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& What is the SOURCE:

The Influence of Confirmation Bias on Memory and Source Monitoring

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ABSTRACT. Two experiments were conducted to examine whether recognition memory for information and/or its source are influenced by confirmation bias. During Phase 1, subjects were shown a summary about the issue of gun control and asked to indicate a position on the issue. During Phase 2, 12 abstracts (Experiment 1) or social media posts (Experiment 2) were shown, one at a time. Posts in Experiment 2 were associated with either friends or strangers. Participants indicated whether they wanted to read a more extensive version of each abstract (Experiment 1) or post (Experiment 2). Phase 3 was the memory phase. Thirty-two abstract titles (Experiment 1) or posts (Experiment 2) were shown one at a time. Participants indicated yes or no, and whether they recognized the titles/posts from the last phase. Recognition memory for information that supported the participants' viewpoint was higher than that for opposing information.

Keywords: cognition, judgment/decision making, memory

WITH INFORMATION NOW AT OUR FINGERTIPS ON THE INTERNET, smart phones, iPads, and laptops, we can search a vast variety of sources quickly and easily. According to some studies, people have a propensity to notice and interpret evidence in a way that is supportive of their pre-existing beliefs, expectations or hypotheses (Davies, 2003; Nickerson, 1998). This phenomenon is known as confirmation or confirmatory bias (hereafter referred to as confirmation bias). Confirmation bias comes in different guises and has been examined in a variety of practical contexts. Researchers have distinguished information search and information integration processes when studying confirmation bias (Friedrich, 1993).

Our study focused on the type of confirmation bias associated with the search for information.

We wanted to know if information that confirms our beliefs is better remembered than information that opposes our beliefs. Although, to our knowledge, there exists no published research about how confirmation bias influences memory specifically, there does exist related research examining how memory tends to conform to schemas. Schemas refer to any knowledge structure that can guide attention and alter memories (Lampinen, Copeland & Neuschatz, 2001). Research on whether schemas influence memory has been mixed.

Tuckey and Brewer (2003), for example, examined how schema for a crime influenced the types of information eyewitnesses remembered and forgot across multiple interviews. Both schema-consistent and schema-inconsistent information about an observed bank robbery enhanced memory of information central to the crime. Schema-irrelevant information was not recalled as well (Tuckey & Brewer, 2003).

In a classic study by Brewer and Treyens (1981), students were asked to wait for an experimenter in a room that was set up to look like that of a graduate student's. The room included some objects that were consistent with the schema of a typical graduate student's office (e.g., books) and also included some objects that were inconsistent with the schema (e.g., a toy top). Subsequent recall and recognition was found to be best for schema-consistent items.

Pezdek, Whetstone, Reynolds, Askari, and Dougherty (1989), however, found that items inconsistent with expectations were recalled and recognized significantly better than items consistent with expectations. They also used a room schema paradigm similar to that of Brewer and Treyens. Pezdek et al. (1989) suggest that the discrepancy in findings between their study and that of Brewer and Treyens (1981) might have been due to the instructions given. Whereas Pezdek et al. provided intentional learning instructions, letting participants know that they should pay careful attention to the environment and would be later tested, Brewer and Treyens used incidental learning instructions, simply telling participants to wait in a room without warning of a subsequent memory test. Pezdek et al. suggested that when participants knew they were being tested, they likely noticed and encoded schema-inconsistent information over a longer period of time.

As predicted by research on schema and memory, we expected that during incidental learning conditions, memories that support—rather than oppose—our preexisting beliefs would be more accurately recognized. We suggest there might be a parallel between how schema-consistent and confirmatory information

might strengthen memory.

If attention is the bottleneck to memory, then it would make sense that we might focus more attention to the articles that support our beliefs but not articles that contradict our positions. Attention to information more relevant to our beliefs, in turn, might increase the odds that we encode supporting information more deeply (Craik & Lockhart, 1972).

