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Feeling Conflicted and Seeking Information: When Ambivalence Enhances and Diminishes Selective Exposure to Attitude-Consistent Information

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Abstract

To date, little research has examined the impact of attitudinal ambivalence on attitude-congruent selective exposure. Past research would suggest that strong/univalent rather than weak/ambivalent attitudes should be more predictive of proattitudinal information seeking. Although ambivalent attitude structure might weaken the attitude's effect on seeking proattitudinal information, we believe that conflicted attitudes might also motivate attitude-congruent selective exposure because proattitudinal information should be effective in reducing ambivalence. Two studies provide evidence that the effects of ambivalence on information choices depend on amount of issue knowledge. That is, ambivalence motivates attitude-consistent exposure when issue knowledge is relatively low because less familiar information is perceived to be effective at reducing ambivalence. Conversely, when knowledge is relatively high, more unambivalent (univalent) attitudes predicted attitude-consistent information seeking.

Keywords

attitudinal ambivalence, attitude strength, selective exposure, information seeking, attitude structure

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Much of the research on attitudes and persuasion has been dedicated to exploring the circumstances under which people are more or less motivated to process relevant information. Notably, in much of this research tradition, individuals are presented with information and have little ability to choose which, and how much, information they opt to scrutinize. Although people might be able to disengage from the information or setting midstream, the dynamics of attempting this may be quite different from settings in which people can "opt into" information exposure. Therefore, in addition to settings in which people encounter attitude-consistent or attitude-inconsistent information, it is important to understand settings in which people are active in selecting information (including the factors that determine which information people seek).

When constructing informational environments, people might rely on their views of the world as a way to determine which information to seek and which information to ignore. Despite the depth of research conducted regarding attitudes and selective exposure, the extant literature has barely begun to address the *types* of attitudes that are most likely to compel the development and maintenance of informational environments. Considering the wide range of social settings (e.g., Twitter, Facebook, OkCupid) in which people have the ability to seek some information while avoiding other information, it is natural to presume that this selectivity would be predicted by differences in individuals' attitudinal features as well as the motivations present when constructing and maintaining these informational environments.

One of the most common motives for people to seek out and process information is when they experience cognitive dissonance. A basic tenet of classic dissonance theory is that people prefer consistency over inconsistency (Abelson et al., 1968; Aronson & Carlsmith, 1963; Aronson & Mills, 1959; Brehm, 1956; Festinger, 1957; Festinger & Carlsmith, 1959).

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Being aware of inconsistency between cognitive elements is unpleasant and prompts attempts to reduce dissonance. For example, imagine a politically liberal individual who realizes that he or she shares the advocated position of a conservative politician. This individual may attempt to reduce dissonance by seeking news articles that describe his or her supported position as ultimately being in service of liberal ideals, regardless of conservatives holding that opinion. This same strategy may be used to effectively avoid the mere potential for dissonance. That is, one might preemptively avoid dissonance by selecting into informational contexts that preserve and maintain thoughts and attitudes. Using the same example, a liberal individual could preemptively avoid dissonance by avoiding notoriously conservative news channels or by remaining distant from anyone who espouses politically conservative ideology (e.g., by ignoring newsfeeds or defriending on Facebook). This dissonance-derived prediction that people selectively choose and attend to information that supports their current views, and avoid dissonant information, has received much attention over the past 60 years (see Smith, Fabrigar, & Norris, 2008, for a review).

Although people often seek consonant and avoid dissonant information, selective exposure research indicates that such tendencies are moderated by a host of specific conditions and motivations (e.g., Frey, 1986; Hart et al., 2009; Sawicki et al., 2011; Smith et al., 2008). For example, when capacity for complete processing is undermined (e.g., because of distraction or time pressure) or when the amount of information people can choose from an informational array is limited, attitude-consistent selective exposure is more likely (Fischer, Jonas, Frey, & Schulz-Hardt, 2005; Johnston, 1996; Smith, Fabrigar, Powell, & Estrada, 2007). One way to understand these effects is to suggest that the attitude informs the person which information to seek. Consistent with this idea, Fischer et al. (2005; Experiment 4) found that research participants' initial positions predicted the expected quality of information prior to information exposure (with information supporting their initial views judged as likely to be higher in quality than information opposing their initial views). Moreover, these judgments of expected information quality predicted information exposure more when information search was restricted rather than unrestricted.

From a utilitarian perspective, an attitude might indicate what the "correct" position is (Festinger, 1950), and can direct choices of additional information. However, if the person does not have a strong opinion one way or the other, then the attitude might provide less of a guide as to which information is likely to be "correct" or high in quality, and information search might be more balanced. Thus, one might reasonably suppose that the stronger the attitude, the more likely that attitude should determine exposure choices. This *attitude strength prediction* for information seeking has received some support. Brannon, Tagler, and Eagly (2007) assessed participants' attitudes and several strength-related features of those attitudes (e.g., issue importance and attitude certainty) and then measured desire to read articles that supported or opposed a social issue (e.g., abortion). In general, participants preferred proattitudinal over counterattitudinal articles with these selective preferences amplified with stronger attitudes (operationalized as an aggregate of multiple strength-related attitude features).

The Potential Role of Ambivalence in Selective Exposure

One strength-related attitude property that was absent from the Brannon et al. (2007) research is attitudinal ambivalence. People with ambivalent attitudes realize that the attitude object has positive and negative qualities (i.e., objective ambivalence) and experience the attitudes as involving "conflicted" or "mixed" reactions toward the attitude object (i.e., subjective ambivalence). The majority of research on attitudinal ambivalence emphasizes the weakness of ambivalent attitudes, including effects such as greater susceptibility to change (Armitage & Conner, 2000; Bassili, 1996) and lower attitude-behavior consistency (e.g., Armitage, 2003; for more detailed discussion, see Fabrigar, MacDonald, & Wegener, 2005). Because attitudinal ambivalence is usually associated with weak attitudes, the findings of Brannon et al. (2007) imply that ambivalent attitudes should be less likely to create attitude-consistent selective exposure. However, we believe that this attitude strength account is unlikely to be the whole story linking attitude ambivalence to selective exposure. Specifically, ambivalent attitudes also can create motives that increase processing of proattitudinal information (Clark, Wegener, & Fabrigar, 2008; Maio, Bell, & Esses, 1996) and decrease processing of counterattitudinal information (Clark et al., 2008).

