

Running head: SELECTIVE EXPOSURE AND VALIDATION BIAS

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**Congenial Selective Exposure and Order Effects:
Disrupting the Congenial Validation Bias**

Running Head: Selective Exposure and Validation Bias

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For Peer Review

SELECTIVE EXPOSURE AND VALIDATION BIAS

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Abstract

People tend to favor attitude-consistent (congenial) over attitude-inconsistent (uncongenial) information. Does this congeniality bias extend to the information's perceived validity, and how does it interact with other biases such as selective exposure? We found evidence for the congenial validation bias, or the tendency to validate congenial (vs. uncongenial) information as stronger. Furthermore, because selective exposure typically positions congenial information as being evaluated first, this primacy may increase congenial validation; thus, we manipulated presentational order and ability to choose information to assess whether congenial validation is attenuated when uncongenial information is received first. Across four studies, participants with preexisting attitudes about a divisive issue evaluated the strength of issue-relevant congenial and uncongenial messages. Regardless of whether participants could choose the presentational order of information, congenial validation was significantly reduced when uncongenial information was presented first. Lastly, participants' real-time evaluations of congenial and uncongenial information were predictive of attitude-relevant behavioral intentions.

Keywords: attitudes, selective exposure, primacy, information processing

Congenial Selective Exposure and Order Effects:**Disrupting the Congenial Validation Bias**

“The intel on this wasn’t 100 percent.”

-Edgar Maddison Welch (Associated Press, 2016)

People frequently view information that supports their preexisting attitudes while avoiding information that challenges those views (Festinger, 1957). This bias in favor of congenial information serves to validate one’s worldviews (Hart, Albarracín, Eagly, Brechan, Lindberg, & Merrill, 2009), but it can have undesirable consequences for the accuracy of one’s beliefs. On December 4th, 2016, Edgar Maddison Welch arrived at Comet Ping Pong, a Washington, D.C. restaurant, in search of an alleged child sex ring operated by Hillary Clinton and her campaign aide. Unfortunately (or fortunately), Welch had bad information: No such criminal enterprise existed, and the story was fabricated by media sources who opposed Hillary Clinton’s presidential candidacy (Kang, 2016). After firing his weapon into the restaurant, Welch was arrested and later learned that his information had been inaccurate (Associated Press, 2016).

Welch’s story is an extreme example of a common problem: Information that agrees with one’s prior views seems valid. Welch, like most citizens, opposed child sex rings, and in his own words, he *just wanted to do some good and went about it the wrong way* (Associated Press, 2016). However, his dislike of Clinton led to his failure to scrutinize or invalidate the stories he read, an example of how information that confirms preexisting views can appear stronger than it is (Ditto & Lopez, 1992; Kunda, 1990; Lord, Ross, & Lepper, 1979). This bias, referred to here as *congenial validation bias*, is a relative of *congenial selective exposure*, or people’s tendency to seek proattitudinal (vs. counterattitudinal) information (Hart et al., 2009). When presented with a diversity of attitude-relevant information, the *congenial validation bias* suggests that

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3 congenial information is more likely to be perceived as valid than uncongenial information. In
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5 the present research, we pursued two questions: First, the degree to which selective exposure and
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7 validation biases are related; and second, the degree to which this association may be related to
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9 primacy and order effects that often occur as a result of selective exposure, whereby congenial
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11 information is often presented first. In that vein, we considered if exposure to uncongenial
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13 information can mitigate the congenial validation bias.
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Selective Exposure and Selective Validation Biases: Their Nature and Interrelation

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20 People are more often exposed to information supportive of preexisting attitudes (labeled
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22 *selective exposure*; Brock & Balloun, 1967; Earl, Albarracín, Durantini, Gunnoe, Leeper, &
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24 Levitt, 2009; Earl & Nisson, 2015; Festinger, 1957; Hart et al., 2009). One way in which
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26 selective exposure unfolds is when individuals actively choose exposure to attitude-consistent (or
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28 congenial) information, sometimes at the expense of attitude-inconsistent (or uncongenial)
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30 information (Hart et al., 2009). Indeed, meta-analytic evidence suggests that people have a
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32 moderate preference for congenial (versus uncongenial) information (meta-analytic $d = 0.36$;
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34 Hart et al., 2009; see also Cotton, 1985; Frey, 1986).
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39 People are also equipped with other forms of defensive processing to protect prior
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41 attitudes. Even when people are exposed to uncongenial information, they may simply ignore
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43 information that threatens congenial views (Brock & Balloun, 1967; Earl et al., 2009). Or, if
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45 engaging with the uncongenial information, people can employ defenses that serve to bolster
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47 their preexisting views, including: selectively elaborating only on certain pieces of information
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49 (Lord et al., 1979; Petty & Cacioppo, 1986); choosing to consume low-quality uncongenial
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51 information, thereby undermining the strength of the opposing perspective (Festinger, 1957;
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53 McGuire, 1961; Papageorgis & McGuire, 1961); employing more stringent evaluative criteria for
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3 determining the merit of uncongenial conclusions (Ditto & Lopez, 1992; Kunda, 1990; Lord et
4 al., 1979); exposing oneself to strong counter-arguments to inoculate one's views from further
5 threat (McGuire, 1961; McGuire & Papageorgis, 1961); and counter-arguing or derogating
6 uncongenial information as a resistance to persuasion (Albarracín & Mitchell, 2004; Festinger &
7 Maccoby, 1964). In the present research, the *congenial validation bias* suggests that when
8 presented with a diversity of information relevant to a preexisting view, congenial information is
9 more likely to be validated—via perceptions that it is persuasively stronger—than uncongenial
10 information. We propose that congenial information is more likely to be validated in evaluation
11 and imbued with a label of validity, an approach consistent with existing theoretical attitude
12 models proposing that people “tag” an evaluation based on its perceived value (the meta-
13 cognitive model: Petty, Briñol, & DeMarree, 2007).
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29 Selective exposure and congenial validation can both serve to maintain prior attitudes and
30 may be interrelated. For example, one might hold an attitude in favor of gun control, seek out
31 information by choosing to read a pro-gun control article online, and ultimately find it
32 compelling. One might also notice comments on the article from other readers, some of whom
33 are anti-gun control, but devalue their uncongenial perspectives. Because exposure and
34 validation processes have typically been studied in isolation, we investigated whether congenial
35 validation biases are influenced by exposure and order, and if so, whether order can amplify or
36 attenuate such biases.
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Order Effects and Selective Exposure

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50 When people choose congenial information, they do not necessarily avoid later exposure
51 to uncongenial information. Rather, the uncongenial information may be relegated to a later
52 position, which may be confronted *de facto* at a later time, even if initially unchosen. Reading an
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SELECTIVE EXPOSURE AND VALIDATION BIAS

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3 online article that is followed by derogatory comments is a common illustration of how choosing
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5 congenial information does not completely prevent exposure to uncongenial perspectives. If
6
7 selective exposure is associated with congenial validation, selective exposure may ensure
8
9 stronger validation of the information that is selected, and therefore received, first.
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13 Receiving congenial information first is likely consequential. In survey research, question
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15 content or previous question responses can affect answers to subsequent questions and color how
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17 questions are interpreted (Schwarz, 1999). Primacy effects have been observed in two types of
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19 evaluations: impressions of new stimuli, for which one does not have an attitude (e.g., new
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21 consumer products; Eisend, 2006); or information for which people already have an attitude
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23 (e.g., nuclear power; Haugtvedt & Wegener, 1994). For instance, using nuclear power, a timely
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25 issue for which participants already held attitudes, Haugtvedt and Wegener (1994) found
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27 significant primacy effects. Specifically, when people have an attitude, high levels of message
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29 elaboration lead to primacy effects by promoting more thought generation in response to the first
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31 set of information, which in turn influences attitudes on that issue (Haugtvedt & Wegener, 1994).
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33 Similarly, Petty, Tormala, Hawkins, and Wegener (2001) examined individuals without an
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35 attitude on the topic; they proposed that, for individuals high in need for cognition reading
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37 information that is “chunked” into groups that clearly advocate one side of an issue, impressions
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39 are formed after the first information chunk, and those impressions serve as an anchor from
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41 which subsequent information is judged. Many of these research findings indicated that there are
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43 also moderators of order effects, including personal issue relevance (Haugtvedt & Wegener,
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45 1994), need for cognition (Petty et al., 2001), and information chunking (Petty et al., 2001).
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53 If selective exposure is a path to validating congenial information, the association with
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55 congenial validation bias may be amplified by receiving congenial information first. For
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3 example, people may think more about *any* information that is presented first and validate it
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5 accordingly; alternatively, motivational and defensive processing may be more active during
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7 initial information presentation, but only if that initial information was chosen by the recipient.
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9 Therefore, the present research compares forced exposure to congenial information first or
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11 second with having the ability to choose which information—congenial or uncongenial—to read
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13 first. If the association between selective exposure and congenial validation is motivational, then
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15 presentational order should not matter; congenial information should be evaluated as more valid
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17 regardless of position. However, if there is a cognitive component—such that congenial
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19 information is evaluated more favorably because it benefits from primacy—then the association
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21 between exposure and congenial validation should diminish when congenial information does
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23 not appear first.
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Overview of Current Studies