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Another possibility, according to the negativity bias hypothesis, is that participants will tend to remember things that contradict their views due to negative associations enhancing the salience of the information. Robinson-Riegler and Winton (1996), for example, examined the relative roles of recollection and familiarity in recognition of affectively positive and affectively negative stimuli using a process-dissociation procedure. The procedure involved word encoding followed by a recognition phase, in which some participants were told to ignore some information from the encoding phase. Failure to ignore the information was taken as indication of a low recollection component in recognition decisions. Results showed that the role of recollection was lower in recognition of positive items than in recognition of negative items. In the context of this study, whether items that contradict our beliefs lead to negative affect and greater saliency is still an open question.

We also suspected that confirmation bias might affect memory for source. If information is perceived as supporting our stance are we more likely to attribute it to more credible sources or friends/acquaintances? Would opposing information be more likely attributed to less credible sources or people we don't see as being friends/acquaintances?

If confirmation bias does influence memory and memory for source, it could have important implications. Given that some courts do not allow jurors to take notes, would jurors be more likely to remember a witness's account if it supported their pre-existing beliefs, and could confirmation bias alter memory for the source? In the age of ready access to multiple sources of information through the World Wide Web, social media, and blogs, do we lose track of our various sources and misattribute them according to confirmation biases when relying on memory?

The typical information search paradigm used to assess confirmation bias has followed the following sequence: Summarize an issue, like government funding of health care or the decision of a country to invade another, then ask participants to reach a preliminary decision about the issue. Participants are then shown additional pieces of information—in the form of commentaries, abstracts, or titles of articles—that are for or against the issue. Participants are asked which items they would like to select for further reading. All items are typically shown at once. Subjects are asked to mark those items they wish to read. The associated articles are typically not handed out until after the selections, or they are not handed out at all (since the relevant process for the experiment, the selections, have already occurred). This information search paradigm is referred to as a *simultaneous information search*.

Jonas, Shulz-Hardt, Frey, and Thelen (2001) questioned whether simultaneous information searches generalize to real-life decision making. They argued that people rarely have access to an overview of all information since new information that could be useful is always being added. Information is usually retrieved, then read and processed before further information is retrieved. As a result, Jonas, Shulz-Hardt, Frey, and Thelen (2001) used what they referred to as a *sequential information search*. After a preliminary decision, participants were shown additional

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pieces of information one at a time rather than all at once. Jonas, Shulz-Hardt, Frey, and Thelen (2001) found a more pronounced confirmation bias effect when a sequential information search task was initiated; participants were more likely to select supporting, rather than opposing, articles during the selection phase. We used a sequential information search since we believed such a paradigm would be more generalizable to real-world scenarios.

We used two experiments to examine whether confirmation bias influences memory and memory for source. The sequential information search was used in both Experiments 1 and 2. Next, participants were asked whether they recognized titles of articles (Experiment 1) or social media posts (Experiment 2) as being from the selection phase or ones that had never been seen before. In Experiment 2, participants were also asked to remember the source of social media posts, whether from friends or strangers. As mentioned above, we expected that recognition memory for articles or posts in support of the participant's preliminary decision would be more accurate than for non-supporting articles. As for source monitoring (examined in Experiment 2), it was expected that memory for the sources of posts supporting preliminary decisions would be more likely attributed to friends/acquaintances even when the sources were originally attributed to strangers. The opposite was predicted for opposing posts; memory for the sources of posts in conflict with beliefs would more likely be misattributed to strangers.

Experiment 1

We first replicated the confirmation bias findings associated with sequential information search found in past studies (Jonas, Shulz-Hardt, Frey, & Thelen, 2001). We then wanted to see if a confirmation bias effect occurred for recognition memory. That is, would participants be more apt to recognize titles from abstracts that supported their views and less apt to recognize titles that conflicted with their views?

This experiment also examined whether the credibility of the source influenced potential confirmation bias effects on memory. If information was perceived as more credible, we suspected that information that supported participants' beliefs would be more often recognized than if it opposed their beliefs. We suspected that recognition for less credible sources would be low regardless of whether it supported or opposed pre-existing beliefs.