Selective exposure can also be guided by motives, such as dissonance reduction or self-presentation (see Frey, 1986; Smith et al., 2008). Regarding attitude ambivalence, research on information processing has emphasized the motivational properties of ambivalent attitudes. Simultaneous positive and negative evaluations of an attitude object may be subjectively experienced as discomfort (Priester & Petty, 1996), especially if the positivity and negativity are simultaneously activated (Newby-Clark, McGregor, & Zanna, 2002) and a choice or similar behavior is imminent (van Harreveld, van der Pligt, & de Liver, 2009). If so, similar to traditional cognitive consistency theories (Abelson et al., 1968), the discomfort of ambivalence may exert a motivational influence on information choices. The tension brought about by the conflicted attitude may motivate people to resolve this conflict. In other words, these settings may lead people to be motivated to bolster the strength of their ambivalent attitude. One way to bolster their attitudes (i.e., to reduce the ambivalence) could be to actively seek out information that agrees with and avoid information that disagrees with one's overall attitude. If ambivalent attitudes were found to enhance

attitude-consistent exposure, this result would provide an important caveat to the results from Brannon et al. (2007) in which weak attitudes produced significantly less attitude-consistent exposure than strong attitudes.

Some persuasion results suggest that this *bolstering pattern* of high ambivalence enhancing selective exposure is plausible. In information processing studies in which a message was provided to (not chosen by) participants, participants who held ambivalent attitudes were more likely to extensively process proattitudinal rather than counterattitudinal messages (Clark et al., 2008). In contrast, people with relatively low ambivalence were actually more likely to process counterattitudinal rather than proattitudinal messages (cf. Edwards & Smith, 1996). Furthermore, Clark et al. (2008) found that ambivalent message recipients believed that proattitudinal messages would be more capable of reducing their ambivalence than counterattitudinal messages, and these beliefs accounted for the differences in processing that occurred as a function of message position (see also Nordgren, van Harreveld, & van der Pligt, 2006).

In Clark et al. (2008), participants were provided with a persuasive message rather than participants choosing which message to read. However, if the same basis for selectivity in processing were extended to a context in which research participants select information, we would arrive at an interesting prediction. That is, ambivalent attitudes (that are generally considered to be weak) should be capable of creating strong preferences for attitude-consistent exposure. This prediction diverges in important ways from the attitude strength results presented by Brannon et al. (2007) in which strong attitudes produce more exposure to attitude-consistent information. If supported, this ambivalence hypothesis also begs the important question of when ambivalence might yield effects that are typically indicative of weak attitudes (failing to predict exposure decisions; cf. Brannon et al., 2007) and when ambivalence motivates attitude-consistent exposure to information (similar to strong attitudes; cf. Clark et al., 2008).

Research Overview

We predict that ambivalence effects on information choices might yield two patterns that reflect the dualistic and paradoxical nature of ambivalence: not only structurally weak but also motivationally strong. In some cases, similar to past ambivalence and processing work (Clark et al., 2008), ambivalent attitudes should motivate proattitudinal information seeking relative to unambivalent attitudes that have no need for attitude bolstering. However, in other contexts, less conflicted, structurally strong attitudes might serve as powerful guides to attitude-consistent information choices more so than weak, conflicted attitudes (as in Brannon et al., 2007). Therefore, the question at hand is as follows: "*When* might ambivalence effects on selective exposure reflect motives to bolster the attitude (with ambivalent attitudes determining selection) as opposed to use of the attitude as a strong guide to information selection (with unambivalent attitudes determining selection)?" We believe that information's ability to meet the goals present during information seeking (e.g., ambivalence reduction) would be crucial in determining whether the bolstering or strength pattern occurs. One important factor that may determine information's utility in reducing ambivalence is information familiarity.

We predict that the *bolstering effect* of high ambivalence yielding selective exposure to attitude-consistent information should emerge when available information is generally less familiar. Unfamiliar proattitudinal information should be perceived as more able to reduce conflict and thus most desirable to a person with an ambivalent attitude. In contrast, known proattitudinal information should be less effective in reducing ambivalence because the ambivalence exists despite already knowing this information. Conversely, the *attitude strength effect* of unambivalent, structurally strong attitudes producing more attitude-consistent exposure might be more likely when available information is relatively familiar. Although supportive information might generally be perceived as higher in quality (i.e., as more "correct") than opposing information, this might be especially true when the information is familiar and is, therefore, already part of the knowledge base underlying the current attitude. That is, the (strong) attitude should be perceived as a better guide to the quality of familiar rather than unfamiliar information. Thus, if the unambivalent person is to choose attitude-consistent information, the attitude should tell the person that familiar proattitudinal information is likely to be the most "correct" (highest quality) information.

Pilot Study

Before testing the links between attitudinal ambivalence and attitude-congruent exposure, we conducted a pilot study to examine how individuals experiencing subjective ambivalence would perceive issue-relevant information as affecting their ambivalence. Specifically, would perceptions about information's impact on ambivalence differ as a function of familiarity with the information as well as the extent to which information is attitude-consistent? If new (unfamiliar) proattitudinal information is perceived as more likely to reduce ambivalence as we suggest, then this would provide direct empirical support for our predictions regarding information exposure choices. Specifically, we hypothesized that when information is unfamiliar, individuals should perceive proattitudinal information as more likely to *decrease* ambivalence and counterattitudinal information as more likely to *increase* ambivalence. In contrast, known information should be less impactful at influencing ambivalence. Thus, compared with unfamiliar information, known proattitudinal information should be less effective at decreasing

ambivalence and known counterattitudinal information should be less likely to further increase ambivalence.

Method

Participants and Design. Undergraduates at a large Midwestern university ($N = 62$) were recruited for volunteer participation at a university library. Attitude favorability was measured as a predictor of expected change in ambivalence in response to descriptions of information regarding a junk food tax.

Procedure. The study was presented as an investigation of general impressions about social issues and information. Participants responded to questions about their attitudinal features, including attitude favorability and attitudinal ambivalence, regarding the potential taxation of junk food. Only participants reporting a 4 or higher on the last measure of subjective ambivalence were included in this study (a procedure used in Study 2 of Clark et al., 2008). Finally, participants indicated how each of four types of information would affect their ambivalence and were debriefed on study completion.

Independent Variables

Attitude favorability. Participants completed an attitude survey that included a question regarding the topic of interest (junk food taxation). Attitudes were measured on a 9-point scale (1 = *bad*, 9 = *good; M* = 5.23, *SD* = 2.07).