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32 The present research examined the relation between selective exposure and congenial
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34 validation bias. Unlike prior selective exposure research, the present studies separated selective
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36 exposure, choice, and presentational order to address the question: How is selective exposure
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38 (and relatedly, presentational order) related to the congenial validation bias? Selective exposure
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40 research suggests that, under free-choice conditions, people will more often choose congenial
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42 information (Hart et al., 2009). But, in practice, choice and presentational order are frequently
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44 conflated; typically, people see chosen information first (and unchosen information second,
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46 sometimes unexpectedly), making the relative influences of choice and presentational order on
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48 information evaluations unclear. Therefore, participants in past studies may have preferred
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50 chosen information because it was (usually) congenial, but perhaps these preferences were
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52 influenced by presentational order (e.g., primacy effect); indeed, order effects research suggests
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3 that primacy effects should occur under most conditions, even when participants already have
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5 attitudes about the topic (Haugtvedt & Wegener, 1994).
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8 Furthermore, what happens to the congenial validation bias when people choose
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10 uncongenial information first? Although selective exposure can be anticipated, it is not inevitable
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12 (Hart et al., 2009), and there are differing predictions about people's subsequent behavior in this
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14 case. Participants may be motivated to affirm their choice by emphasizing positive aspects and
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16 downplaying negative ones (Brehm, 1956; Festinger, 1957), creating an uncongeniality bias. Or,
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18 choosing uncongenial information may merely reflect a desire to view uncongenial arguments to
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20 bolster one's own views by attacking that information (McGuire, 1961). In the first possibility,
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22 the congenial validation bias would be attenuated, whereas the latter case would produce a
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24 typical, or even amplified, congenial validation bias.
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29 The present research examined attitudes and evaluations about a divisive political topic:
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31 gun control. Political issues are especially likely to reflect one's values and elicit defensive
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33 motives, thereby heightening congeniality biases (Hart et al., 2009; Johnson & Eagly, 1989).
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35 Indeed, value-relevant political attitudes tend to be strong (Tetlock, 2002), are more likely to be
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37 perceived by the attitude holder as more factual than other types of attitudes (Skitka, Bauman, &
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39 Sargis, 2005), and are difficult to change (Graham, Haidt, & Nosek, 2009). Thus, gun control
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41 was ideal to test the influence of both attitude selectivity and primacy effects: Strongly held,
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43 preexisting attitudes should be especially likely to evoke *both* strong attitude selectivity effects
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45 (Hart et al., 2009) and primacy effects (Haugtvedt & Wegener, 1994).
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50 Across four studies, participants read series of arguments either in favor of ("pro" gun
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52 control) or against gun control policy ("anti" gun control) in the U.S. (four messages for each
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54 perspective). Messages were always chunked (Petty et al., 2001): Participants read all four
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3 messages of one side (pro or anti) together before moving on to the block of messages arguing
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5 the opposite position. In Study 1, participants could choose which information to view first, with
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7 the expectation that participants would exhibit the expected correlation between selective
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9 exposure and congenial validation by evaluating congenial information as stronger. Study 2
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11 utilizes a similar methodology as Study 1, but instead uses low-quality messages to assess
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13 whether the correlation between exposure and validation occurs with low-quality information;
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15 attitude inoculation research suggests that people may treat strong (versus weak) uncongenial
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17 information differently (McGuire, 1961; Petty & Cacioppo, 1986). Thus, Studies 1 and 2
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19 examined the influences of exposure and order amongst messages of varying quality. Study 3
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21 randomly assigned the presentational order of congenial and uncongenial information, thereby
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23 decoupling order and choice. Finally, Study 4 replicated Studies 1-3 with participants in one of
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25 three experimental conditions: (1) free choice (like Study 1); (2) forced choice (like Study 3);
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27 and (3) a free-choice condition in which participants received their *unchosen* information first,
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29 followed by the chosen information, to assess the relative influence of presentational order in the
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31 context of choice. This condition in Study 4 could produce two possible results. First,
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33 participants receiving choice-incongruent information may react against forced exposure, thereby
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35 exacerbating validation of chosen information (Brehm, 1966). However, regardless of one's
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37 choice, highly accessible information (via primacy) could inhibit validation of subsequent
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39 information, thereby decreasing congenial validation bias. Study 4 also tests alternative
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41 explanations of congenial validation, including message agreement, novelty, and attention, and
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43 also examined relevance as a moderator (Haugtvedt & Wegener, 1994). Lastly, Study 4 includes
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45 a measure of behavioral intentions—a critical consideration when predicting behavior from
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47 attitudes (Fishbein & Azjen, 2011)—to assess how they are affected by exposure and validation.
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Studies 1-3: Demonstration of Bias Reduction

Method

Overview

Studies 1-3 examine the relative influences of choice and presentational order under differing conditions of choice and message quality. In Study 1, participants could choose whether to read high-quality congenial or uncongenial gun control persuasive messages first; as such, Study 1 provides a baseline for the relation between selective exposure and congenial validation. In Study 2, participants could choose amongst low-quality persuasive messages to assess whether the link between congenial exposure and validation still manifested when the information was weaker in quality. Finally, Study 3 participants did not have the ability to choose the order of information, instead being assigned to read messages in a random order. Thus, Study 3 decouples choice from order to further understand the link between exposure and validation.

Procedure

Studies 1-3 follow similar procedures. Participants completed the study at individual computer workstations, running MediaLab (Jarvis, 2010). First, participants reported their attitudes on gun control, defined as “various enacted or proposed laws that restrict the unfettered ownership, transport, and usage of personal firearms, including rifles and handguns.”

Participants then viewed two sets of arguments either favoring or opposing gun control, and completed dependent measures after each set.

Participants

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Participants were undergraduates enrolled in an Introduction to Psychology course participating for course credit. Data was collected per subject pool availability and concluded at the end of the academic semester. After exclusions, $n_{\text{Study}1} = 99$; $n_{\text{Study}2} = 99$; $n_{\text{Study}3} = 91$.

Measures

Baseline attitude measures. Participants' initial gun control attitudes were calculated by averaging responses to six semantic differential scales (*desirable-undesirable*, *foolish-wise*, *good-bad*, *harmful-beneficial*, *necessary-unnecessary*, and *positive-negative*), from 1 to 9 ($\alpha_{\text{Study}1} = .89$; $\alpha_{\text{Study}2} = .94$; $\alpha_{\text{Study}3} = .94$).

Congenial validation. For both sets of messages, participants rated each message on several strength dimensions ("strong", "well-written", and "convincing") using 9-point scales from 1 (*not at all*) to 9 (*extremely*). For both sets of messages, these items were highly intercorrelated (first message: $\alpha = .88$; second message: $\alpha = .88$).

Thought listing and valence. After each message, participants listed any thoughts or observations they had about the message, using Cacioppo and Petty's (1981) protocol. Subsequently, participants rated thought valence from 1 (*unfavorable*) to 9 (*favorable*). Next, we effects-coded the favorability of each response as negatively valenced (-1), positively valenced (1), or neutral (0), and computed a sum for both the first and second message sets. Finally, a difference score was calculated for both the first and second messages by subtracting the number of negatively-rated responses from the number of positively-rated ones, yielding a score reflecting the degree of positive or negative responses to each message.

Analytic strategy

Labeling information as congenial or uncongenial is only meaningful in the context of a preexisting attitude (Brock & Balloun, 1967; Hart et al., 2009). As such, participants who

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3 reported a neutral attitude (i.e., mean attitude responses at 5.0, the scale midpoint) were excluded
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5 from analyses because information selection and evaluation under this condition is ambiguous
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8 ($n_{\text{Study 1}} = 3$; $n_{\text{Study 2}} = 3$; $n_{\text{Study 3}} = 1$). Participants reporting a mean attitude below (above) the
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10 scale midpoint were considered anti- (pro-) gun control. Thus, for those with an anti- (or pro-)
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12 gun control stance, messages against (or in favor) were coded as congenial information, whereas
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14 pro- (or anti-) information was coded as uncongenial.
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18 Message reading time was measured to screen out disengaged participants. Mean reading
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20 time per message was calculated for each participant, and participants whose mean reading time
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22 was less than 9.63 seconds, or faster than 900 words per minute (Bremer, 2016), were excluded
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24 ($n_{\text{Study 1}} = 7$; $n_{\text{Study 2}} = 5$; $n_{\text{Study 3}} = 3$).
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Study 1

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29 Participants in Study 1 chose which set of strong messages to read and evaluate, and were
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31 subsequently presented with and asked to evaluate the unchosen messages.
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Results**Congenial selective exposure**

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38 Binary logistic regression indicated that participants were marginally more likely to
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40 choose congenial over uncongenial messages ($B = 0.77$, $SE = 0.43$, Wald $\chi^2 = 3.14$, $p = .076$, $\beta =$
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42 2.16 , 95% CI [0.92, 5.05])¹. The direction of a participant's initial gun control attitude (pro
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44 versus anti) did not influence preference for congenial information ($B = -0.16$, $SE = 0.43$, Wald
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46 $\chi^2 = 0.13$, $p = .72$, $\beta = 0.86$, 95% CI [0.37, 2.00]).
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Congenial validation

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¹ Calculated using the categorical Time 1 gun control attitude, which excludes those at the midpoint of the scale. When using the continuous measure, the effect is weaker ($B = 0.19$, $SE = 0.13$, Wald $\chi^2 = 2.11$, $p = .15$, $\beta = 1.21$, 95% CI [0.94, 1.56]).

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Analyses reflect a mixed-model analysis of variance (ANOVA), with first message congeniality as a between-subjects factor and congenial validation of the first and second messages as within-subjects factors. First, there was a significant order by congeniality interaction, $F_{1, 88} = 12.10, p = .001, \eta_p^2 = 0.12$. Participants who saw uncongenial messages first showed no differences between their evaluations of the congenial and uncongenial messages ($M_{\text{Diff}} = 0.07, SD_{\text{Diff}} = 4.29$), $F_{1, 88} = 0.02, p = .89, d = 0.03, 95\% \text{ CI } [-0.83, 0.96]$; however, those who chose congenial information displayed a significant congenial validation bias ($M_{\text{Diff}} = 2.01, SD_{\text{Diff}} = 3.11$), $F_{1, 88} = 37.49, p < .001, d = 0.76, 95\% \text{ CI } [1.36, 2.66]$. (See Table 1.) Thus, seeing uncongenial information first nearly eliminated the congenial validation bias. Further analyses revealed that participants shifted their evaluations of the congenial and uncongenial messages similarly as a function of order: Seeing uncongenial information first led to significantly improved evaluations compared to viewing uncongenial information second ($M_{\text{Diff}} = 1.13, SD_{\text{Diff}} = 3.87; F_{1, 88} = 7.63, p = .007, d = 0.28, 95\% \text{ CI } [0.32, 1.94]$), and congenial information was also privileged when it was seen first compared to second ($M_{\text{Diff}} = 0.94, SD_{\text{Diff}} = 3.36; F_{1, 88} = 7.09, p = .009, d = 0.27, 95\% \text{ CI } [0.24, 1.65]$).

