Antecedents and Consequences of Perceiving a Source as Biased

THESIS

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Abstract

How might the quality of arguments that sources present affect how much receivers view them as biased? Relevant studies have demonstrated that the level of agreement between the source and recipient can affect when people will view others as biased. However, no work has explored how aspects of the message might affect how much receivers view the source as biased. In several experiments manipulating the argument quality of a message, the current work demonstrates that sources who provide strong arguments for their position are less likely to be seen as biased than those who provide weak arguments. When people provide weak arguments to support their opinion, it is unclear why they would take that position. Receivers must make an attribution for the weakly supported endorsement, and they could reasonably conclude that the source is biased.

There has been very little work on how perceiving a source as biased might affect persuasion, but the current work demonstrates two consequences. In the first two studies, perceiving a source as biased on one message can prompt them to test whether a source is biased in other domains. Second, Studies 3 and 4 demonstrate that perceiving a source as biased can result in more negative processing of a message when receivers are elaborating on the message and the quality of the message is ambiguous. Ultimately, this process makes the source less persuasive.
Acknowledgments

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Fields of Study

Major Field: Psychology
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Chapter 1: Introduction

A large, productive literature has focused on the persuasive impact of variables related to the source of a persuasive message, the message itself, the receiver of the message, or the context surrounding that persuasive appeal (for reviews, see Albarracin, Johnson, & Zanna, 2005; Petty & Wegener, 1998). Much has been learned about the important roles played by source variables by clearly manipulating characteristics of the source and examining changes in the persuasive outcomes related to that manipulation. However, everyday life presents many settings in which information about the source of a persuasive appeal is relatively unavailable, and receivers of the persuasive message are left to make inferences about the source or perhaps even use the persuasion setting primarily as input to forming an impression of the source (e.g., Clark, Wegener, Sawicki, Petty, & Briñol, 2013). Thus, it is important to understand how people determine that a source has a particular characteristic in such settings – where message recipients are not informed by a third party about the characteristics of the source.

Further, everyday life often leads people to receive messages from the same source on multiple occasions. This occurs with news anchors, politicians, celebrity endorsers in commercials, friends, co-workers, and many others. Whereas much previous work has focused on the effect of a source perception in a single shot persuasion attempt, it also seems important to understand how impressions of a source formed in one setting
for a particular topic might carry over to influence the effectiveness of that same source in other persuasive settings and for other topics.

A large amount persuasion research has focused on the effects of source credibility, attractiveness, and power in a persuasion setting (Kelman, 1958; 1961). Although important, these do not encompass all of the inferences that people could make about a source. In particular, none of these variables or the combination of them seem to capture the extent to which a receiver might view a source as having a relatively biased versus objective perspective on an issue. However, it seems intuitive that many receivers might perceive sources in this way. For example, bias is commonly mentioned as a reason to disregard or ignore a source.

Thus, the current paper will explore the factors that might lead someone to perceive a source as biased. Within the persuasion domain, factors relevant to source, recipient, message, and context have all been shown to play a role in people’s responses to persuasive attempts (Eagly, 1974; Hovland & Weiss, 1951; Lasswell, 1948; McGuire, 1968). These same types of factors might affect how much people view a source as biased. The small existing literature on perceiving others as biased has focused on the role of agreement between two parties, noting that people tend to view those that disagree with them as biased (Ross & Ward, 1996). In other words, relevant studies have demonstrated that the level of agreement between the source and recipient can affect when people will view others as biased. Similar to persuasive impact, the content of a message might also affect how much recipients view a source as biased. The current work extends the previous literature by exploring how the argument quality of a message
might affect how much a source is seen as biased. Further, it will explore the consequences of perceiving someone as biased, not only in the immediate persuasion setting but also when the source is encountered in a different persuasion setting.

**Distinctions among perceptions of bias, trustworthiness, and expertise**

Traditionally, credibility has been conceptualized as the combination of trustworthiness and expertise (Hovland, Janis, & Kelley, 1953). Expertise has typically been thought of as having a lot of knowledge about some topic, whereas trustworthiness has been thought of as being honest. At times, both of these concepts might be related to perceptions of bias. However, as noted by Eagly, Wood, and Chaiken (1978), it seems likely that being perceived as biased is distinct from being perceived as trustworthy or expert and that it would have its own consequences for persuasion. When receivers perceive a source as biased, they perceive that the source does not have an objective view on some topic. There might be times when the perception of bias is more similar or less similar to each of these constructs.

In the case of expertise, people can be biased in a particular direction because they only have access to a small amount of unrepresentative (directionally slanted) information. This might be similar to someone who is inexpert, but lack of expertise does not necessarily involve a directional bias in the person’s knowledge. Because expertise doesn’t refer to the direction of knowledge, it is conceptually different than bias and shouldn’t necessarily lead people to expect a source to take one position or another. People could be similarly expert in that they have access to the same amount of information. However, if one person has access to representative information and the
other does not, the first would not be biased, but the second would, despite having the same amount of knowledge.