Attitudinal ambivalence. Participants completed measures of subjective ambivalence toward junk food taxation developed by Priester and Petty (1996). Subjective ambivalence was measured using three 11-point scales paired with the statement, "With regard to the potential taxation of junk food, I feel . . . " (0 = *completely one-sided reactions, no indecision, and no conflict at all*; 10 = *completely mixed reactions, maximum indecision, maximum conflict*). Respondents who reported a 4 or higher on the mixed item received materials for the rest of the study (cf. Clark et al., 2008). For these participants, responses to the three items were correlated ($\alpha = .68$) and were averaged to form an index of subjective ambivalence (*M* = 6.42, *SD* = 1.63).

Dependent Measures

Expected change in ambivalence. Participants rated four descriptions of information regarding how each piece of information would affect their current level of ambivalence. Each information description was presented individually and varied on two dimensions: position regarding junk food taxation and degree of familiarity. Participants saw all four information descriptions and rated how each would affect their ambivalence level, that is, "How do you feel about (new/old) information that you (don't/do) know that (opposes/supports) junk food taxation. It would . . . "; −5 = *decrease my mixed feelings* and +5 = *increase my mixed feelings*. A favorability index of information's impact on ambivalence was created separately for familiar and unfamiliar information. To create each index, expected change in ambivalence in response to anti-tax information was subtracted from expected change in ambivalence in response to pro-tax information. On the resulting index, more positive numbers indicate an expectation that pro-tax information would relatively *increase* ambivalence compared with anti-tax information. More negative numbers indicate an expectation that pro-tax information would relatively *decrease* ambivalence compared with anti-tax information.

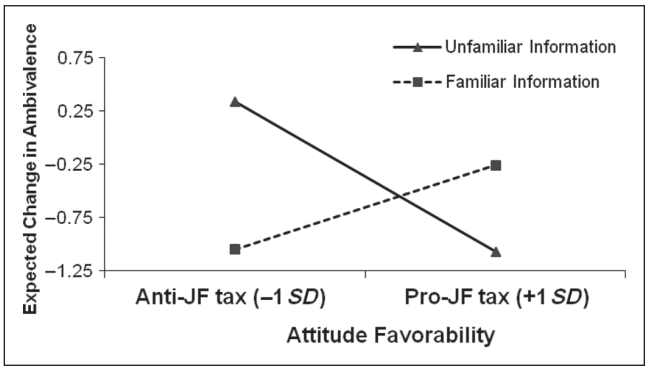

Figure 1. Predicted values for expected change in ambivalence based on relative favorability (of attitudes toward junk food (JF) taxation (−1 SD = Anti-JF tax vs. +1 SD = Pro-JF tax), and issue familiarity (unfamiliar or familiar; pilot study).

Results

We conducted a mixed model regression analysis on the index of expected change in ambivalence with attitude favorability as the between-subject predictor and information familiarity as the within-subject predictor. The predicted Attitude × Information Familiarity interaction was significant, $F(1, 60) = 8.27$, $p < .01$, $r = .35$ (see Figure 1). To decompose this interaction, we conducted separate regressions for each level of information familiarity. Attitudes significantly predicted expected change in ambivalence in response to unfamiliar information, $b = -.34$, $t(60) = -2.60$, $p = .01$, $r = .32$. That is, the more favorable the attitude regarding taxing junk food, the more likely that unfamiliar pro-tax information would decrease ambivalence relative to unfamiliar anti-tax information. When information was well known, attitudes did not significantly predict expected change in ambivalence, $b = .19$, $t(60) = 1.40$, $p = .17$, $r = .18$. That is, the expected change in ambivalence level did not differ in response to familiar information, regardless of whether that information agreed or disagreed with the current attitude.

Discussion

This pilot study provides evidence that when people have mixed reactions, unfamiliar information is perceived to be more effective at reducing ambivalence than well-known information. When information is new, attitude-consistent (relative to inconsistent) information is perceived as reducing ambivalence whereas attitude-inconsistent (relative to consistent) information is expected to increase ambivalence. These current results conceptually replicate aspects of past mediational findings (Study 2 of Clark et al., 2008); the increased processing of proattitudinal over counterattitudinal information that occurred for ambivalent individuals was driven by perceptions that the proattitudinal information would better reduce ambivalence. Perhaps even more importantly, the current findings demonstrate the crucial role of information familiarity that had not been considered in past research on ambivalence and information processing. The processing work could be viewed as consistent with the current results in that the information in the persuasive messages was likely perceived as relatively novel. We return to this issue later in the article.

Knowledge, Ambivalence, and Selective Exposure

With evidence that information familiarity is a critical variable influencing perceptions of information options, we aimed to identify effects of attitude ambivalence on actual information choices. In past research on attitude (un)certainty, we assessed familiarity after exposure by asking participants to indicate whether the information that they had chosen was relatively familiar or unfamiliar (Sawicki et al., 2011). However, that method was not ideal because it required exposure for people to indicate their level of familiarity with the information. Therefore, in the present work, we sought to identify which people would be likely to view the available information as relatively familiar or unfamiliar before any information decisions. We did so by measuring the extent of issue knowledge that the person possesses prior to information selection.

Issue knowledge refers to the amount of information in working memory about a given attitude object (for a review, see Wood, Rhodes, & Biek, 1995). Greater working knowledge correlates moderately with subjective accounts of the amount of issue-relevant knowledge (Wood, 1982). Thus, knowledge has been measured through objective quizzes or knowledge dumps or subjectively through self-report (Wegener, Downing, Krosnick, & Petty, 1995). Like attitude ambivalence, issue knowledge can determine an attitude's impact or strength. Informed or knowledgeable attitudes are more resistant to counterattack and better predict behavior compared with an attitude that lacks a sufficient knowledge base (Davidson, Yantis, Norwood, & Montano, 1985; Lewan & Stotland, 1961; Wood, 1982). Knowing much about an issue has been linked with traditional strength-related features such as attitude extremity, amount of issue-relevant elaboration, and issue importance but generally has been uncorrelated with attitude ambivalence (Erber, Hodges, & Wilson, 1995; Krosnick, Boninger, Chuang, Berent, & Carnot, 1993).