There was also a main effect of order: Participants evaluated the first set of messages—regardless of congeniality—more favorably ($M = 6.74, SD = 1.52$) than the second messages ($M = 5.40, SD = 2.00; F_{1, 88} = 13.76, p < .001, d = 0.50, 95\% \text{ CI of difference score } [0.48, 1.59]$). There was no main effect of first message congeniality on evaluations ($F_{1, 88} = 0.12, p = .73$).

Thought listing and valence

A mixed-model analysis on the number of thoughts listed in response to each message set found a primacy effect: Participants listed significantly more thoughts in response to the first set of messages ($M = 5.50, SD = 2.30$) compared to the second ($M = 4.17, SD = 2.11$), regardless of

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3 congeniality, $F_{1, 88} = 42.32, p < .001, d = 0.72$, 95% CI of difference score [0.92, 1.73]. There
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5 was no main effect of first message congeniality, $F_{1, 88} = 0.10, p = .76$, and no order by
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7 congeniality interaction, $F_{1, 88} = 0.03, p = .87$.

10 For thought valence, there was a marginally significant order by congeniality interaction
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12 ($F_{1, 88} = 3.69, p = .056, \eta_p^2 = 0.04$): Participants who chose uncongenial messages displayed
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14 reduced congenial validation bias in thought valence ($M_{\text{Diff}} = 0.52, SD_{\text{Diff}} = 6.14; F_{1, 88} = 0.64, p$
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16 $= .43, d = 0.15$, 95% CI [-0.77, 1.80]) compared to those who chose congenial messages ($M_{\text{Diff}} =$
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18 $2.05, SD_{\text{Diff}} = 4.45; F_{1, 88} = 19.15, p < .001, d = 0.56$, 95% CI [1.12, 2.98]). Participants also
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20 generated more positive thoughts in response to the first message set ($M = 2.92, SD = 3.57$) than
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22 the second ($M = 1.40, SD = 3.28$), regardless of congeniality, $F_{1, 88} = 10.33, p = .002, d = 0.42$,
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24 95% CI of difference score [2.04, 3.62]. There was no main effect of first message congeniality,
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26 $F_{1, 88} = 0.05, p = .82$.

Discussion

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34 Study 1 participants chose which information—congenial or uncongenial—to read, and
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36 found evidence of both selective exposure and congenial validation bias. Participants were
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38 marginally more likely to choose congenial information first, and they reliably evaluated
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40 congenial messages as being stronger than uncongenial ones.

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44 However, preferences for congenial information were not always evident, as there were
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46 also significant order effects. Regarding congenial validation, thought listing and thought
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48 valence, participants favored the first message set over the second. There was also a significant
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50 order by message congeniality interaction for both congenial validation and thought valence:
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52 Participants who saw uncongenial information first displayed markedly reduced congenial
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54 validation biases compared to those who saw congenial information first. For those who saw
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3 uncongenial first, strength evaluations of both types of information shifted: Congenial
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5 evaluations decreased in favorability, and uncongenial evaluations increased. Therefore, Study 1
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7 found evidence that congenial validation biases may operate in tandem with selective exposure;
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9 when congenial information is relegated to second position, its perceived favorability decreases.
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Study 2

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15 Study 2 examined whether similar effects can be obtained using weak (low-quality)
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17 messages, instead of the strong (high-quality) messages in Study 1. Using low-quality (versus
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19 high-quality) messages could impact exposure and evaluations because choosing and attending
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21 to weak, uncongenial information can bolster one's attitude (Hart et al., 2009; McGuire, 1961).
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23 In this context of low-quality information, presentational order may not influence evaluations:
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25 weak, uncongenial messages might be preferred because they bolster the validity of one's own
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27 views (McGuire, 1961). Additionally, low-quality congenial information should not be
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29 validating, and therefore may not be preferred (Festinger, 1957). In Study 2, weakness was
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31 conveyed both in terms of weak content and by the message source: Whereas the strong
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33 messages in Study 1 were allegedly written by university professors, the weak messages in Study
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35 2 were allegedly written by high school students.
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Results**Message choice**

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45 Binary logistic regression indicated that participants were significantly more likely to
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47 choose congenial over uncongenial messages ($B = 0.71$, $SE = 0.29$, Wald $\chi^2 = 6.12$, $p = .013$, $\beta =$
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SELECTIVE EXPOSURE AND VALIDATION BIAS

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2.02, 95% CI [1.16, 3.54])². Selective exposure did not differ by participants' initial gun control attitudes ($B = 0.19$, $SE = 0.29$, Wald $\chi^2 = 0.46$, $p = .50$, $\beta = 2.02$, 95% CI [0.69, 2.12]).

Congenial validation

Analyses reflect a mixed-model ANOVA, with the congeniality of the first message as a between-subjects factor and perceived strength of the first and second messages as within-subjects factors. Like Study 1, there was a significant interaction of order and congeniality ($F_{1,97} = 39.25$, $p < .001$, $\eta_p^2 = 0.29$). Participants who chose to read uncongenial messages again displayed a significantly reduced congeniality bias ($M_{\text{Diff}} = 1.06$, $SD_{\text{Diff}} = 4.41$; $F_{1,97} = 5.69$, $p = .019$, $d = 0.38$, 95% CI [-1.93, -0.18]) compared to those who chose congenial messages first ($M_{\text{Diff}} = 2.27$, $SD_{\text{Diff}} = 2.91$; $F_{1,97} = 60.29$, $p < .001$, $d = 0.91$, 95% CI [1.69, 2.85]). (See Table 1.) Further analyses revealed that, unlike participants in Study 1 who shifted evaluations of both congenial and uncongenial messages as a function of order, Study 2 participants primarily shifted their evaluations of uncongenial messages as a function of order: Seeing uncongenial information first led to significantly improved evaluations of those messages compared to when they were presented second ($M_{\text{Diff}} = 0.88$, $SD_{\text{Diff}} = 3.91$; $F_{1,97} = 5.00$, $p = .028$, $d = 0.23$, 95% CI [0.01, 1.66]), whereas congenial evaluations did not change as a function of order ($M_{\text{Diff}} = 0.33$, $SD_{\text{Diff}} = 3.47$; $F_{1,97} = 0.90$, $p = .35$, $d = 0.10$, 95% CI [-0.36, 1.03]).

Again, there was a significant primacy effect: Participants perceived the first message set as stronger ($M = 5.82$, $SD = 1.82$) than the second ($M = 4.56$, $SD = 1.90$), regardless of congeniality, $F_{1,97} = 5.22$, $p = .025$, $d = 0.45$, 95% CI of difference score [0.08, 1.13]. Like Study 1, there was again no main effect of first message congeniality on message evaluations, $F_{1,97} = 1.10$, $p = .30$.

² This effect also replicated when using the continuous gun control attitude measure ($B = 0.27$, $SE = 0.12$, Wald $\chi^2 = 5.15$, $p = .023$, $\beta = 1.31$, 95% CI [1.04, 1.65]).

Thought listing and valence

A mixed-model analysis on the number of thoughts listed in response to each message set found similar primacy effects as Study 1: Participants generated significantly more thoughts in response to the first message set ($M = 5.77$, $SD = 2.05$) than the second ($M = 4.74$, $SD = 2.35$), regardless of congeniality ($F_{1,97} = 36.10$, $p < .001$, $d = 0.62$, 95% CI of difference score [0.74, 1.46]). There were no effects of first message congeniality ($F_{1,97} = 1.55$, $p = .22$) or the interaction of order and congeniality ($F_{1,97} = 0.86$, $p = .36$).

Similar mixed-model analyses for thought valence replicated the interaction between order and congeniality found in Study 1 ($F_{1,97} = 30.35$, $p < .001$, $\eta_p^2 = 0.24$): Like message evaluations, participants who chose uncongenial messages displayed a reduced congeniality bias in terms of thought valence ($M_{\text{Diff}} = 1.70$, $SD_{\text{Diff}} = 7.24$; $F_{1,97} = 5.46$, $p = .02$, $d = 0.42$, 95% CI [-3.14, -0.26]) compared to those who chose congenial messages ($M_{\text{Diff}} = 3.10$, $SD_{\text{Diff}} = 4.78$; $F_{1,97} = 41.79$, $p < .001$, $d = 0.70$, 95% CI [2.15, 4.05]). In addition, and unlike Study 1, there was no main effect of order ($F_{1,97} = 2.59$, $p = .11$), and no main effect of first message congeniality ($F_{1,97} = 0.19$, $p = .66$).

Discussion

Study 2 replicated key effects of Study 1, but using weak (low-quality) messages. Participants were again more likely to exhibit selective exposure and congenial validation bias. Furthermore, Study 2 again found significant order (primacy) effects for congenial validation and number of thoughts generated, and there was again a significant order by congeniality interaction for congenial validation and thought valence in the same pattern as Study 1: Seeing uncongenial information first led to reduced congenial validation and thought valence. Study 2 indicates that participants treated low-quality gun control messages similarly to high-quality

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ones. Thus, the influences of congeniality and order were not dependent upon argument quality, and participants did not adjust their exposure or evaluations depending on the quality of the available information.

Study 3

Study 3 removed the ability to choose presentational order, instead presenting participants with strong congenial and uncongenial information randomly. Therefore, Study 3 tested the influence of presentational order on congenial and uncongenial message evaluations, independently of choice. By removing the ability to choose, Study 3 assesses the raw influence of order. Because participants could not choose presentational order, message choice is not analyzed.

