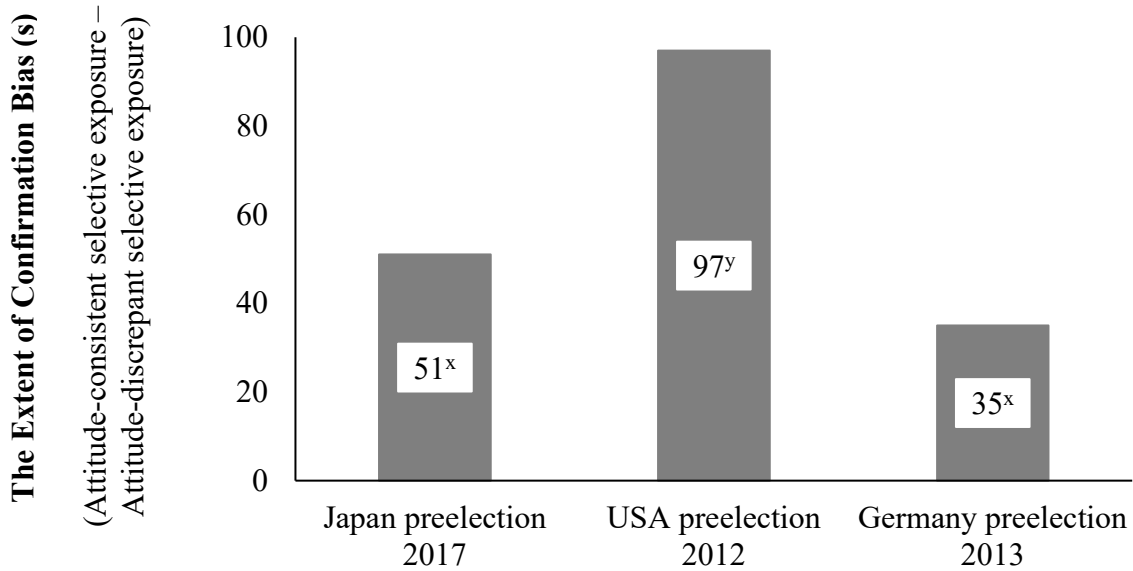


Figure 3. Extent of confirmation bias by country. Computed by subtracting selective exposure to attitude-discrepant messages from selective exposure to attitude-consistent messages (i.e., seconds reading attitude-consistent articles – seconds reading attitude-discrepant articles). Means with different superscripts differ significantly at $p < .05$ (Sidak correction for multiple comparisons).

Table 1

Immediate and Persistent Impacts of Attitude-Consistent and Attitude-Discrepant Selective Exposure on Attitude Shifts for Four Target Topics (beta weights, p in parentheses)

		Attitude-Consistent Selective Exposure	Attitude-Discrepant Selective Exposure
Immediate Impact	Married Couples' Surnames	.19 (.011)	-.19 (.008)
	Restart of Nuclear Plants	.07 (.344)	-.08 (.251)
	Constitutional Amendment	.20 (.005)	-.27 (<.001)
	Foreign Workers Acceptance	.30 (<.001)	-.35 (<.001)
Persistent Impact	Married Couples' Surnames	.22 (.003)	-.19 (.009)
	Restart of Nuclear Plants	.12 (.093)	-.13 (.074)
	Constitutional Amendment	.22 (.003)	-.29 (<.001)
	Foreign Workers Acceptance	.18 (.012)	-.18 (.010)

Note. Standardized beta weights. Analyses of impacts of selective exposure to attitude-consistent and -discrepant articles both controlled for gender, age and education level. Positive beta weights for attitude shift reflect a reinforced attitude, whereas negative beta weights reflect a weakened attitude.

Online Supplemental Appendices

for

Context Impacts on the Confirmation Bias:

Evidence from the 2017 Japanese Snap Election Compared with American and German Findings

Appendix A: Stimulus Pretest Results for Article Leads

Topic/Article Headline	Leads Stance		Interestingness	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Married Couples' Surnames				
夫婦同姓 家族の絆を	-2.10 ^a	2.27	3.15 ^a	1.23
憲法精神に沿う同姓制	-3.25 ^a	1.52	2.75 ^a	1.12
多様な家族認めるとき	2.40 ^b	1.70	3.70 ^a	1.22
女性を後押しする力に	3.65 ^b	1.09	3.85 ^a	1.35
Restart of Nuclear Plants				
危険な原発 停止望む	-3.40 ^a	2.72	3.40 ^a	1.19
原発廃止で皆に安心を	-3.55 ^a	2.61	3.20 ^a	1.20
温暖化対策に原発を	2.85 ^b	1.23	3.70 ^a	1.45
原発で安定した国へ	3.20 ^b	1.11	3.80 ^a	1.15
Constitutional Amendment				
9条で平和の維持を	-2.68 ^a	2.36	4.00 ^a	1.25
平和の象徴 世界の支持	-3.00 ^a	2.29	3.68 ^a	1.25
国民を守れる憲法に	2.63 ^b	2.79	4.16 ^a	1.30
日本主体の憲法を	2.42 ^b	1.71	4.21 ^a	1.08
Foreign Workers Acceptance				
社会コスト どう負うか	-2.79 ^a	1.36	4.05 ^a	1.31
移民国家化する日本	-3.05 ^a	1.47	3.74 ^a	1.19
人材の確保 外国から	3.21 ^b	2.02	4.21 ^a	1.36
人手不足 危機感を持つ	3.53 ^b	1.26	4.32 ^a	1.16

Note. Stance was tested with single item, with 11-point anchored scales ranging from -5 = *strongly opposing* <respective issue> to +5 = *strongly supporting* <respective issue>. Interestingness of articles was tested with a single item ranging from 1 = *not at all interesting* to 7 = *extremely interesting*. Means with different letters in a with-in topic column differ at $p < .05$.