Beyond its potential link to information familiarity, a combination of low ambivalence and high knowledge about the issue may create a "doubly strong" attitude that is viewed as an especially good guide to information quality and, therefore, information choices. This provides an additional reason to expect a traditional strength pattern of unambivalent rather than ambivalent attitudes predicting attitude-consistent exposure when people know much about the topic (and available information is likely perceived as familiar). This "doubly strong" rationale regarding attitude strength is consistent with research on issue knowledge and information processing (e.g., when issue knowledge is coupled with strong affective reactions; Biek, Wood, & Chaiken, 1996; Wood et al., 1995). Thus, unambivalent and knowledgeable attitudes might enhance selective exposure because the (a) attitude is viewed as a particularly good guide to information quality when the information is already familiar or (b) high level of knowledge combines with the low level of ambivalence to make the attitude seem "doubly strong" (and, therefore, also a good guide to information quality). In contrast, when issue knowledge is low and new information should be perceived as more capable of influencing respondents' level of ambivalence (see "Pilot Study" section), a bolstering pattern of information choices should be more likely. That is, people might be especially likely to seek attitude-consistent (bolstering) information when pre-choice attitudes were relatively ambivalent rather than unambivalent. Because the measure of general issue knowledge is significantly correlated with information familiarity in pretests for each study, we use the terms *knowledge* and *familiarity* interchangeably in describing our specific predictions (though, of course, there could be circumstances in which familiarity with a particular item might be high even for a person with low knowledge or might be low even for a person with high knowledge).

Study 1

Study 1 was designed to test the prediction that the effect of ambivalence on information choices should depend on issue knowledge. We expected that ambivalent attitudes should motivate proattitudinal information choices when issue knowledge was relatively low (when available information should be generally less familiar), whereas univalent attitudes should yield attitude-congruent exposure when issue knowledge was relatively high (and available information should be more familiar). We tested these hypotheses using the same issue as in the pilot study, junk food taxation (cf. Clark et al., 2008).[1]

Method

Participants and Design. Undergraduates at a large Midwestern university ($N = 116$) participated in exchange for partial course credit in their introductory psychology class. Favorability of pre-exposure attitudes, attitudinal ambivalence, and issue knowledge was measured as predictors of information exposure.

Procedure. Prior to information exposure, participants responded to questions about their attitudinal features, including attitude favorability, attitudinal ambivalence, and issue knowledge, regarding the potential taxation of junk food. Next, participants were given 2 min to select and read information from a list of 10 junk food taxation article titles designed to reflect the information that participants would see if they chose to read that article. Participants then read each selection as they desired and could elect to return to the list of titles and make additional choices within the allotted 2-min time period. Following this exposure task, participants were debriefed, thanked for their contributions, and dismissed.

Independent Variables

Pre-exposure attitude favorability. Participants completed a 16-item attitude survey that included five questions regarding the topic of interest (junk food taxation). Attitudes were measured on a 9-point scale: 1 = *bad, definitely opposed, not worthwhile, not against* (reverse scored), *not useful*; 9 = *good, definitely in favor, very worthwhile, very much against* (reverse scored), *very useful*. Responses to these items were correlated (α = .92) and were averaged to form an index of pre-exposure attitude ($M = 4.61$, $SD = 2.13$).

Attitudinal ambivalence. Ambivalence was assessed in the same manner as the pilot study. The three items from the Priester and Petty (1996) scale were averaged to create an index of subjective ambivalence (α = .52; $M = 4.62$, $SD = 1.54$).

Issue knowledge. Participants indicated their amount of issue-related knowledge using two 7-point scales (1 = *not at all*, 7 = *very much*). The two knowledge items were as follows: "I know a lot about the issue of taxing junk food" and "I feel that I possess a lot of knowledge about junk food taxation." Responses to these items were correlated (α = .84) and were averaged to form an index of issue knowledge ($M = 1.94$, $SD = 1.20$).

Dependent Measures

Selective exposure to information. Participants were given 2 min to select and read paragraphs from a list of 10 titles. Half of the paragraphs supported and half opposed a tax on junk food, and this was apparent by the title of the paragraphs (e.g., "Taxing Junk Food Will Provide Money for Health Initiatives," and "Eating Junk Food Is Not the Major Cause of the Current Obesity Problem"). The index of selective exposure (favorability of selections) was calculated by subtracting the number of anti-tax information choices from the number of pro-tax information choices and dividing by the total number of chosen paragraphs. This selective exposure index ranged from −1 (chose only anti-junk food tax information) to +1 (chose only pro-junk food tax information).

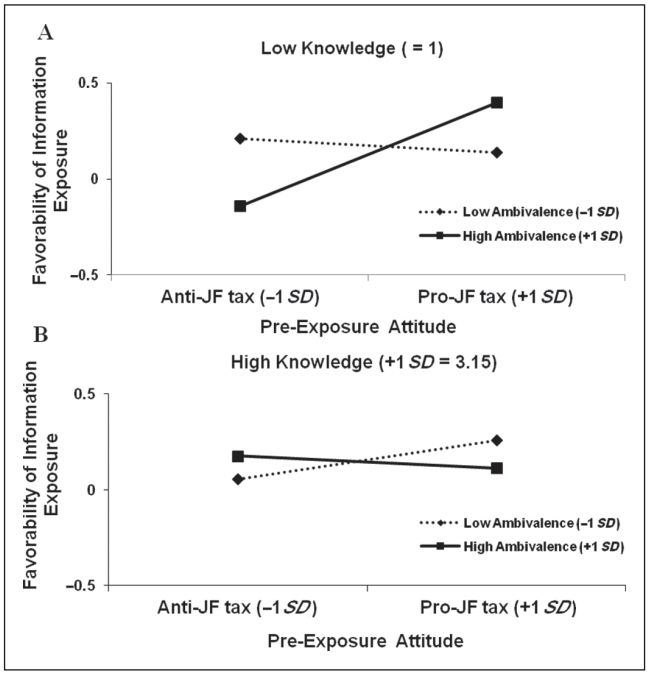

Figure 2. Predicted values for favorability of information selected based on relative favorability (−1 *SD* or +1 *SD*) of pre-exposure attitudes toward junk food taxation and relative level of subjective ambivalence (−1 *SD* or +1 *SD*) at relatively low (=1; Panel A) and high (+1 *SD*; Panel B) levels of issue knowledge (Study 1).