Results

Congenial validation

Analyses reflect a mixed-model ANOVA, with message congeniality as a between-subjects factor and congenial validation of the first and second messages as within-subjects factors. Like Studies 1 and 2, there was a significant order by congeniality interaction, $F_{1, 89} = 95.46, p < .001, \eta_p^2 = 0.52$. Participants who saw uncongenial messages first reported significantly reduced congenial validation ($M_{\text{Diff}} = 1.61; SD_{\text{diff}} = 3.22; F_{1, 89} = 22.72, p < .001, d = 0.58, 95\% \text{ CI } [-2.29, -0.94]$) compared to those who saw congenial messages first ($M_{\text{Diff}} = 3.25; SD_{\text{diff}} = 3.48; F_{1, 89} = 79.25, p < .001, d = 1.33, 95\% \text{ CI } [2.53, 3.98]$). (See Table 1.) Furthermore, participants primarily shifted their evaluations of the uncongenial messages as a function of order ($M_{\text{Diff}} = 1.27, SD_{\text{Diff}} = 3.47; F_{1, 89} = 12.16, p = .001, d = 0.34, 95\% \text{ CI } [0.55, 1.99]$), whereas congenial information evaluations did not change as a function of order ($M_{\text{Diff}} = 0.37, SD_{\text{Diff}} = 2.77; F_{1, 89} = 1.63, p = .21, d = 0.12, 95\% \text{ CI } [-0.21, 0.95]$).

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Like Study 1, there was a significant primacy effect: Participants perceived the first message to be stronger ($M = 6.29$, $SD = 1.78$) than the second message ($M = 5.66$, $SD = 2.18$; $F_{1, 89} = 10.85$, $p < .001$, $d = 0.19$, 95% CI of difference score [0.33, 1.32]), regardless of congeniality. Unlike Studies 1 and 2, Study 3 found a main effect of first message congeniality: Participants evaluated all messages as stronger overall when they saw uncongenial messages first ($M = 6.18$, $SD = 1.43$) compared to congenial first ($M = 5.73$, $SD = 1.54$; $F_{1, 89} = 4.36$, $p = .04$, $d = 0.18$, 95% CI of difference score [0.02, 0.88]).

Thought listing and valence

For thought listing, there were no differences according to order ($F_{1, 89} = 1.17$, $p = .28$), the congeniality of the first message ($F_{1, 89} = 1.52$, $p = .22$), or an interaction of order and congeniality ($F_{1, 89} = 0.30$, $p = .59$).

For thought valence, there was a main effect of order such that participants generated more positive thoughts in response to the first message set ($M = 1.63$, $SD = 3.93$) than the second ($M = 0.49$, $SD = 2.72$), regardless of congeniality ($F_{1, 89} = 8.26$, $p = .005$, $d = 0.30$, 95% CI of difference score [0.36, 1.99]). There was no main effect of first message congeniality ($F_{1, 89} = 1.79$, $p = .18$) and no interaction of order and congeniality ($F_{1, 89} = 1.76$, $p = .19$).

Discussion

Like Studies 1 and 2, Study 3 found a significant interaction of message order and congeniality on congenial validation, indicating that order effects are not limited to contexts in which participants can choose the presentational order. In addition, because messages were unchosen, the attenuated congenial validation bias observed is not purely a function of motivation; indeed, this effect may operate cognitively as well; for instance, when contradictory (i.e., uncongenial) information is highly accessible due to primacy, the typical congenial

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validation bias may be weakened. However, each study has uncovered slightly different effects with the valence of thoughts generated in response to each message set, indicating that this measure of valenced elaboration may be susceptible to argument quality and the motivation associated with the ability to choose.

Interim Discussion: Studies 1-3

In Studies 1-3, although information congeniality did matter—particularly when it came to choosing which information to read in Studies 1 and 2—the order of information presentation also significantly affected participants' evaluations. We consistently observed primacy effects for message evaluations, number of thoughts generated, and thought valence. Moreover, the most consistent finding throughout Studies 1-3 was an interaction of order and congeniality:

Participants who saw uncongenial messages first—regardless of the ability to choose or argument quality—subsequently displayed a reduced congenial validation bias. Although some prior order effects research has found primacy effects (Haugtvedt & Wegener, 1994), our primacy effects manifested differently depending on the congeniality of that primary message; after seeing uncongenial information first, participants were less likely to evaluate the subsequent congenial messages in a biased manner. Selective exposure and congenial validation appear to work in tandem to promote disparate evaluations of information as a function of congeniality and presentational order. Indeed, as shown in Study 3, congenial validation biases can be significantly reduced merely by switching the presentational order of congenial and uncongenial information.

Study 4

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Study 4 was designed to further investigate this order by congeniality interaction and identify potential mechanisms. For the sake of brevity, Study 4 did not include the thought-listing procedure from Studies 1-3.

Collapsing across Studies 1-3, the effect of the order by congeniality interaction was strong ($\eta_p^2 = 0.33$), and power analyses (G*Power; Faul, Erdfelder, Lang, & Buchner, 2007) suggested a minimum of 10 participants per cell with the repeated-measures design. However, because Study 4 added an additional three-level independent variable, we wanted to be able to detect the three-way interaction of order, congeniality, and choice; therefore, we recruited enough participants to obtain at least 40 participants per cell, and we over-recruited knowing that some participants would be excluded for neutral gun control attitudes ($n = 29$) or time screening measures ($n = 115$).

Method

Overview

Study 4 assessed the effects of the ability to choose, information congeniality, and presentational order on congenial validation biases in gun control message evaluations. As such, Study 4 combined elements of Studies 1 (free-choice) and 3 (forced-choice), again using high-quality gun control messages. In addition, Study 4 incorporated a third condition engendering a mix of Studies 1 and 3: In this third condition, participants could choose which type of information they preferred to see, but they were shown their unchosen information first. Thus, this third condition allowed us to assess the cognitive effects of order within the context of the motivational effects of one's expressed choice on congenial validation bias.

Study 4 also added new measures to examine whether reduced congenial validation bias is driven by processes other than presentational order. First, to test whether seeing uncongenial

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3 information first led participants to shift their gun control attitudes—rather than just their
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5 evaluations of the information—participants reported their level of agreement with each message
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7 set they read. Second, to test whether participants may simply devote more attention to
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9 uncongenial messages seen first, we measured self-reported attention and the perceived novelty
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11 of each message set, another indicator of attention to uncongenial messages; if participants found
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13 only primary messages novel and attention-worthy, then shifts in congenial validation could be
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15 explained by lack of attention to secondary messages. Finally, we included a measure of
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17 behavioral intentions with regards to gun control with the purpose of examining whether order,
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19 choice, or their interaction had consequences beyond real-time information evaluation.
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Participants

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27 After exclusions, 646 participants ($M_{age} = 36.7$ years; 55.3% male) were recruited from
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29 Amazon Mechanical Turk and participated for compensation of \$1.00.
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Procedure

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34 Participants were randomly assigned to a “choice” or “no choice” condition: Those in the
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36 “choice” ($n = 328$) condition could choose which gun control information to read first, whereas
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38 those in the “no choice” ($n = 318$) condition read gun control messages in a random, unchosen
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40 order. However, those in the “choice” condition were subdivided into two categories: choice-
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42 congruent ($n = 171$), or those who actually read their chosen information first; or choice-
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44 incongruent ($n = 157$)³, or those who were presented with their unchosen information first.
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51 ³ The “no choice” condition sample size is bigger than the each of the two “choice” condition
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53 samples because Study 4 combined two datasets collected during the same time period with the
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55 same population (MTurk), but using qualifications to ensure non-overlapping, independent
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57 samples. Each dataset divided half of its participants into a “no choice” condition but utilized
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59 different versions of the “choice” condition (i.e., choice-congruent or choice-incongruent). When
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the two datasets are analyzed separately, the patterns of key results are identical. Combining
the two datasets allowed us to test for the three-way interaction presented in this paper.

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Analyses to verify that there was not differential exclusion by condition (Zhou & Fishbach, 2016) found no significant differences between conditions, $F_{1, 787} = 0.54, p = .58$.

All participants were presented with the first argument (or the chosen argument for those in the “choice” condition), after which they evaluated the argument along several dependent measures. Next, participants were shown the second argument, followed by the same dependent measures.

Measures

In addition to measuring baseline gun control attitudes and message evaluations (like Studies 1-3), Study 4 added the following measures:

Agreement. On a 9-point scale from 1 (*Not at all*) to 9 (*Extremely*), participants answered, “To what extent do you agree with these arguments?”

Novelty. On a 9-point scale from 1 (*Not at all*) to 9 (*Extremely*), participants answered, “To what extent were the arguments novel?”

Attention. On 9-point scales from 1 (*Not at all*) to 9 (*Extremely*), participants answered: 1) “How much attention did you pay to these arguments?”; and 2) “How much were you able to concentrate on reading these arguments?” ($\alpha_{\text{pro}} = .92; \alpha_{\text{anti}} = .93$).

Issue relevance. On 5-point scales from 1 (*Strongly disagree*) to 5 (*Strongly agree*), participants responded to: 1) “Gun control is very important to me”; and 2) “The issue of gun control is relevant to me” ($\alpha = .83$).

Behavioral intentions. Participants answered if they intended to vote “in favor of gun control” or “against gun control.”

Results

Message choice

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Participants in the choice conditions were significantly more likely to choose congenial over uncongenial messages ($B = 0.75$, $SE = 0.13$, Wald $\chi^2 = 35.01$, $p < .001$, $\beta = 2.12$, 95% CI [1.65, 2.72]⁴, and the direction of participants' initial gun control attitudes did not influence preference for congenial information ($B = 0.05$, $SE = 0.04$, Wald $\chi^2 = 1.08$, $p = .30$, $\beta = 1.05$, 95% CI [0.96, 1.14]).