Method

Participants

The experiment included 30 undergraduate students from Southern New Hampshire University. Participants were recruited on a voluntary basis. They included 77% females and 23% males. Ages ranged from 18 to 23 years of age.

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Materials

Materials included abstracts for 12 articles about gun control shown during the sequential information-seeking phase described below. Abstracts consisted of a title and one-paragraph (four-sentence) summary from magazines or journal articles. There were six pro gun control and six against gun control abstracts. The source was shown at the bottom of each article as follows: "Source: ." A pilot study revealed which sources were considered more or less credible. Subjects in the pilot study were asked to rate the credibility of each source on a five-point Likert scale. Articles in the top 25th percentile were counted as high credibility sources, while articles in the lowest 25th percentile were counted as low-credibility sources. See Appendix A for a listing of high and low credibility sources. Six pro gun control abstracts included three abstracts associated with low credibility sources while the remaining pro gun control abstracts were associated with high-credibility sources. Low- and high-credibility sources were also split evenly across the six against gun control abstracts.

To examine memory, a recognition test with 24 yes/no questions was administered. Participants were instructed to indicate whether titles were from abstracts shown in the previous phase, with half of the titles having been shown previously and the remaining titles being new. Titles were shown in random order.

Procedures

The experiment was run in four phases as described below. The experimental design constituted a 2 (type of information: supporting versus opposing) $\times$ 2 (credibility of the sources shown with each question: high versus low) within subjects factorial design.

During Phase 1, participants were shown a one-paragraph summary of the gun control issue. Participants were then asked to make a preliminary decision about their position on the issue.

Participants engaged in a sequential information search (Jonas, Shulz-Hardt, Frey, & Thelen, 2001) during Phase 2. Participants were told that additional information would be available. Twelve abstracts were shown, one at a time. Participants indicated whether they did or did not want to read a one-page article associated with each abstract. Supporting and opposing abstracts were shown in

alternating order. The dependent variable was measured by recording the number of times participants indicated that they wanted to read the associated one-page articles.

Recognition memory was examined during Phase 3. Participants were asked to indicate *yes* or *no* in response to whether they recognized the titles from Phase 2. The dependent variable was measured by recording the proportion of *yes* responses indicating recognition of titles. The dependent variable was then converted into a sensitivity index (d') as described in the results section. Once all participants

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completed the recognition tests, they were debriefed about the true intentions of the study.

Results

Information Search

Type of information (supporting versus opposing) did not vary between participants identifying themselves as pro-gun and those identifying themselves as anti-gun, in any of the analyses for information search or recognition (all $ps > .05$). Therefore data for pro-gun and anti-gun positions were combined for all analyses associated with Experiments 1 and 2.

A two-way analysis of variance (ANOVA) was conducted for type of information and credibility of articles. The dependent variable was the number of times participants indicated that they wanted to see the full article associated with an abstract. The analysis showed a significant main effect for type of information, $F(1, 29) = 5.36, p < .001$, partial $\eta^2 = .58$. In other words, more supporting articles ($M = 4.41, SD = .70$) were selected than opposing articles ($M = 3.65, SD = 1.22$). A main effect did not occur for the perceived credibility of information, $F(1, 29) = .42, p = .70, \eta^2 = .01$. An interaction between type of information and perceived credibility of information was found to be statistically significant, $F(1, 29) = 3.97, p = .04, \eta^2 = .18$. More supporting articles were selected over opposing articles in the high credibility condition but not in the low credibility condition.

Recognition Data

In order to adjust the hit rate with the false alarm rate, we converted the recognition data into sensitivity indices or d' as shown in Table 1. We computed d' as $Z(\text{hit rate}) - Z(\text{false alarm rate})$. To analyze across individual participants, proportions of 0 were converted to $1/(2n)$, and proportions of 1 were converted to $1 - 1/(2n)$ since 0 and 1 are undefined in z distributions (Macmillan & Creelman, 1991). A two-way ANOVA used to analyze the sensitivity indices revealed a significant main effect for type of information, $F(1, 29) = 5.22, p < .001$, partial $\eta^2 = .73$. Titles of articles from supporting articles ($d' = 3.05, SD = .77$) were more often accurately identified than that for opposing articles ($d' =$