Results

Correlations of Predictors. We first assessed bivariate correlations between the predictors, attitude favorability, attitude ambivalence, and issue knowledge. Attitude favorability was not significantly correlated with attitude ambivalence nor issue knowledge, $r = .12$, $p = .21$ and $r = -.05$, $p = .56$, respectively. Consistent with past research suggesting that ambivalence and knowledge are orthogonal, attitude ambivalence was not correlated with issue knowledge, $r = .01$, $p = .89$.

Selective Exposure. We conducted centered regression analyses on the index of selective exposure with pre-exposure attitude favorability, attitudinal ambivalence, issue knowledge, and their interactions as predictors (Aiken & West, 1991). The predicted Attitude × Ambivalence × Knowledge interaction was significant, $b = -.03$, $t(108) = -2.69$, $p < .01$, $r = .25$ (see Figure 2),[2] and no lower order effects were significant.

With relatively less issue knowledge (knowledge = 1),[3] the Attitude × Ambivalence interaction was significant, $b = .05$, $t(108) = 2.26$, $p = .03$, $r = .21$. Relatively ambivalent attitudes (1 *SD* above the mean) predicted information choices, $b = .13$, $t(108) = 2.36$, $p = .02$, $r = .22$, but relatively unambivalent attitudes (1 *SD* below the mean) did not, $b = -.02$, $t(108) = -0.42$, $p = .68$, $r = .04$. With relatively more issue knowledge (1 *SD* above the mean = 3.15), the pattern of slopes reversed, but the Attitude × Ambivalence interaction was nonsignificant, $b = -.02$, $t(108) = -1.02$, $p = .30$, $r = .10$. The attitude simple slopes were in the predicted direction but nonsignificant both at relatively low ambivalence (1 *SD* below the mean), $b = .05$, $t(108) = 1.22$, $p = .22$, $r = .12$, and relatively high ambivalence (1 *SD* above the mean), $b = -.02$, $t(108) = -0.33$, $p = .74$, $r = .07$.

Discussion

Study 1 provides evidence that experiencing greater ambivalence can create preferences for agreeable information especially when people are relatively uninformed about the issue. We did not find compelling support for the strength effect when knowledge was higher, though the direction of the attitude slopes was consistent with that pattern. The lack of effects when knowledge was one standard deviation above the mean could be due to the fact that knowledge about a junk food tax was quite low ($M = 1.94$). Thus, even relatively high knowledge (1 *SD* above the knowledge mean = 3.15 on a 7-point scale) in Study 1 represented more moderate levels of knowledge (and, therefore, moderate familiarity with the available information). Using a topic associated with higher issue knowledge should provide a better chance of supporting the high-knowledge (strength) hypotheses.

Study 2

Study 2 was designed to extend the generalizability of ambivalence effects on selective exposure to a more familiar topic and a different exposure paradigm. The procedure was identical to Study 1 with the following exceptions: (a) Whereas in Study 1, participants selected and read information about a junk food tax, participants in Study 2 rated desired exposure for each of four articles on euthanasia[4] (two supporting and two opposing the issue) and (b) subjective ambivalence was assessed with a single item.

Method

Participants and Design. Undergraduates at a large Midwestern university ($N = 94$) participated in exchange for partial course credit in their introductory psychology class. Favorability of pre-exposure attitudes, attitudinal ambivalence, and issue knowledge was measured as predictors of desired information exposure.

Procedure. The experimental session included three parts: an assessment of attitudes regarding a variety of topics, ratings of euthanasia titles, followed by unrelated tasks as part of separate experiment. To provide enough time in the experimental session for all of the experimental tasks, measures were reduced to single-item assessments. To start, participants indicated their attitudes and attitude strength features about several attitude objects, including the target issue of euthanasia. Next, participants indicated how much they would like to read four articles presented sequentially that either supported or opposed euthanasia. During this desired exposure task, it was unclear to participants whether the articles would be later presented for reading. That is, participants rated the titles without any explicit instruction that they would be provided with the reading content associated with the euthanasia titles.

Independent Variables

Pre-exposure attitude favorability. Participants completed a nine-item attitude survey that included one question regarding the topic of interest (euthanasia). Participants reported their attitude regarding euthanasia on a 7-point scale (1 = *harmful*, 7 = *beneficial; M* = 3.97, *SD* = 1.87).

Attitudinal ambivalence. Participants indicated the extent to which they had "mixed feelings about euthanasia" using a 7-point Likert-type scale (1 = *not at all*, 7 = *very much; M* = 4.00, *SD* = 1.74).

Issue knowledge. Participants indicated the extent to which they "know much about euthanasia" using a 7-point Likert-type scale (1 = *not at all*, 7 = *very much; M* = 3.84, *SD* = 1.74). We tested the successful selection of an issue that was more familiar than the potential taxation of junk food issue used in Study 1. Indeed, mean reported knowledge in Study 2 ($M = 3.84$, $SD = 1.74$) was significantly higher than mean knowledge in Study 1 ($M = 1.94$, $SD = 1.20$), $t(208) = 13.57$, $p < .01$.

Dependent Measures

Desired exposure to information. Each of four euthanasia article titles was presented individually on a computer screen (e.g., "End Patient Suffering at End of Life: Support Euthanasia Now" and "Slippery Slope to Legalized Murder: End Euthanasia Now"). Participants rated how much they wanted to read each article based on the title (1 = *not at all*, 9 = *very much*). The index of desired exposure was calculated by subtracting the average desired exposure ratings for the anti-euthanasia articles from the average desired exposure ratings for the pro-euthanasia articles. Greater positive numbers indicate a relative preference for pro-euthanasia information whereas greater negative numbers indicate a relative preference for anti-euthanasia information.