Congenial validation

We conducted mixed-model analyses on evaluations of both message sets as a function of choice condition, congeniality, and order. There was a significant three-way interaction of choice condition, order, and congeniality, $F_{2, 634} = 3.51$, $p = .031$, $\eta_p^2 = 0.01$. Results indicate that the Study 4 conditions that mimicked previous studies—the choice-congruent (similar to Study 1) and the no-choice (similar to Study 3) conditions—both replicated earlier results. In the choice-congruent condition, seeing uncongenial information first led to an attenuated congenial validation bias ($M_{\text{Diff}} = 1.11$, $SD_{\text{Diff}} = 5.67$) compared to seeing congenial information first ($M_{\text{Diff}} = 1.92$, $SD_{\text{Diff}} = 4.02$), $F_{1, 634} = 8.68$, $p = .003$, $d = 0.16$. And in the no-choice condition, a similar attenuated bias was observed from seeing uncongenial information first ($M_{\text{Diff}} = 1.11$, $SD_{\text{Diff}} = 3.34$) versus congenial information first ($M_{\text{Diff}} = 1.89$, $SD_{\text{Diff}} = 3.42$), $F_{1, 634} = 17.25$, $p < .001$, $d = 0.23$. However, in the choice-incongruent condition, there was no reduced congenial validation bias as a function of order: Participants who saw uncongenial information first—who had actually opted to see congenial information—reported an evaluative difference that was no different ($M_{\text{Diff}} = 1.07$, $SD_{\text{Diff}} = 4.07$) than those who saw congenial information first ($M_{\text{Diff}} = 1.06$, $SD_{\text{Diff}} = 6.27$), $F_{1, 634} = 0.00$, $p = .98$, $d = 0.00$. However, it should be noted that the mean difference scores in the choice-incongruent condition for both uncongenial- and congenial-first

⁴ This effect was replicated when using the continuous gun control attitude measure as well ($B = 0.27$, $SE = 0.05$, Wald $\chi^2 = 36.22$, $p < .001$, $\beta = 1.31$, 95% CI [1.20, 1.43]).

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orders are no different than the attenuated validation scores in the uncongenial-first cells in the other two choice conditions; thus, the congeniality bias was reduced both when uncongenial information appeared first but was not chosen, and when uncongenial information was chosen but did not appear first. Therefore, the congeniality bias was reduced when uncongenial information *actually* appeared first, and when it was *intended* to appear first.

Like Studies 1-3, we observed a significant order by congeniality interaction, $F_{1, 634} = 335.24, p < .001, \eta_p^2 = 0.35$: Participants who saw uncongenial messages first reported significantly reduced congenial validation biases ($M_{\text{Diff}} = 1.09, SD_{\text{diff}} = 2.58; F_{1, 634} = 115.23, p < .001, d = 0.36, 95\% \text{ CI } [0.89, 1.30]$) compared to those who saw congenial messages first ($M_{\text{Diff}} = 1.62, SD_{\text{diff}} = 2.73; F_{1, 634} = 226.47, p < .001, d = 0.50, 95\% \text{ CI } [1.41, 1.83]$). Unlike Studies 1-3, this reduced congenial validation bias was achieved almost solely by worsening evaluations of the congenial information: Evaluations of uncongenial information did not change due to order ($M_{\text{Diff}} = 0.09, SD_{\text{Diff}} = 3.92; F_{1, 634} = 0.34, p = .56, d = 0.03, 95\% \text{ CI } [-0.39, 0.21]$), but order did affect evaluations of congenial information ($M_{\text{Diff}} = 0.62, SD_{\text{Diff}} = 3.39; F_{1, 634} = 21.42, p = .001, d = 0.25, 95\% \text{ CI } [0.36, 0.88]$). Thus, Study 4 replicated the reduced congenial validation bias as a result of seeing uncongenial information first—collapsing across three choice conditions—but precisely whether this occurs by shifting evaluations of the congenial or uncongenial messages varies by study.

Next, also like Studies 1 and 3, we found a significant primacy effect: Participants perceived the first message to be stronger ($M = 6.41, SD = 1.84$) than the second message ($M = 6.10, SD = 1.77$), regardless of congeniality, $F_{1, 634} = 12.66, p < .001, d = 0.14, 95\% \text{ CI } [0.12, 0.41]$. There were also significant effects of first message congeniality and a two-way choice

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condition by congeniality interaction that were not of theoretical interest; details can be found in Supplemental Material.

Ruling out competing mechanisms

Agreement. We conducted mixed-model analyses on agreement with both message sets as a function of choice condition, congeniality, and order. First, we observed a significant two-way order by congeniality interaction ($F_{1, 636} = 578.27, p < .001, \eta_p^2 = 0.48$), but the pattern did not mirror that of message evaluations. Instead, results indicated that participants merely discriminated between the first and second messages in terms of congeniality: Regardless of whether participants saw uncongenial messages first ($M_{\text{Diff}} = 3.49, SD_{\text{Diff}} = 5.35; F_{1, 636} = 274.68, p < .001, d = 0.61, 95\% \text{ CI } [3.08, 3.90]$) or congenial messages first ($M_{\text{Diff}} = 3.89, SD_{\text{Diff}} = 5.65; F_{1, 636} = 303.60, p < .001, d = 0.64, 95\% \text{ CI } [3.45, 4.33]$), participants agreed with congenial (vs. uncongenial) messages significantly more. Beyond this two-way interaction, there was no main effect of order ($F_{1, 636} = 1.71, p = .19$), no main effects of choice condition ($F_{2, 636} = 1.04, p = .35$) or first message congeniality ($F_{1, 636} = 0.21, p = .65$), and no other two- or three-way interactions. Thus, our effects on congenial validation cannot be explained by participants being persuaded by initial uncongenial messages.

Novelty. We observed a two-way order by congeniality interaction ($F_{1, 638} = 149.90, p < .001, \eta_p^2 = 0.19$) similar to that of agreement: Regardless of whether participants saw uncongenial messages first ($M_{\text{Diff}} = 1.43, SD_{\text{Diff}} = 4.11; F_{1, 638} = 77.66, p < .001, d = 0.32, 95\% \text{ CI } [1.11, 1.74]$) or congenial messages first ($M_{\text{Diff}} = 1.47, SD_{\text{Diff}} = 4.39; F_{1, 638} = 72.62, p < .001, d = 0.31, 95\% \text{ CI } [1.13, 1.81]$), participants judged congenial (vs. uncongenial) messages as significantly more novel. Indeed, there was a main effect of first message congeniality ($F_{1, 638} = 8.65, p = .003, d = 0.16, 95\% \text{ CI } [0.15, 0.75]$): Participants who saw congenial messages first

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3 rated all information as more novel ($M = 4.76$, $SD = 2.66$) than those who saw uncongenial
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6 messages first ($M = 4.31$, $SD = 2.84$). Otherwise, there was no significant main effect of order
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8 ($F_{1, 638} = 0.04$, $p = .845$) or main effect of choice condition ($F_{2, 638} = 2.56$, $p = .078$). Lastly, there
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10 was a two-way choice condition by congeniality interaction ($F_{2, 638} = 4.89$, $p = .008$, $\eta_p^2 = 0.02$)
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12 that was not of theoretical interest, details about which can be found in the Supplemental
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15 Material.

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17 **Attention.** Like agreement and novelty, we observed a two-way order by congeniality
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19 interaction ($F_{1, 635} = 25.84$, $p < .001$, $\eta_p^2 = 0.04$): Regardless of whether participants saw
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21 uncongenial messages first ($M_{\text{Diff}} = 0.19$, $SD_{\text{Diff}} = 1.27$; $F_{1, 635} = 15.23$, $p < .001$, $d = 0.15$, 95%
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23 CI [0.10, 0.29]) or congenial messages first ($M_{\text{Diff}} = 0.17$, $SD_{\text{Diff}} = 1.34$; $F_{1, 635} = 10.94$, $p = .001$,
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25 $d = 0.12$, 95% CI [0.07, 0.28]), participants reported significantly more attention to congenial
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27 (vs. uncongenial) messages. Otherwise, there was no main effect of order ($F_{1, 635} = 0.07$, $p = .79$),
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29 no main effects of first message congeniality ($F_{1, 635} = 1.35$, $p = .245$) or choice condition ($F_{2, 635}$
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31 $= 0.08$, $p = .920$), and no other two- or three-way interactions.

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36 **Issue relevance moderation.** Lastly, we examined personal relevance of gun control as a
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38 moderator of our most consistent effect: the presentational order and congeniality interaction.
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40 Using a standardized composite mean of relevance and importance of gun control as a covariate,
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42 repeated-measures ANOVA examined the order by congeniality interaction at three levels of
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44 issue relevance: -1 SD below the mean, mean, and +1 SD above the mean. There was a
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46 significant interaction of order, congeniality, and relevance ($F(1, 628) = 26.24$, $p < .001$, $\eta_p^2 =$
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48 $.04$), revealing some clear patterns. First, as relevance increased, participants increasingly
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50 validated congenial information. However, appraisal of uncongenial information was relatively
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52 unchanged as relevance increased. Thus, the benefit of receiving uncongenial information first—
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3 in terms of attenuating congenial validation—decreased as relevance increased. The mean
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5 difference between perceptions of congenial versus uncongenial information was still reduced
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7 for those who saw uncongenial information first, but this difference widened as high-relevance
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9 participants increasingly validated congenial information without changing their appraisals of
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11 uncongenial information. (See Table 3 for means and simple effects tests.)
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Behavioral intentions

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17 Binary logistic regression indicated that participants' initial gun control attitudes
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19 (categorical, excluding those with neutral attitudes) significantly predicted congenial voting
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21 intentions ($B = 2.69$, $SE = 0.20$, Wald $\chi^2 = 186.73$, $p < .001$, $\beta = 14.79$, 95% CI [10.05, 21.76])⁵;
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23 however, this likelihood of congenial voting differed as a function of the linear direction of one's
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25 initial gun control attitude ($B = -0.48$, $SE = 0.20$, Wald $\chi^2 = 5.91$, $p = .015$, $\beta = 0.62$, 95% CI
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27 [0.42, 0.91])⁶, indicating that participants with anti-gun control (vs. pro-gun control) attitudes
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29 were more likely to vote in a congenial fashion. However, even when controlling for initial
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31 attitudes, congenial validation significantly predicted intentions to vote in a congenial direction
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33 ($B = 1.21$, $SE = 0.01$, $p < .001$, 95% CI [0.10, 0.14]), indicating that real-time evaluations of gun
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35 control information influenced future voting intentions.
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Discussion

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43 Study 4 combined elements of Studies 1 and 2 and added a choice-incongruent condition
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45 to directly compare evaluation under various choice conditions. Across these conditions, Study 4
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47 replicated a key effect of Studies 1-3: When presented with uncongenial messages first—
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53 ⁵ This effect replicated when using the continuous Time 1 gun control attitude ($B = 1.27$, $SE =$
54 0.10 , Wald $\chi^2 = 157.08$, $p < .001$, $\beta = 3.56$, 95% CI [2.92, 4.35]).