2.40, $SD = .99$). Perceived credibility of articles was not associated with a main effect for sensitivity, $F(1, 29) = .85$, $p = .62$, $\eta^2 = .03$. As with the selection data, a statistically significant interaction between information credibility and type of information was also found for sensitivity of recognition, $F(1, 29) = 5.04$, $p = .03$, partial $\eta^2 = .18$. Titles that supported participants' positions on the gun control issues were recognized more often than titles that opposed participants' views, but to a greater extent when sources were associated with high credibility relative to those associated with low credibility.

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TABLE 1. Experiment 1 Recognition Results: Mean Proportion of "Yes" Responses Converted to d' Measures and Standard Deviations by Issue Position and Credibility

	Supporting				Opposing				Confirmation Bias			
Position	d	SD	d	SD	d	SD	d	SD	d	SD	d	SD
Pro-Gun Control ($n = 16$)												
High Credibility	2.52	0.57	1.97	0.92	.55*	0.68	Low Credibility	1.74	0.63	1.69		
					0.49	.05	0.56	2.87	0.69	2.36	1.03	.51* 0.85
Anti-Gun Control ($n = 14$)												
High Credibility	1.47	0.74	1.08	0.70	.39*	0.72	Low Credibility	1.23	1.05	1.58		
	0.85	-.05	0.92									

Note: Sensitivity indices (d) were computed as $Z(\text{hit rate}) - Z(\text{false alarm rate})$.

Confirmation bias results with asterisks were found to be statistically significant, $ps < .05$.

Confirmation Bias Associated With Information Search

Confirmation bias was computed by subtracting the average number of times opposing articles were selected from the average number of times supporting articles were selected. Confirmation bias was higher for the high credibility condition ($M = .74$, $SD = .53$) than for the low credibility condition ($M = .23$, $SD = .17$), $t(29) = 5.02$, $p < .001$, $d = .87$.

Confirmation Bias Associated With Recognition

Confirmation bias for recognition was computed by subtracting d' associated with opposing articles from d' associated with supporting articles. Confirmation bias occurred in the high credibility condition ($d' = .47$, $SD = .69$) but was nonexistent in the low credibility condition ($d' = .00$, $SD = .76$), $t(29) =$

2.54, $p = .01$, $d = .65$.

Discussion

Experiment 1 results revealed that participants tended to select supporting rather than opposing materials when researching a controversial issue. Our findings replicated other studies showing that confirmation bias is robust with sequential information-processing procedures (Jonas, Shulz-Hardt, Frey, & Thelen, 2001).

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Our findings also revealed that confirmation bias effects were most pronounced when research materials associated with more credible sources. Moreover, recognition memory reflected a similar pattern as that found with information searching. Participants tended to recognize information that supported their beliefs more than information that conflicted with their beliefs. A confirmation bias for recognition only occurred for information that was associated with high credibility sources. Unlike information search where confirmation bias existed for low-credibility sources to a lesser extent than for high credibility sources, there was no confirmation bias for recognition data associated with low credibility sources.

Experiment 2

In Experiment 2, we examined how the confirmatory bias effects associated with recognition memory might influence memory of source—in this case, *who* provided us information. Participants read social media posts, instead of summaries of articles as in Experiment 1. Posts were associated with friends or people unknown to the participant. If participants were more likely to recognize information that confirmed their beliefs (as demonstrated in Experiment 1), would they also be more likely to attribute and/or misattribute supporting information as coming from their friends?

Method

Participants

Thirty-four undergraduate students from Southern New Hampshire University volunteered to participate for course credit. Our sample included 76% females 24% males. Ages ranged from 17 to 28 years of age.