Results

Correlations of Predictors. We conducted bivariate correlation analyses to assess the relations between attitude favorability, ambivalence, and knowledge. Attitude favorability was not significantly correlated with attitude ambivalence, $r = .02$, $p = .83$, but was correlated with issue knowledge,

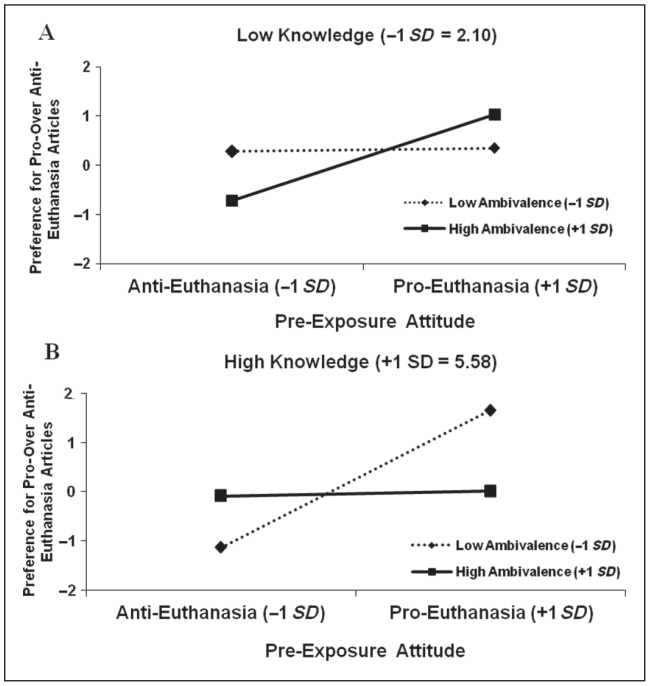

Figure 3. Predicted values for favorability of desired exposure based on relative favorability (−1 *SD* or +1 *SD*) of pre-exposure attitudes toward euthanasia and relative level of subjective ambivalence (−1 *SD* or +1 *SD*) at relatively low (−1 *SD*; Panel A) and high (+1 *SD*; Panel B) levels of issue knowledge (Study 2).

$r = .27$, $p = .01$. Supporting euthanasia was associated with possessing greater knowledge about the topic. Attitude ambivalence was negatively correlated with issue knowledge, but not strongly, $r = -.22$, $p = .04$. That is, feeling more mixed about euthanasia was associated with knowing less about the topic.

Selective Exposure. We conducted the same centered regression analyses as in Study 1. A main effect of attitude favorability on information choices was significant, $b = .31$, $t(86) = 3.34$, $p < .01$, $r = .34$. The more a participant supported euthanasia, the greater that participant's preference for pro-euthanasia information. However, as expected, this effect was qualified by a significant Attitude × Ambivalence × Knowledge interaction on the favorability of the desired articles, $b = -.09$, $t(86) = -3.42$, $p < .01$, $r = .35$ (Figure 3).[5] With relatively lower levels of knowledge (1 *SD* below the mean = 2.10), the Attitude × Ambivalence interaction was nonsignificant, $b = .12$, $t(86) = 1.50$, $p = .14$, $r = .16$, but paralleled the significant simple (bolstering) interaction from Study 1. Relatively ambivalent attitudes (1 *SD* above the mean) significantly predicted information choices, $b = .47$, $t(86) = 1.98$, $p = .05$, $r = .21$, but relatively unambivalent attitudes (1 *SD* below the mean) did not, $b = .02$, $t(86) = 0.10$, $p = .92$, $r = .01$.

With greater knowledge (1 *SD* above the mean = 5.58), the opposite pattern emerged. The Attitude × Ambivalence interaction was significant, $b = -.20$, $t(86) = -3.58$, $p < .01$, $r = .36$. Similar to past attitude strength research (Brannon et al., 2007), relatively unambivalent attitudes (1 *SD* below the mean) predicted information choices, $b = .75$, $t(86) = 6.62$, $p < .01$, $r = .58$, but relatively ambivalent attitudes (1 *SD* above the mean) did not, $b = .02$, $t(86) = 0.11$, $p = .91$, $r = .01$.

Discussion

Study 2 conceptually replicated the three-way pattern of results from Study 1 and extended the findings to a desired exposure paradigm in which participants rated rather than selected and read topic information. In both studies, the data trended toward a bolstering pattern (more attitude-consistent exposure with higher levels of attitude ambivalence) when knowledge was relatively low but toward a strength pattern (more attitude-consistent exposure with lower levels of attitude ambivalence) when knowledge was relatively high. The overall level of reported knowledge was substantially higher in Study 2 (the euthanasia topic) than in Study 1 (the junk food taxation topic). Consistent with the knowledge difference, Study 1 yielded significant bolstering effects with low knowledge (scale value of 1) but relatively weak strength effects with higher (moderate) knowledge (scale value of 3.15), whereas Study 2 yielded weaker bolstering effects with relatively low knowledge (scale value of 2.10) but significant strength effects with higher levels of knowledge (scale value of 5.58).

General Discussion

To date, this is the first demonstration that the effects of a strength-related attitude feature on selective exposure to proattitudinal information are moderated by another strength-related feature of the attitude. Across two selective exposure studies, weaker, conflicted attitudes yielded strong preferences for proattitudinal information when people lacked knowledge about the issue (for an example of these bolstering effects in another low knowledge setting, see Yang, 2011). Presumably, this seeking of unfamiliar attitude-consistent information was a means to resolve the tension of the ambivalent state (i.e., to bolster the strength of the attitude). However, when people were more knowledgeable about the issue yet remained ambivalent, this preference for agreeable information disappeared because, as the results of the pilot study indicate, familiar information is perceived to be relatively ineffective in reducing ambivalence.

Notably, unambivalent attitudes can also yield selective exposure effects, especially when issue knowledge is high. When people are knowledgeable and unconflicted, this might be a case where attitudes are "twice as strong" and most likely to serve as a powerful guide to information quality.[6] Use of such attitudes to determine information choices also makes sense if high-knowledge individuals would rather

not waste time on known arguments that have proven unconvincing. If so, the only reasonable information to choose would be attitude-consistent information. In the current paradigm, the option not to read any more (in Study 1) was listed at the bottom of the page and was likely not very salient, and there was no such option made available in Study 2 when people were rating desire to read the various articles. It is possible that if the option to *not* choose information was made more salient, high-knowledge/low-ambivalence individuals might be less inclined to seek any information at all; however, if they felt that a choice must be made (especially likely when all articles were to be rated), then they would seem likely to choose the most reasonable information (i.e., attitude-consistent information). When people had less knowledge, unambivalent attitudes did not predict information preferences. This could be because such individuals have little motivation to bolster their (already consistent) attitude, because their uninformed attitude lacks sufficient strength to guide choices, or a combination of both possibilities. Although the overall interaction pattern in the data was the same across both studies, the strength effect was strongest in the study that included a larger range of issue knowledge and, thus, a better test of the low-ambivalence/high-knowledge strength effects.