55 ⁶ This effect did not replicate using the continuous Time 1 gun control attitude ($B = -0.002$, $SE =$
56 0.05 , Wald $\chi^2 = 0.002$, $p = .97$, $\beta = 1.00$, 95% CI [0.90, 1.11]), indicating a potential artifact
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58 from dichotomizing the measure.
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3 regardless of choice—participants exhibited a significantly attenuated congenial validation bias.
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5 Study 4 also ruled out several competing routes to explain this effect: message agreement,
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7 message novelty, and attention to messages. All three measures found similar patterns, which did
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9 not mirror congenial validation: Regardless of the congeniality of the first message, participants
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11 saw congenial messages as more agreeable, more novel, and more attention-worthy. Thus,
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13 reduced congenial validation did not occur because participants stopped agreeing with,
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15 perceiving as novel, or paying attention to congenial information. However, the reduced
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17 congenial validation by presentational order interaction decreased as issue relevance increased,
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19 consistent with prior research indicating that issue relevance should make individuals more
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21 resistant to uncongenial persuasive attempts (Haugtvedt & Wegener, 1994). Thus, congenial
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23 validation clearly has motivational components, but these can be constrained by contextual
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25 features, such as order.
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32 Study 4 also found significant differences by choice condition. The same pattern of
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34 attenuated congenial validation was observed in both the choice-congruent and forced-choice
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36 conditions, similar to Studies 1 and 3, respectively. However, participants in the choice-
37
38 incongruent condition displayed similar differences in their evaluations of congenial and
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40 uncongenial message regardless of the presentational order.
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44 Lastly, although participants expressed voting intentions in line with preexisting gun
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46 control attitudes, congenial validation also significantly predicted voting intentions.
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General Discussion

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50 The present studies were driven by the questions: (1) How are selective exposure and
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52 congenial validation biases related? and (2) How might this association be related to primacy and
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54 order effects that occur during selective exposure? Across four studies, we investigated the
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SELECTIVE EXPOSURE AND VALIDATION BIAS

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3 conditions under which presentational order, information congeniality, and the ability to choose
4 are relevant, and the conditions under which typical information biases favoring congenial
5 information can be attenuated. Across all four studies, participants consistently reported *reduced*
6 congenial validation biases after first reading uncongenial information; this effect occurred in
7 free-choice (Studies 1, 2, and 4) and forced-choice (Studies 3 and 4) conditions and across high-
8 quality (Studies 1, 3, and 4) and low-quality (Study 2) persuasive messages. We also observed
9 both selective exposure and primacy effects, consistent with previous literatures. Finally, reduced
10 congenial validation bias was consequential: Participants' evaluations significantly influenced
11 voting intentions.
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Congeniality and Primacy

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27 Consistent with decades of research on motivated reasoning, biased information
28 processing, and cognitive dissonance, participants chose (selective exposure) and devoted more
29 attention (selective attention) to congenial versus uncongenial information. Participants were
30 also sensitive to presentational order, generating more thoughts and evaluating the first (vs.
31 second) messages as stronger. These results are consistent with prior results showing greater
32 elaboration for primary information and subsequent primacy effects (Haugtvedt & Wegener,
33 1994).
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44 However, the most notable and consistent finding across the four studies is a congeniality
45 by order interaction: When participants saw uncongenial information first, they evaluated the
46 congenial and uncongenial information in a comparatively less biased manner than those who
47 saw congenial information first, thereby reducing the congenial validation bias. Study 4
48 measured message agreement, novelty, and attention to determine whether seeing uncongenial
49 information first elicited greater agreement (i.e., attitude change) or greater novelty and attention
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SELECTIVE EXPOSURE AND VALIDATION BIAS

(i.e., perception of information as more arresting and noteworthy); however, participants reported greater agreement with congenial messages and saw them as more novel and attention-worthy. Participants who saw uncongenial information first were not agreeing with it or perceiving it to be more novel or attention-worthy, suggesting that these routes cannot explain the reduced congenial validation bias.

However, in Studies 1-3 participants typically generated more total thoughts and more positive thoughts for the first message, particularly for strong information⁷. Beyond an evaluative boost that was likely due to primacy effects, our results suggest participants also judged the secondary information in comparison to the primary information (Haugtvedt & Wegener, 1994), which they elaborated on more (Petty et al., 2001). Thus, primary messages, regardless of congeniality, benefited from greater positive elaboration, thereby making subsequent information comparatively less appealing. These results may reflect participants' fatigue as they progressed through the studies, but if so, this is externally valid: Fatigue occurs in everyday life, including when processing attitudinally relevant information.

Implications for Theory

By presenting evidence for the effect of presentational order on congenial validation, the present studies shed light on informational influences beyond attitude selectivity. Indeed, a second hypothesized route to selective exposure, labeled *de facto selectivity*, de-emphasizes the individual choice characterized by the attitude selectivity hypothesis (Sears & Freedman, 1967). Rather than actively choosing whether to view supportive or challenging information, an individual may simply exist in an environment that contains more congenial (vs. uncongenial)

⁷ This positivity main effect was not present in Study 2, in which participants evaluated weak versions of the persuasive messages. Thus, they may have correctly perceived the inferior quality of the messages.

SELECTIVE EXPOSURE AND VALIDATION BIAS

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3 information. In this perspective, individuals find themselves in mostly congenial environments
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5 because their attitudes were shaped by those environments in the first place. The present studies
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7 shed some light on this *de facto* phenomenon—which has been relatively untested—and indicate
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9 that information evaluations can be significantly influenced by contextual factors operating
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11 outside of agentic control, even for a divisive political issue about which many hold strong
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13 attitudes.
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17 These results are also relevant to cognitive consistency theories. Cognitive dissonance
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19 and spreading-of-alternatives research suggest that choice is important, and participants should
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21 focus on positive aspects of chosen options and negative aspects of unchosen options (Brehm,
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23 1956; Festinger, 1957); indeed, this prediction is consistent with participants' behavior in the
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25 free-choice conditions across our studies. However, participants in the forced-choice and choice-
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27 incongruent conditions also exhibited attenuated congeniality biases after (involuntarily) seeing
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29 uncongenial information, suggesting that dissonance reduction strategies do not necessarily
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31 explain this bias reduction. Nonetheless, the attenuated congenial validation bias is likely not a
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33 purely cognitive mechanism; Study 4 participants in the choice-incongruent condition were the
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35 only participants who did not display the order by congeniality interaction, instead showing a
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37 reduced validation bias on par with uncongenial-first participants in the other choice conditions.
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39 And, Study 4 participants for whom gun control was more relevant were less likely to exhibit
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41 significantly attenuated congenial validation biases. Thus, Study 4 participants may have
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43 demonstrated the relative influence of motivation.
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Future Directions

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52 One of the biggest remaining issues is how to construct information environments that
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54 facilitate exposure to uncongenial information first. Although facilitating choice of uncongenial
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SELECTIVE EXPOSURE AND VALIDATION BIAS

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3 information may be one route to this end, it is likely not the only one. Although Studies 1-4
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5 showed evidence of attitude selectivity, results also indicated that presenting uncongenial
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7 information first is a promising strategy for bias reduction. These results were attained regardless
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9 of whether participants had the ability to choose that information, suggesting that people do not
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11 need to be intrinsically motivated to consider opposing information for such reduction to occur.
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13 Thus, facilitating information environments that present uncongenial information first could
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15 achieve the same benefits (reduced congeniality bias) without having to rely upon individual
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17 choice. Both possibilities are deserving of future study.
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22 Study 4 also measured behavioral intentions, and the effect of order was not limited to
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24 message evaluations. Participants indicated at the end of the study how they intended to vote on
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26 a future hypothetical gun control referendum (a semi-automatic assault weapons ban);
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28 importantly, participants' congenial validation bias predicted their attitude-relevant voting
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30 intentions, even when controlling for initial attitudes. Future research should explore these
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32 connections, as behavioral intentions are critical precursors to behavioral change (Fishbein &
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34 Ajzen, 2011). Indeed, our results suggest that, like many of us, Edgar Maddison Welch might
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36 have benefited from exposure to uncongenial information that challenged the validity of the
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38 congenial—yet conspiratorial—information that motivated his unfortunate behavior at Comet
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40 Ping Pong.
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SELECTIVE EXPOSURE AND VALIDATION BIAS

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Running head: SELECTIVE EXPOSURE AND VALIDATION BIAS

Table 1
Means and Standard Deviations for Message Strength Perceptions, Studies 1-3

Study and first message congeniality	<u>1st</u>		<u>2nd</u>		<u>Difference</u>	<i>F</i>	<u>Simple effects</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>p</i>	<i>d</i>
Study 1 (free choice – high quality)								
Congenial presented first	7.04	1.49	5.03	2.02	2.01	37.49	< .001	0.76
Uncongenial presented first	6.16	1.43	6.10	1.79	0.06	0.02	.89	0.03
Study 2 (free choice – low quality)								
Congenial presented first	6.24	1.57	3.98	1.70	2.26	60.29	< .001	0.91
Uncongenial presented first	4.86	2.01	5.91	1.66	-1.05	5.69	.019	0.38
Study 3 (forced choice – high quality)								
Congenial presented first	7.36	1.14	4.10	1.74	3.26	79.25	< .001	1.33
Uncongenial presented first	5.37	1.72	6.99	1.56	-1.62	22.72	< .001	0.58

Note. Cell means represent the mean message strength perception (composite of *convincing*, *well-written*, and *strong*) of each set of messages, evaluated on a 9-point scale; higher numbers indicate greater perceived message strength. Inferential statistics are derived from the simple effects tests on the difference between the two means in each row.