Materials

Twelve social networking posts about gun control were shown during the sequential information-seeking phase. Posts included a paragraph summary of a person's reaction to gun control, shown as a hard copy. Six posts expressed pro

gun control statements, while six other posts expressed statements that were against gun control. Each post was labeled as being from a “friend/acquaintance” or as from “not a friend/acquaintance.” In order to make the posts associated with friends/acquaintances more convincing, participants were asked to list the names of three fellow students they knew on a signup sheet given exclusively to the participant and collected by the experimenter (to protect privacy). As indicated below, the friends/acquaintances were not actually contacted. While the posts were shown as being from someone known or unknown to the participant, names were

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not provided. All posts were created by the authors and not actually written by a friend or acquaintance of the participant. Six posts that were pro gun control included three attributed to friends/acquaintances and three attributed to people unknown to the participant. Attribution of posts to friends/acquaintances versus strangers were split evenly across the six posts against gun control as well.

The form of the posts looked like the following:

Posted by a friend/acquaintance:

“Yes, the second amendment provides the right to bear arms. But that was intended for the militia, not non-military individuals.”

Like · Share · 20 hours ago

The memory test included 24 posts, with half of the posts having been shown in previous phases and the remaining titles being new. Participants were asked to indicate *yes* or *no* in response to whether they recognized the posts from the last phase. Each post was followed by: “Post Associated with (circle one): Friend/Acquaintance or Stranger.” Participants were instructed to circle one of these options only if they indicated that they recognized the post. Posts were shown in random order.

Procedures

As was done in Experiment 1, this experiment was run in four phases. The experimental design was a 2 (type of information: supporting versus opposing) × 2 (source: information shown as being from friend/acquaintance or stranger) factorial within-subjects design.

During Phase 1, participants were asked to make a preliminary decision about their position on gun control after reading a summary of the gun control debate. The summary included a description of proposals by policy makers representing both sides of the issue.

Phase 2 was the sequential information-seeking phase. Twelve posts were shown in random order, one at a time. Gun control and anti-gun control posts were shown in alternating order. The dependent variable reflected the number of

times participants indicated whether they did or did not want to read a more extensive version of each post. Phase 3 was the memory phase. The dependent variable was recorded as the proportion of times participants circled yes or no to indicate whether they recognized the posts from the last phase. The data were again converted to sensitivity indices (d'). Participants were asked to recall the source of recognized posts as being from a friend/acquaintance or someone unknown. Participants were debriefed about the true intentions of the study and informed that posts were not actually collected from friends.

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As a manipulation check, we asked if participants believed that the posts associated with friends were actually written by friends. All but one participant indicated they believed the posts were from friends. Data from the participant who did not believe the posts were actually by friends was not included in the analysis of data for the remaining 34 participants.

Results

Information Search

A two-way analysis of variance (ANOVA) was used with the information search data to examine the effects of type of information and the source shown with the posts (friend/acquaintance or person unknown to the participant). The dependent variable was the number of times participants indicated that they wanted to see the more extensive post associated with the part of the post they viewed. A significant main effect occurred for type of information as more supporting posts ($M = 3.69$, $SD = 1.27$) were selected than opposing posts ($M = 2.85$, $SD = .98$), $F(1, 33) = 7.23$, $p < .001$, partial $\eta^2 = .68$. A main effect for source was not found to be statistically significant, $F(1, 33) = .84$, $p = .24$, partial $\eta^2 = .11$. A statistically significant interaction occurred between type of information and the source shown with the posts, $F(1, 33) = 4.27$, $p < .001$, partial $\eta^2 = .53$. Selection of supporting articles surpassed that for opposing articles when articles were associated with friends/acquaintances, but not when they were associated with strangers.

Recognition Data

Sensitivity indices (d') were computed in the same way as in Experiment 1. Table 2 shows the sensitivity indices broken down by issue position and source. Replicating the findings from Experiment 1, the results of an analysis of variance (ANOVA) applied to the sensitivity indices revealed a statistically significant main effect for type of information, $F(1, 33) = 8.02$, $p < .001$, partial $\eta^2 = .77$. Recognition sensitivity was higher for supporting posts ($d' = 3.27$, $SD = 1.10$) and lower for opposing posts ($d' = 2.61$, $SD = .86$). A main effect for source (friend/acquaintance or friend) was also found statistically significant

$F(1, 33) = 8.02, p < .001$. Posts associated with friends/acquaintances ($M = 2.11, SD = .86$) were recognized more often than posts associated with unknown persons ($M = 1.35, SD = .86$). A statistically significant interaction was found between source and type of information, $F(1, 33) = 3.51, p = .04$, partial $\eta^2 = .17$. Participants were more likely to recognize supporting posts than opposing articles when posts were associated with friends/acquaintances than when associated with unknown persons.