Paradoxical Consequences of Ambivalence

The current findings shed light on some paradoxical effects of ambivalence. By definition, ambivalence is a structurally weak attitude, comprising positive and negative evaluative components. Thus, there should be times when an ambivalent, "weaker" attitude should be less predictive of attitude-related outcomes as indicated by some past research (Armitage & Conner, 2000; Bassili, 1996; Brannon et al., 2007). However, some research has indicated that ambivalence creates a motivational force to reduce unpleasant feelings produced by ambivalence (e.g., Clark et al., 2008; Maio et al., 1996; van Harreveld et al., 2009). To the extent that acting in an attitude-consistent manner affords bolstering of the attitude, an ambivalent attitude should then be quite capable of motivating attitude-consistent behavior. The current results shed light on this paradox by highlighting the contexts in which an ambivalent attitude will "act as if weak" or will be "motivationally strong."

As the current work suggests, one potential key to understanding when the bolstering pattern may emerge is to identify the contexts in which the behaviors (e.g., information seeking) are viewed as likely to facilitate ambivalence reduction—in the current case, when proattitudinal information is also relatively unfamiliar. Yet, there might also be other (previously unstudied) contexts in which people would view other kinds of available information as capable of reducing ambivalence. In the current settings, people likely expected (and found) available information to be relatively compelling. However, sometimes (e.g., when sources of information are uninformed), a person might expect information to be specious or easily counterargued. When counterattitudinal information is expected to be weak, exposure to the weak counterattitudinal information might be viewed as likely to serve the goal of reducing ambivalence. Future work could test this possibility by manipulating expectations about information quality, for example, by pairing article titles with star ratings that denote another person's assessment of information quality (similar to "helpfulness" ratings of online reviews). Ultimately, what should determine the bolstering effects of ambivalence is the utility of the behavior in serving the goal of strengthening the attitude.

Implications for Other Strength Features of Attitudes

Ambivalence is surely not the only attitudinal quality associated with the paradox of structural weakness (that can reduce the use of the attitude in some contexts) along with motives to bolster the attitude (that can enhance the use of the attitude in some contexts). Just as a conflicted person seeks novel proattitudinal information to reduce inconsistency, so too should a doubtful person seek novel proattitudinal information to increase certainty (Study 2 of Sawicki et al., 2011).[7] A motive to enhance confidence is also consistent with the sufficiency principle from the Heuristic Systematic Model of persuasion (Chaiken, Liberman, & Eagly, 1989). There surely could be some overlap between ambivalence-based and uncertainty-based motives. For example, both attitude properties might often make the person somewhat uncomfortable, and the presence of ambivalence might also call into question the validity of one's attitude. Yet, this is not to say that desire for ambivalence reduction is isomorphic with a motive to increase confidence. Empirically, these effects are distinguishable, as the results for Studies 1 and 2 hold in analyses controlling for attitude certainty.[2,4] It could also be that moderators of the ambivalence and confidence effects might differ. For example, some variables (e.g., Preference for Consistency; Cialdini, Trost, & Newsom, 1995) might moderate ambivalence effects but not uncertainty effects on information seeking.

The current work also reflects an emerging view of how different determinants of attitude strength might work in conjunction with one another. Traditionally, attitude strength measures have been studied in isolation. Alternatively, other strength measures might be included as covariates simply to demonstrate that the attitude strength variable of interest was not accounted for by other strength-related constructs. More recently, attitudes researchers have begun assessing multiple attitude strength constructs to examine the interplay of different determinants of attitude strength. Although it certainly has been recognized that these strength features of attitudes are not identical to one another, the general assumption has been that their consequences are often very similar and

probably combine in additive ways. This assumption about the additive effects of individual strength features is tacitly assumed in studies that simply aggregate multiple strength variables (e.g., Brannon et al., 2007), otherwise this combination would make little sense. The present studies show that strength variables (in this case, ambivalence and knowledge) sometimes may combine in interactive ways. Thus, researchers are coming to appreciate that the interplay of different determinants of attitude strength are far more complex and interesting than has often been recognized.

Future Directions

Post-Decisional Information Seeking

By some standards, the present studies resemble a pre-decisional paradigm in which participants have not yet committed to a decision; however, these results also should extend to post-decisional information seeking. If participants were asked to vote on a policy before choosing policy-relevant information, a similar pattern to the current results might be expected. To the extent that participants experience mixed reactions about their choice, they should be especially motivated to seek consonant information. In fact, this idea mirrors classic dissonance findings in which conditions that produced dissonance (e.g., difficult choices between equally liked alternatives) also produced uncertainty (Ehrlich, Guttman, Schonbach, & Mills, 1957; Festinger, 1957; Mills, 1965). In those studies, post-decisional dissonance/uncertainty enhanced consonant information seeking. Similarly, one would expect that if a choice was associated with ambivalence (because the chooser is aware of positive and negative aspects of the chosen object), a bolstering pattern of proattitudinal information seeking might occur. The current findings suggest that perceptions about the ability of information to bolster the attitude should also determine the effects of discomfort on information choices. Specifically, a post-decisional paradigm might not show dissonance enhancing selective exposure effects for all types of consonant information but instead only when consonant information is new and most capable of reducing dissonance.

Information Familiarity

The current research (along with some previous related work; Sawicki et al., 2011) suggests that a person's familiarity with information may be a critical variable determining whether bolstering or strength patterns occur. In the current work, general issue knowledge was used as a proxy for familiarity with specific information. Although this probabilistic method of measuring information familiarity offers a potential improvement to earlier exposure research that measured information familiarity following exposure (i.e., Study 2 of Sawicki et al., 2011), there may be clearer ways to test a causal role of information favorability. Ideally, one might manipulate information familiarity prior to exposure decisions. For example, future research could develop information titles that normatively vary in relative familiarity. This would provide an experimental test of the moderating role of information familiarity in producing bolstering versus strength patterns of information choices. Alternatively, future research could pretest familiarity using a knowledge dump procedure (Wood, Kallagren, & Preisler, 1985) and idiosyncratically tailor familiar or unfamiliar information for each participant.