SELECTIVE EXPOSURE AND VALIDATION BIAS

Table 2
Means and Standard Deviations for Message Strength Perceptions, Study 4

Condition and first message congeniality	<u>1st</u>		<u>2nd</u>		<u>Difference</u>	<i>F</i>	<u>Simple effects</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>p</i>	<i>d</i>
Choice-congruent								
Congenial presented first	7.21	1.58	5.29	1.94	1.92	146.01	< .001	0.89
Uncongenial presented first	5.03	1.71	6.14	1.51	-1.11	24.36	< .001	0.56
Choice-incongruent								
Congenial presented first	6.81	1.46	5.75	1.43	1.06	18.27	< .001	0.60
Uncongenial presented first	5.87	1.70	6.94	1.62	-1.07	44.06	< .001	0.53
Forced-choice								
Congenial presented first	7.53	1.28	5.64	1.68	1.89	197.00	< .001	1.04
Uncongenial presented first	5.51	1.80	6.62	1.61	-1.11	70.71	< .001	0.53

Note. Cell means represent the mean message strength perception (composite of *convincing*, *well-written*, and *strong*) of each set of messages, evaluated on a 9-point scale; higher numbers indicate greater perceived message strength. Inferential statistics are derived from the simple effects tests on the difference between the two means in each row.

SELECTIVE EXPOSURE AND VALIDATION BIAS

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Table 3

Means and Standard Deviations for Message Strength Perceptions with Issue Relevance Moderator, Study 4

Issue relevance and presentational order	<u>1st</u>		<u>2nd</u>		<u>Difference</u>	<u>Simple effects</u>			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>F</i>	<i>p</i>	<i>d</i>	
Low relevance									
Congenial presented first	6.71	3.72	5.35	3.92	1.36	78.47	< .001	0.29	
Uncongenial presented first	5.55	3.49	6.09	3.67	-0.54	13.91	< .001	0.12	
Mean relevance									
Congenial presented first	7.21	2.53	5.57	2.68	1.64	244.14	< .001	0.51	
Uncongenial presented first	5.46	2.40	6.53	2.53	-1.07	115.6	< .001	0.35	
High relevance									
Congenial presented first	7.70	4.10	5.79	4.33	1.91	127.14	< .001	0.37	
Uncongenial presented first	5.38	3.19	6.97	3.36	-1.59	145.99	< .001	0.40	

Note. Cell means represent the mean message strength perception (composite of *convincing*, *well-written*, and *strong*) of each set of messages, evaluated on a 9-point scale; higher numbers indicate greater perceived message strength. Issue relevance is represented as a standardized composite of gun control's self-reported *relevance* and *importance* to participants. Inferential statistics are derived from the simple effects tests on the difference between the two means in each row.

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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All Studies: Stimuli & Materials

[Bracketed language refers to added commentary from authors; did not appear to participants. These stimuli were the same for all studies unless otherwise specified.]

[instructions] For today's survey, you have been assigned the topic of **gun control** in the United States.

[instructions] For the purposes of this survey, **gun control** is defined as the laws that restrict the purchase, possession, and carrying of guns.

[instructions] The following questions focus on the topic of gun control in the United States.

[gun control attitude] When asking about gun control, we are interested in generally whether you'd like to see such regulations protected and extended or challenged and repealed

Please choose the option that best describes your attitude:

	Strongly Oppose	Moderately Oppose	Slightly Oppose	Neither Support nor Oppose	Slightly Support	Moderately Support	Strongly Support
The issue of gun control.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[gun control importance, relevance, confidence] Please indicate the extent to which you agree with the following statements regarding gun control.

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
Gun control is very important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The issue of gun control is relevant to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my stance about gun control (either positive or negative).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

[gun control attitude] Gun control policies are:

	1	2	3	4	5	6	7	8	9	
Negative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Positive
Undesirable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Desirable
Bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Good
Harmful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beneficial
Unnecessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Necessary
Foolish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Wise

[instructions] Thank you for answering the previous questions.

[instructions] For the remainder of this survey, we are interested in your evaluation of different arguments on each side of the issue of gun control.

[information choice: free-choice conditions only] Please select the type of gun control arguments you would like to read about.

- In favor of gun control
- Against gun control

[instructions] You will now have the opportunity to read arguments about gun control.

[strong gun control messages: Studies 1, 3, and 4]

Pro-Gun Control Messages

1. Although opponents of gun laws claim that such laws burden police departments, it is often efforts against the enforcement of gun control that make policing difficult. Thanks to NRA [National Rifle Association]-backed restrictions regarding the storage and transport of data, when a gun is traced in a criminal investigation, the files must often be retrieved manually from warehouses where the records are kept. As a result, it takes a long time to trace a gun and criminals avoid detection and punishment. Paradoxically, although tracing guns is

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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difficult, committing crimes with these guns is easy. In 2004, there were 33,505 firearm-related deaths and an estimated 3 nonfatal firearm injuries for every death. In fact, 70% of homicides are committed with firearms.

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2. A gun in the home is more likely to harm you than it is to protect you. Public health research demonstrates that the person most likely to shoot you or your family members has keys to your house. Guns kept in the home are 22 more times likely to kill somebody you know, in anger or accident, than to kill in self-defense. When someone is home, a gun is used for protection in fewer than 2% of home invasion crimes. In 2006, there were only 176 handgun homicides judged as justifiable by self-defense handgun murders in the United States. A gun in the home proves to be more threatening to your family than any potential criminals.
 3. When the Second Amendment of the Bill of Rights assured the right to bear arms, the world was not the one that we live in today. First, technological advances have produced dangerous and deadly weaponry unimaginable in that historical context. Further, if its authors had experienced today's crimes and gun-related murders, they would not have included the amendment in the lenient way in which they did. When the Second Amendment was created, the nation had only recently rebelled against foreign tyranny. The Second Amendment states that because of the need for a 'well-regulated Militia, being necessary to the security of a free state, the right of the people to keep and bear Arms, shall not be infringed.' In the 21st century, however, the Second Amendment has become an anachronism, largely because the citizen militia has been replaced by a professional police force and armed services.
 4. By contrast, countries where firearms are illegal have a lot less crime. Whereas in a given year, the United States sees more than 5,000 children killed with firearms, 153 children are killed with firearms in Canada, 109 in France, 57 in Germany, 19 in Great Britain, and none in Japan. Clearly, our children are vulnerable to getting caught in the crossfire from guns used in domestic violence and crime in general. As the rate of American gun violence increased dramatically over the last fifteen years, American children paid the price. From 1994 to 2004, the firearm death rate for 15-19 year olds increased 222%, while the non-firearm homicide death rate decreased almost 13%. Most handguns have so little trigger resistance that they can be fired by a three-year old, and many guns even fire when dropped on the floor. Many available semi-automatic handguns lack magazine safety disconnects or load indicators to protect children. For every child killed with a gun, four are wounded.

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Anti-Gun Control Messages

1. Banning guns is both unfair and ineffective. It is unfair because the vast majority of guns sold in the US are not used to commit crimes. Guns are very popular for legitimate uses such as hunting and target-shooting, and people should also have the option to keep guns in order to defend themselves when the police do not or cannot respond. It is simply unfair to take away all citizens' rights to have guns just because a few citizens abuse those rights and are not punished. In addition, public policy research suggests that banning guns has not clearly been demonstrated to reduce crimes such as homicide, and it can actually exacerbate the problem. Washington, D.C.'s homicide rate more than tripled after the city banned handguns,

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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and the city continues to have the highest homicide rate among major U.S. cities despite having the most stringent handgun restrictions.

2. The view that there is an epidemic of gun-related accidents in the home that takes the lives of countless children is a misrepresentation on behalf of gun-control advocates. Today, fatal firearm accidents are at an all-time low. While the number of privately owned firearms per capita increased almost 40% between 1975 and 1995, fatal gun accidents declined by almost 60%. Firearms are involved in 1.5% of accidental fatalities nationwide, far behind the deaths due to other accidents such as those involving motor vehicles (47%) (National Safety Council). Anti-gun groups like the Children's Defense Fund claim that firearms are involved in the deaths of 10 'children' every day, but this figure includes 'children' under age 20. Because of their definition of 'children', these figures hide the fact that 85% of firearm-related deaths (homicides, suicides, and accidents) in that group are attributable to juveniles and young adults ages 15-19.
3. The fact is that gun-control advocates most often argue on the basis of emotion rather than by looking at the data. They appeal to the popular notion that guns are strictly used by criminals to kill innocent people and are not to be entrusted in the hands of anyone except the government, despite the fact that the government continually shows mismanagement of other important issues. The Founding Fathers foresaw the dangers of giving the State a monopoly of firearms, and clearly indicated in the Second Amendment to the Constitution that they intended a relatively unrestricted right to bear arms. Had the British banned private possession of guns before the Revolutionary War, there would likely be no United States today.
4. The examples of other countries tell us of the dangers of gun control. The Nazis in World War II banned all guns among their citizens, making resistance to their other policies nearly impossible. Once the right to bear arms is taken away, citizens have no real way to oppose further restrictions on their rights. Countries such as Canada and the United Kingdom introduced initially minor gun registration and control measures, only to quickly progress to a total ban on firearms. Restricting a few rights at first is therefore a step toward more severe restrictions. If our government continues to encroach upon our rights as free citizens with measures such as gun restriction, we may soon find ourselves with no way to actively resist the injustice of a potential tyranny.

[weak gun control messages: Study 2]

Pro-Gun Control Messages

1. Various possible gun control laws are arguably consistent with Constitutional intent. While many assert that the Second Amendment in the Bill of Rights guarantees the right of all American citizens to own a gun regardless of its purpose, its actual language taken in historical context is not quite so broad. For example, the value of gun rights is framed with respect to the necessity of a "*well regulated Militia*," which at the time refers to armed citizens who are not only subject to organization under the law, but also had achieved military competencies through regular training and discipline. Additionally, the phrase "bear

arms” has explicitly military connotations; one does not bear arms against a rabbit. In other words, the original founding intent should be viewed as only relating to a narrow purpose that is unrelated to most gun ownership. Therefore, the Constitution can be read as a document fundamentally in favor of the tight regulation of guns.