TABLE 2. Experiment 2 Recognition Results: Mean Proportion of “Yes” Responses Converted to *d* Measures and Standard Deviations by Issue Position and Source

	Supporting						Opposing						Confirmation Bias	
Position	<i>d</i>	<i>SD</i>	<i>d</i>	<i>SD</i>	<i>d</i>	<i>SD</i>	<i>d</i>	<i>SD</i>	<i>d</i>	<i>SD</i>	<i>d</i>	<i>SD</i>	<i>d</i>	<i>SD</i>
Pro-Gun Control (<i>n</i> = 19)							3.07	0.92	2.51	1.02	.56*	0.97		
Friend/ Acquaintance													2.40	0.72
Unknown Person	1.33	0.74	1.26	0.80	.07	0.76	3.46	1.38	2.71	0.66	.75*	0.86	1.18	.48*
Anti-Gun Control (<i>n</i> = 15)														
Friend/ Acquaintance													2.29	0.88
Unknown Person	1.55	0.95	1.27	0.94	.28*	.94							1.83	0.64

Note: Sensitivity indices (*d*) were computed as $Z(\text{hit rate}) - Z(\text{false alarm rate})$. Confirmation bias results with asterisks were found to be statistically significant, $ps < .05$.

Confirmation Bias Associated With Information Search

Confirmation bias for information search was computed in the same way as in Experiment 1. Confirmation bias was higher in the friend/acquaintance condition ($M = .84, SD = 1.17$) than in the unknown persons condition ($M = .11, SD = .58$), $t(33) = 3.82, p < .001, d = .79$.

Confirmation Bias Associated With Recognition

Confirmation bias was higher in the friend/acquaintance condition ($d' = .47, SD = .86$) than in the unknown person condition ($d' = .18, SD = 1.25$). The difference was found to be statistically significant, $t(33) = 3.45, p < .001, d =$

Data Associated With Attributions to Friends/Acquaintances and Unknown Persons

See Table 3 for the percentage of yes responses to attributions to friends/acquaintances versus strangers. When considering supporting information, posts shown as coming from a friend/acquaintance were more likely to later be accurately recognized as coming from a friend. Supporting posts originally identified as coming from a stranger were also later accurately recognized as

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TABLE 3. Experiment 2 Attributions: Percentage of Yes Responses Associated With Friend/Acquaintance Versus Stranger During the Recognition Phase									
Position/Source		Supporting				Opposing			
		Recognized		Recognized		Recognized		Recognized	
Shown with Post		as Friend		as Stranger		as Friend		as Stranger	
Pro-Gun Control		Friend 74	26	44	56	Stranger 11	82*	23	77
Anti-Gun Control		Friend 84	13	42	58	Stranger 8	86	12	88
<i>Note.</i> Some attributions to friends/acquaintances or strangers were left blanks (hence some percentages do not add up to 100%). There were 19 participants who took the pro-gun position while 15 participants took the anti-gun position.									

coming from a stranger. A different pattern emerged when observing opposing information: information originally shown as coming from a friend/acquaintance was more often misattributed to a stranger whereas information from a stranger was more often accurately attributed to a stranger.

Discussion

Experiment 2 replicated the findings of Experiment 1, showing that participants tend to select and recognize social media posts that support rather than oppose their points of view on gun control. Confirmation bias occurred for both information search and recognition, but was strongest when information had previously been associated with a friend. Experiment 2 also revealed that source

misattributions sometimes occurred in the direction of confirmation bias. When information conflicted with a participant's beliefs, participants were more likely to misattribute a post from a friend/acquaintance as being from a stranger.