There might also be times when perceiving someone as biased could be similar to perceiving someone as untrustworthy. For example, when salespeople endorse their company’s products, receivers might perceive that vested interest has biased their opinion. They probably also perceive that the salespeople are not trustworthy because they are motivated to sell the product regardless of its quality. Thus, salespeople might be dishonest about the negative qualities of a product. However, bias can also be distinct from trustworthiness. Grandparents raving about their grandchildren are generally providing their honest perspective but are motivated to view their grandchildren in a positive light. Indeed, this might also be a case in which grandparents are also experts on the topic of their grandchildren. Despite being trustworthy and expert, it is likely that most people would view grandparents as being biased toward their grandchildren. Thus, there maybe be times when perceptions of trustworthiness and expertise might be related to perceptions of bias, but, theoretically, bias appears to be a distinct construct that is not necessarily related to trustworthiness or expertise.

**Antecedents of perceptions of bias**

As noted above, most of the literature on perceptions of bias has focused on how much the source and the receiver agree. The theory of naïve realism (Ross & Ward, 1996) proposed that people view themselves as objective viewers of the world. As such, they assume that other reasonable people with access to the same information will come to the same conclusions that they do. Consequently, people tend to view others that agree
with them as unbiased, but view those that disagree with them as biased. This occurs partly due to the processes that lead to the “bias blind spot” in which people are less able to view their own biases compared to those of others (Pronin, Lin, & Ross, 2002). When people want to determine if they themselves are biased or not, they introspect, observe that they are not trying to be biased, and conclude that they are not biased. Conversely, people don’t have access to other people’s thoughts so they rely on behavior or their own naïve theories about other people’s biases to determine if they are biased (Pronin, 2009). As such, when confronted with disagreeing others, people tend to view the others’ positions as influenced by self-interest (Reeder et al, 2009), personal affections (Frantz, 2006), political partisanship (Cohen, 2003), and unwavering ideology (Robinson et al, 1995).

Social judgment theory (Hovland & Sherif, 1961) also predicted that people would view agreeing others as unbiased, but view disagreeing others as biased. Social judgment theory said that a person’s attitude serves as an anchor. Around the anchor, people have a latitude of acceptance containing agreeable positions. They also have a latitude of rejection, containing positions they find disagreeable. When people encounter messages in their latitude of acceptance, they assimilate those positions toward their own, seeing them as more similar to their own view than they actually are. Conversely, when people encounter messages in their latitude of rejection, they contrast those positions away from their own, seeing them as more dissimilar to their own view than they actually are. Hovland and Sherif (1961) suggested that this same process might make people view messages in their latitudes of rejection as more biased than they actually are, but view
messages in their latitudes of acceptance as less biased than they actually are. It seems reasonable that a similar process might apply to perceptions of the source that presented the message.

Beyond agreement, the expectations that the receivers have of a source also play a role in determining whether they view the source as biased. Eagly, Wood, and Chaiken (1978) found that receivers tend to expect sources to take positions consistent with their own histories and the desires of their audiences. When sources fulfill these expectations, they might be seen as biased by either their history or their desire to appeal to their audience. Conversely, when sources take the opposite of the expected position, receivers were not able to attribute their position to a bias.

Aside from the role a message position plays in creating agreement or disagreement between the source and recipient, there has been no other work exploring the effect of message characteristics on perceptions of bias. The content of the messages that sources provide likely reflect back on them and can be used as information about their characteristics. This paper extends previous work by examining the effect of the argument quality of a message on perceptions of bias. In addition to the positions sources take, message recipients likely rely on the reasonableness of the arguments that sources provide when determining whether or not they are biased. Thus, I hypothesize that people will view sources who provide weak arguments as more biased than those who provide strong arguments. When people provide weak arguments, it is unclear why they would take a stance that they cannot support. The receiver must make an attribution about why the source advocated a weakly supported position. One obvious attribution would be that
the source is biased. This would be consistent with previous work showing that when someone does something unexpected (i.e. advocating a weakly supported position), people are particularly likely to search for explanations for the behavior (Newtson, 1973). In this case, bias would be a reasonable explanation for the behavior because when people take positions that they can’t support well, something other than logic must be exerting influence over their attitudes. Having a bias could push people to take a position that is unreasonable, even though they might not view it that way.

In the current research, Studies 1 and 2 test the hypothesis that advocates will be seen as more biased when they provide weak rather than strong arguments. To explore consequences of being seen as biased, Studies 1 and 2 examine how being perceived as biased on one message affects perceptions of bias when the source presents a second message. Study 3 replicates the effect of argument quality on perceptions of bias and examines how perceiving a source as biased initially might lead them to generate more negative thoughts in response to a second message presented by the same source. Finally, Study 4 replicates the negative processing effect with a different manipulation of perceptions of bias.
Chapter 2: Study 1

Introduction

The first part of Study 1 tests the hypothesis that argument quality affects perceptions of bias such that a source who provides strong arguments is seen as less biased than a source who provides weak arguments. Because the theory of naïve realism predicts that disagreement with the source promotes perceptions of bias, this initial test used a novel attitude object to control for effects of previously held attitudes. That is, participants read about a made-up political campaign in which the candidates were not associated with political parties so that people would not have attitudes toward the candidates prior to reading the message.