2. Contrary to what some believe, having a gun never makes one any safer. For example, moving to confront a robber, who is overwhelmingly likely to both possess a gun and to be prepared to use it, brandishing a gun is far more likely to end badly for the victim than for the criminal. In threatening a criminal with a gun, one invites self-protective violence on oneself when no such action might have occurred otherwise. Instead of arming potential victims of crimes, it is clearly far superior to decrease the number of available guns to a degree so low that only a very small number of criminals can even be expected to know how to access one. This is another example of the obvious truth that the dangers guns pose to their owners are not balanced out in any way by advantages that they accrue from them.
3. The enactment of more stringent, sensible gun control laws would send a powerful message to the international community that might lead to even broader changes around the world. The United States has long stood as a model of a high functioning nation to the rest of the world, and change in the United States would propel international trends towards the direction of reduced gun-related crime and violence. The United States is a very influential country, and the world pays attention to what we do and the consequences of our actions. Around the world, as more nations introduce legislation to address these problems, it will become apparent to observers that the effects are beneficial, and not detrimental in the way that opponents of gun control claim. Though some argue that this might create an opportunity for entities in other nations to profit immensely by exporting guns to the U.S., international legal cooperation can be counted upon to prevent this.
4. It is important that interested Americans continue to advocate for sensible gun control laws that keep dangerous weapons under control. It is a common mistake to assume that if pressure to control guns were to lessen, we would merely persist with the status quo, which many deem acceptable. This view overlooks the potency and aims of the gun lobby. In truth, groups like the NRA, funded by gun manufacturers, constantly seek to reduce and undermine existing law. Without the countering force of gun control advocates, we might find more and more dangerous and technologically advanced weaponry on our streets. This slippery slope, which could even end in the legalization and proliferation of fully automated weapons or explosive weapons, must be avoided.

Anti-Gun Control Messages

1. An alarming danger if those who seek to limit Americans’ rights to gun ownership prevail is the imbalance that will undoubtedly occur with respect to the caliber of people who can be expected to obtain guns. Disarming citizens with gun control laws will actually make for a more dangerous society. Bad people with guns will be able to do as they please without fear of retaliation. Who will stop them? A good person with a gun is the best defense for a bad person with a gun. Indeed, if responsible gun use were taught in schools, it would be the case that the safest possible society is one in which everyone carried a gun at all times.

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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2. Advocates for gun control argue in bad faith. If they were truly interested in saving lives, they would direct their attention elsewhere. Traffic collisions are responsible for a tremendous number of deaths annually, while firearm deaths pale in comparison. Why, then, doesn't anyone advocate banning cars with the same enthusiasm that they advocate for banning guns? If gun control makes sense, then "car control" makes even more. How much would society benefit if such fervor was redirected to curing infectious diseases? The motives of anyone who professes concern for safety and wellbeing, but seems only interested in curtailing gun rights are suspect. Efforts to ban guns are usually for purely ideological, cultural reasons, or for the even more sinister purpose of assuring a helpless, unarmed populace
3. I have long opposed efforts to further restrict gun rights in America because the effect of enacting these measures is a complete and total mystery. It would be foolish to rush into change. Even before the 2nd amendment, in the earliest settlements the founders of America lived with guns. Guns were, have been, and are integral to American life. The consequences of changing that are tremendous, but who can say exactly what they are? There is an abundance of conjecture and speculation from all sides, but little is truly known about what might happen. These risks are too much to bear, especially considering the possibility that the relative impact of the status quo is superior. Perhaps the issue is worthy of revisiting after extensive research is conducted to establish the consequences of change, but certainly not until that time has arrived.
4. The further proliferation of gun control laws is a threat to the American way of life. Guns are a potent symbol of American freedom and self-determination, from the muskets used to break the shackles of oppressive British rule, of American intervention in the second World War, up to the present day in which American military power. Beyond warfare, guns are integral to one of America's great sporting and leisure traditions: hunting. Hunting is not only valuable as a recreation, it also contributes to individuals' ability to provide sustenance for themselves, and brings us closer to nature. Gun control threatens all of this. Often in this discussion, gun control advocates emphasize (and exaggerate) the criminal and other negative aspects of guns, but fail to appreciate the many benefits that accrue from their more routine use, which underpin much of traditional American life.

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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[instructions] Next, you will be asked some questions about the messages that you read.

[attributes] On a scale from 1 (not at all) to 9 (extremely), to what extent were the arguments:

	Not at all 1	2	3	4	5	6	7	8	Extremely 9
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Well- Written	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Convincing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Novel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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[agreement: Study 4 only] To what extent do you agree with these arguments?

Not at All1

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Extremely9

[attention: Study 4 only] How much attention did you pay to these arguments?

Not at All1

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Extremely9

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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[concentration: Study 4 only] How much were you able to concentrate on reading these arguments?

Not at All1

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Extremely9

[instructions] Thank you for answering questions about this set of gun control messages. Next, you will be shown the other set of gun control arguments arguing for the opposite position on the issue. Please read each message and answer the questions that follow.

[behavioral intentions: Study 4 only] Voters are often given the opportunity to vote on gun control proposals in their local area or home state. Based on your feelings about gun control right now, would you vote in favor or against a gun control proposal (to increase gun control) in your next opportunity to vote on this issue?

In favor of gun control

Against gun control

[thought listing: Studies 1-3 only] List all the thoughts you can remember having, but enter only ONE per box. Press ENTER after EACH one. When you are done entering thoughts, Press Enter then press 'Escape' (upper left of keyboard). Please just be completely honest and list all of the thoughts that you had. Generally, taking two to three minutes suffices.

SELECTIVE EXPOSURE AND VALIDATION BIAS - METHODOLOGY

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[thought valence: Studies 1-3 only] You will now be presented, sequentially, each of the thoughts you just wrote. On the scales provided, please indicate to what extent the thought is favorable or unfavorable, regardless of the topic of the thought.

Unfavorable1

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Favorable9

For Peer Review

SELECTIVE EXPOSURE AND VALIDATION BIAS – SUPPLEMENTARY RESULTS 1

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5 In Study 4, there was a significant between-subjects effect of the congeniality of the
6 first message on congenial validation: Participants who saw congenial information first
7 evaluated all information to be stronger generally ($M = 6.37$, $SD = 2.15$) than those who saw
8 uncongenial information first ($M = 6.02$, $SD = 2.28$), $F_{1, 634} = 8.17$, $p = .004$, $d = 0.16$, 95%
9 CI of difference score [0.11, 0.60]. There was also a significant between-subjects effect of
10 condition, $F_{1, 634} = 4.93$, $p = .008$, $\eta_p^2 = 0.02$: Pairwise comparisons indicate that participants
11 in the choice-congruent condition ($M = 5.92$, $SD = 2.91$) evaluated all the information overall
12 less strongly compared to those in the choice-incongruent ($M = 6.35$, $SD = 3.11$; $p = .011$,
13 95% CI of difference score [-0.76, -0.10]) and no-choice conditions ($M = 6.33$, $SD = 2.00$; p
14 = .003, 95% CI of difference score [-0.68, -0.14]).

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16 Results for congenial validation also indicated a significant two-way interaction of
17 choice condition and congeniality of the first message, $F_{2, 634} = 3.23$, $p = .04$, $\eta_p^2 = 0.01$.
18 Specifically, participants perceived all messages—congenial and uncongenial—to be
19 stronger overall when they received congenial information first compared to when they
20 received uncongenial information first in both the free-choice ($M_{\text{congenial-first}} = 6.25$, $SD_{\text{congenial-}}$
21 $\text{first} = 3.34$; $M_{\text{uncongenial-first}} = 5.58$, $SD_{\text{uncongenial-first}} = 4.73$; $F_{1, 634} = 8.37$, $p = .004$, $d = 0.14$) and
22 forced-choice ($M_{\text{congenial-first}} = 6.59$, $SD_{\text{congenial-first}} = 2.86$; $M_{\text{uncongenial-first}} = 6.06$, $SD_{\text{uncongenial-first}}$
23 = 2.78; $F_{1, 634} = 11.08$, $p = .001$, $d = 0.15$) conditions. However, there was no significant
24 difference in overall message strength perceptions in the choice-incongruent condition as a
25 function of whether congenial or uncongenial messages appeared first ($M_{\text{congenial-first}} = 6.28$,
26 $SD_{\text{congenial-first}} = 5.24$; $M_{\text{uncongenial-first}} = 6.41$, $SD_{\text{uncongenial-first}} = 3.39$; $F_{1, 634} = 0.26$, $p = .61$, $d =$
27 0.03). Thus, participants in the choice-incongruent condition evaluated all messages no
28 differently as a function of which type of information came first, but for those in the free- and
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SELECTIVE EXPOSURE AND VALIDATION BIAS – SUPPLEMENTARY RESULTS 2

forced-choice conditions, the congeniality of the first message significantly affected perceptions of the information overall.

Also in Study 4, results for message novelty ratings also indicated a significant two-way interaction of choice condition and congeniality of the first message ($F_{2, 638} = 4.89, p = .008, \eta_p^2 = 0.02$), and the pattern of results was very similar to the above analysis for message strength perceptions. Participants perceived all messages—congenial and uncongenial—to be more novel overall when they received congenial information first compared to when they received uncongenial information first in both the free-choice ($M_{\text{congenial-first}} = 4.78, SD_{\text{congenial-first}} = 4.14; M_{\text{uncongenial-first}} = 3.83, SD_{\text{uncongenial-first}} = 5.84; F_{1, 638} = 11.52, p = .001, d = 0.15$) and forced-choice ($M_{\text{congenial-first}} = 5.02, SD_{\text{congenial-first}} = 3.53; M_{\text{uncongenial-first}} = 4.35, SD_{\text{uncongenial-first}} = 3.45; F_{1, 638} = 12.07, p = .001, d = 0.15$) conditions. Again, there was no significant difference in overall message novelty ratings in the choice-incongruent condition as a function of whether congenial or uncongenial message appeared first ($M_{\text{congenial-first}} = 4.49, SD_{\text{congenial-first}} = 6.57; M_{\text{uncongenial-first}} = 4.77, SD_{\text{uncongenial-first}} = 4.21; F_{1, 638} = 0.83, p = .36, d = 0.04$).