General Discussion

Recognition memory was found to be better when what we retrieve supports—rather than opposes—our beliefs. In addition to a selection bias, this series of experiments demonstrated the existence of a confirmation bias for memory, especially when information is deemed credible or from friends/acquaintances.

Our findings are consistent with a related phenomenon associated with the effects of schema on memory. When information is schema-consistent, we tend to remember it better, especially in incidental learning conditions (Brewer & Treyns,

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1981; Pezdek et al., 1989). In our study, we found that when information is belief consistent, participants tend to remember that information better. Our study also involved incidental learning in that we did not warn participants that there would be a subsequent recognition memory test. Future research could explore whether confirmation bias would still occur for recognition memory when participants do anticipate a memory test, since Pezdek et al. (1989) found that participants also remembered schema-inconsistent information under these conditions. Perhaps belief-inconsistent information would also be recognized more often when learning is intentional.

Our findings did not support the possibility that opposing information would be more salient and better recognized as predicted by the negativity bias hypothesis (Robinson-Riegler & Winton, 1996). If opposing information led to a negative reaction that enhanced memory, we would have expected better recognition rates for opposing information. However, the research literature on the existence of the negativity bias for memory is mixed with more evidence for a positivity bias (Rozin & Royzman, 2001). It is also possible that the supporting and opposing information about gun control used in this study did not encourage negative and/or positive reactions, respectively. Our findings overwhelmingly demonstrated that recognition memory tends to be skewed more towards supporting information.

The similar pattern of results associated with confirmation bias associated with serial information searches and recognition memory supports our earlier assertion that the two processes might involve a similar mechanism or mediator, e.g., attention. In both experiments, confirmation biases were only found when information was either perceived as credible or from a friend. Could it be that when we perceive information as being important—credible or from someone we consider important—we tend to pay more attention to it? In turn, we might be more likely to select that information and retain it in memory. Future research could explore whether the processes involved in confirmatory selection and

confirmation memory are mediated by attention and/or other potential variables.

We found partial support of our hypothesis concerning confirmation bias and source monitoring. We did find in Experiment 2 that memory for the sources of posts in conflict with beliefs were more often misattributed to strangers (even though the posts were originally associated with friends). However, we also predicted that posts supporting preliminary decisions would be more often attributed to friends, even when the sources were originally associated with strangers. We actually found that supporting information led to more accurate attributions regardless of the original source shown with each post. In other words, supporting posts originally associated with friends were more often attributed to friends during the recognition phase; supporting posts originally associated with strangers were more often attributed to strangers. This seems consistent with the possibility that attention might be mediating the confirmation bias effect for memory as

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stated above. However, future research would need to examine this possibility more directly.

These findings extend the influence of confirmation bias from information selection to memory and memory for source. Institutions, like juries in some states that do not allow note taking, might weigh the consequences of these effects. Our findings suggest that we should be especially vigilant about our biases and confirm the representativeness of information that relies solely on memory.

AUTHOR NOTES

Peter Frost is Professor of Psychology at Southern New Hampshire University. His areas of research include eyewitness memory, false memory and behavioral indicators of deception. He is a steering committee member of the New England Psychological Association and a past recipient of the Excellence in Teaching Award at Southern New Hampshire University. **Bridgette Casey, Christopher Farrell, Luis Raymundo, and Ryan Carrigan** are recent alumni of Southern New Hampshire University. **Kaydee Griffin** is an undergraduate at Southern New Hampshire University currently in her senior year.

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APPENDIX A

High and Low Credibility Sources based on Ratings Provided During a Pilot Study¹

Sources Rated Low in Credibility:

Christian Science Monitor
Greenhaven Press

The Examiner

The Onion

The Progressive Cynic

The Spokesman Review

Sources Rated High in Credibility:

American Association of State Colleges and Universities

American Bar Association Journal

Boston College International and Comparative Law Review

Congressional Digest

The Washington Times

U.S. Digital Weekly

¹The determination of high and low credibility sources were determined by participant ratings in a pilot study as described in the methods section and in no way reflects actual credibility.

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