Role of Elaboration

Future selective exposure research should also examine the impact of the amount of elaboration during information choices. The current exposure studies likely reflect relatively deliberative conditions, because decisions (in Study 1) and ratings (in Study 2) were not rushed, and people were able to consider their decisions as long as they would like (with the constraint in Study 1 that overall exposure—and decision—time was limited to 2 min). It would be interesting to examine whether the current ambivalence effects would generalize to relatively low thought conditions (e.g., when people are rushed when making information decisions). It is possible that the bolstering effects of high ambivalence would be most likely under relatively elaborative conditions when people can consider attitude position, level of ambivalence, and strategic information decisions about which information might best reduce that high ambivalence. Limiting time to consider motives and means to bolster might attenuate the bolstering effects because mixed reactions may provide only a weak cue to guide decision making. However, less elaborative circumstances might not have the same attenuating effect on attitude strength effects of low ambivalence. It is possible that time pressure or another low thought context might actually enhance cue use of these doubly strong attitudes in guiding information choices. Thus, whereas strength effects (when knowledge is high) and bolstering effects (when knowledge is low) might occur under the relatively deliberative exposure conditions we examined, it could be that strength effects occur more generally when conditions limit deliberation during choices.

Implications Beyond Selective Exposure

The current findings should also have implications for social-psychological outcomes beyond information seeking, such as interpersonal attraction. For example, one open question is how an individual's ambivalence might affect liking for a target depending on the target's attitude and level of ambivalence. Research suggests that an ambivalent person prefers another person who is ambivalent rather than indifferent (Ullrich & Krueger, 2010), but the current findings suggest that the effects may change when one varies the

other person's stance on the issue (because ambivalence and indifference each represented neutral attitudes in the Ullrich & Krueger, 2010, research). An ambivalent person who agrees should be more liked than a person who is ambivalent but disagrees. Furthermore, contrary to Ullrich and Krueger's (2010) results, when another person offers agreement, an ambivalent person might actually prefer a person who is unconflicted rather than ambivalent, if the unconflicted person is viewed as more capable in reducing the social perceiver's own ambivalence. To date, the potential interplay of an individual's ambivalence and a target's strength of position in determining interpersonal attraction remains unexamined.

We hope that the current research opens up a variety of research avenues addressing the potential for motivations to increase the impact of structurally weak attitudes. As many decades of research have demonstrated, attitudes can potentially guide a wide variety of thought processes and behaviors (see Fabrigar et al., 2005; Fabrigar, Wegener, & MacDonald, 2010). Thus, insight into when structurally weak attitudes might nonetheless guide future thinking and behavior could have far-reaching implications.

Authors' Note

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Notes

1. In a pretest, rated issue knowledge was consistently correlated with familiarity with specific information titles. General issue knowledge about a potential junk food tax was correlated with mean familiarity judgments across four titles supporting and opposing this tax (e.g., "Taxing Junk Food Will Provide Money for Health Initiatives," "A Junk Food Tax Will Needlessly Drain Bank Accounts," "To what extent are you aware of this argument about junk food taxation?"; 0 = *not at all familiar with the information*; 10 = v*ery familiar with the information*), $r = .43$, $p < .001$. The relation between knowledge and familiarity was also significant for each individual junk food tax article title, rs > .24, ps ≤ .05.
2. The predicted Attitude × Ambivalence × Knowledge interaction remained significant even when controlling for the effects of attitude extremity, attitude confidence, or issue importance. To ensure that the reported effects were due to ambivalence and not one of the other strength-related features, three regression analyses were run that included the reported model plus parallel terms that substituted extremity, confidence, or importance in place of ambivalence. In each case, the predicted Attitude × Ambivalence × Knowledge interaction remained at least marginally significant (ps < .071) while the parallel three-way interactions were nonsignificant (ps > .22).
3. Results of the test of the Attitude X Ambivalence interaction at low levels of knowledge do not differ between specifying low knowledge as equal to 1 (as reported) or 0.74 (1 SD below the knowledge mean, but a value that would fall below the bottom of the scale).
4. In a pretest, general issue knowledge about euthanasia was correlated with mean familiarity judgments across four titles supporting and opposing euthanasia (e.g., "End Patient Suffering at End of Life: Support Euthanasia Now," "Slippery Slope to Legalized Murder: End Euthanasia Now"; "Arguments in this article would be . . . "; 1 = *unfamiliar/unknown to me*; 7 = *familiar/known to me*), $r = .57$, $p < .001$. The relation between knowledge and familiarity was also significant for each individual euthanasia article title, rs > .50, ps < .01.
5. As in Study 1, when controlling for each strength-related feature (i.e., attitude extremity, confidence, importance) assessed in Study 2, the predicted Attitude × Ambivalence × Knowledge interaction remained significant. In each case, the predicted Attitude × Ambivalence × Knowledge interaction remained significant (ps < .01) while the parallel three-way interactions were nonsignificant (ps > .33).
6. In a separate study, we assessed the relation between euthanasia strength-related features (i.e., subjective ambivalence, issue knowledge) and perceptions that euthanasia attitudes would be an effective guide in making information choices. Perceptions regarding an attitude's ability to guide information selections were assessed with two items ("My attitude about euthanasia is a reliable guide in deciding which information is right or wrong"; "My stance toward euthanasia helps me decide what euthanasia information is correct"; 1 = *not at all*; 7 = *very much*). These two items were highly correlated ($\alpha = .81$) and averaged ($M = 3.63$, $SD = 1.55$). Subjective ambivalence and issue knowledge were significantly correlated with an attitude's ability to guide choices, $r = -.40$, $p = .001$ and $r = .50$, $p < .001$, respectively. Generally, the stronger the

attitude, the more people perceived that attitude was a trustworthy cue to information decisions. Specifically, the less the attitude was conflicted or the more knowledge underlying the attitude, the more the evaluation was perceived as an effective guide to information choices.

7. In a statistical model that omitted the current ambivalence terms, we tested the certainty effects that would parallel our past selective exposure work. In a regression analysis that included attitude favorability, attitude certainty, issue knowledge, and all possible interactions, we found a pattern across both exposure studies that was consistent with our certainty results in Study 3 of Sawicki et al. (2011). Although the attitude slopes were in the predicted direction in both studies, the three-way interaction was nonsignificant in Study 1 (p = .62) but significant in Study 2 (p = .05). That is, the bolstering effects of uncertain attitudes motivating proattitudinal information choices tended to be more likely when people are less informed about the topic, whereas the strength effects of high certainty guiding proattitudinal exposure appear more likely when issue knowledge is high. As stated in Notes 2 and 4, however, the certainty effects in Study 2 did not remain significant when controlling for the reported level of ambivalence. In contrast, the ambivalence effects remained when controlling for certainty. We also tested whether the predicted effects of ambivalence would be further moderated by attitude certainty. The Attitude × Ambivalence × Knowledge × Certainty interaction was nonsignificant in both studies (ps > .65).

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