Appendix B: Stimulus Pretest Results for Article Sources

Topic/Source	Perceived Credibility	
	<i>M</i>	<i>SD</i>
Married Couples' Surnames		
少子・家庭政策研究所 (www.hemri21.jp)	5.41 ^a	0.95
日本政策研究センター (www.seisaku-center.net)	5.17 ^a	1.00
家族ブログ村 (family.blogmura.com)	1.93 ^b	1.07
家庭円満.JP (katei-enman.jp)	2.83 ^b	1.28
Restart of Nuclear Plants		
日本エネルギー経済研究所 (eneken.ieej.or.jp)	5.55 ^a	1.06
環境エネルギー政策研究所 (www.isep.or.jp)	5.45 ^a	0.87
原発のニュース & まとめ (ameblo.jp/genpatu-kiroku)	2.21 ^b	1.15
核情報 (kakujocho.net)	2.83 ^b	1.23
Constitutional Amendment		
衆議院憲法調査会 (www.shugiin.go.jp)	5.72 ^a	1.07
日本国際問題研究所 (www2.jiia.or.jp)	5.14 ^a	1.09
正義論.COM (seigiron.com)	2.52 ^b	1.09
みんなの憲法 (www.藤野.jp/~minnanokenpou)	2.90 ^b	1.08
Foreign Workers Acceptance		
労働政策研究・研修機構 (www.jil.go.jp)	5.31 ^a	1.00
生活経済政策研究所 (www.seikatsuken.or.jp)	5.07 ^a	1.13
経済ブログ村 (economy.blogmura.com)	2.17 ^b	1.14
日本のために (garo.co.jp/inoue)	2.21 ^b	1.05

Note. The level of perceived credibility was pretested with a single item (1 = *not at all credible* to 7 = *extremely credible*). Means in a column and set with different letters differ at $p < .05$.

Appendix C: Descriptive Statistics (*M, SD* in parentheses)

	Married Couples' Surnames	Restart of Nuclear Plants	Constitutional Amendment	Foreign Workers Acceptance
Attitude (dichotomous, support), S1	66%	41%	48%	53%
Attitude (dichotomous, support), S2	68%	41%	52%	50%
Attitude (dichotomous, support), S3	71%	42%	50%	50%
Attitude (Likert), S1	4.60 (1.96)	3.43 (2.22)	3.89 (2.24)	3.68 (1.96)
Attitude (Likert), S2	4.37 (1.92)	3.45 (2.21)	3.81 (2.27)	3.53 (1.82)
Attitude (Likert), S3	4.39 (1.80)	3.32 (2.10)	3.74 (2.19)	3.51 (1.78)
Attitude Extremity, S1	1.78 (1.01)	2.03 (1.05)	1.98 (1.05)	1.69 (1.04)
Attitude Extremity, S2	1.66 (1.04)	2.04 (1.01)	2.06 (0.95)	1.58 (1.03)
Attitude Extremity, S3	1.56 (0.98)	1.93 (1.08)	1.97 (0.98)	1.54 (1.03)
Attitude Certainty	4.75 (1.69)	5.05 (1.72)	5.15 (1.68)	4.59 (1.66)
Perceived Knowledge	4.11 (1.37)	4.70 (1.36)	4.57 (1.43)	3.96 (1.30)
Attitude-Consistent Selective Exposure	45 (34)	60 (38)	59 (40)	52 (40)
Attitude-Discrepant Selective Exposure	36 (33)	37 (34)	41 (38)	50 (40)
Exposure to Messages from High-Credibility Sources	41 (34)	44 (38)	48 (39)	53 (39)
Exposure Messages from Low-Credibility Sources	40 (34)	52 (39)	52 (40)	50 (39)
Immediate Attitude Shift	-.32 (1.38)	-.04 (1.51)	-.32 (1.52)	-.37 (1.23)
Persistent Attitude Shift	-.36 (1.19)	-.09 (1.38)	-.36 (1.41)	-.37 (1.19)

Appendix D: Control Measures

Variable	Measure
Partisanship strength (S1)	<p>Partisanship strength was measured in session 1 with response options 1 = <i>a strong supporter</i>, 2 = <i>not a strong supporter</i> or 3 = <i>not a party supporter</i> after participants indicating their supporting parties regardless of voting. Responses then were reversed as 0 = <i>not a party supporter</i>, 1 = <i>supporting a party, but not a strong supporter</i>, and 2 = <i>a strong supporter of a party</i>. In turn, 102 (51%) participants were not party supporters, 86 (43%) were not strong party supporters, and 12 (6%) were strong party supporters.</p>
Political interest (S2)	<p>Participants indicated to what extent they were interested in politics with a scale ranging from 1 = <i>not at all interested</i> to 7 = <i>very interested</i> in session 2. $M = 4.47$, $SD = 1.61$.</p>
Political knowledge (S2)	<p>Political knowledge was captured by counting correct answers to four multiple-choice factual political questions. Items included questions regarding Japan's judicial system, Japan's Upper House election, and two cabinet members' current positions. $M = 2.11$, $SD = 1.03$.</p>