After the first message, participants read a second message from the same source. In this second message, I also manipulated argument quality, providing a second test of the hypothesis that people would view sources as more biased when they provide weak compared to strong arguments. Participants also reported their pre-message attitudes toward the topic for the second message, which allowed for exploration of the effect of pre-message agreement on perceptions of bias in conjunction with the effect of message factors (though, again, the topic was novel so that research participants should not have held firm opinions of the proposal prior to message receipt). Further, perceiving sources as biased on one topic might make it more likely that people would view them as biased
on other topics. Providing two messages from the same source allowed me to examine how perceiving the source as biased in one context might affect perceptions of the source’s bias in a second, different setting.

Several reasonable hypotheses exist regarding how initial perceptions of bias might affect perceptions of bias on future messages. First, it could be that there would be a main effect of perceptions of bias such that the initial perception of bias would make it more likely that the receiver would view the source as biased on future messages. In this case, the receiver might infer that the source is generally influenced by motivation or that the source doesn’t care to seek out objective information. This situation might be most likely when the two topics for which the source provides messages are related. If receivers perceive that a source is biased on one political topic, they might be more likely to view the source as biased on political issues more generally, but this might not carry to other attitudes, such as food preferences. However, an interaction is also possible such that perceiving someone as biased initially would then lead the receiver to test the hypothesis that the source is biased on a second message. If the source provides weak arguments, it would validate that the source is biased; if the source provides strong arguments, it would suggest that the source is not biased. This might be most likely when it is unclear whether the initial type of bias should extend to the topic of the second message.
Method

Design

Participants received a message containing either strong or weak arguments. They reported how much they perceived the source as biased, expert, and trustworthy, as well as their attitudes toward the object of the message. They responded to filler questions and an item to assess previously held attitudes toward the second attitude object. Argument quality was also manipulated in the second message. Participants then reported how much they perceived the source as biased and their attitudes toward the topic of the second message.

Procedure

Mechanical Turk workers \( N = 301 \) read that the purpose of the study was to understand how people perceive political campaigns. They were instructed to read about the fictitious political campaign and asked to imagine it was real and happening in their locality. Before receiving the passage, they read that a local citizen, Cami, would be advocating for Ben Patton, a candidate for local county commissioner, and that they should focus on why she was endorsing him. Before they read the message from Cami, they read background information about the other candidate, Jim Smith. Thus, they read a message about Jim Smith and then Cami’s message endorsing Ben Patton. Participants were assigned to one of two conditions: (1) to read strong arguments in favor of Jim Smith and weak arguments in favor of Ben Patton or (2) to read weak arguments in favor of Jim Smith and strong arguments in favor of Ben Patton. As such, Cami was always endorsing the stronger or weaker candidate. Participants reported how much they saw
Cami as biased, trustworthy, and expert. Having measures of these related perceptions allowed me to test whether bias was something distinct from trustworthiness and expertise. Participants also reported their attitudes toward Ben Patton, which allowed me to test whether argument quality affected perceptions of bias through attitudes or if argument quality had a direct effect on perceptions of bias.

After reading the initial message about politicians and answering questions about their initial perceptions of Cami, participants answered a number of filler questions. This included an item about their pre-message attitudes toward a state university service program through which students would have the opportunity to work for the university as staff members for reduced tuition. After responding to the attitudes questions, participants read that Cami was also endorsing a ballot initiative in support of the university service program. This topic was chosen because it was moderately related to the first message, providing a good test of whether perceptions of bias on a first message might affect perceptions of bias on a second. Because it was framed as a ballot initiative, it is possible that people could construe it as something political, and therefore related to Cami’s candidate selection. However, it is not directly tied to her endorsement of Ben Patton. It is not so related that perceptions of bias would obviously carry over, yet not so unrelated that perceptions of bias would clearly not carry over. Cami provided either strong or weak arguments in support of the university service program. Finally, participants reported their perceptions of Cami’s level of bias and their post-message attitudes toward the university service program.
Sample

There were 301 responses from MTurk workers. However, one was excluded who did not pass the attention check. Additionally, 16 lines of data were deleted because several MTurk workers took the study more than once (only responses from the first participation were retained from each worker). This left data from 284 independent participants for analysis. The final sample was 49.3% female, with an age range of 19-80 ($M=36.79$ years).

Independent and predictor variables

Argument quality. The messages about candidates contained biographical information (adapted from Bizer & Petty, 2005). When strong arguments were provided for one candidate, weak arguments were provided for the other. Thus I was able to use the same arguments for each and simply manipulate which candidate had strong or weak arguments. In the strong description, the candidate had been in public office since 1983, graduated from Stanford and Northwestern, and had served as a state senator and local treasurer. In the weak description, the candidate had only been in office since 2010, hadn’t received any advanced degrees, and worked as a county clerk, a job he quit after 2 years. The complete strong and weak versions of the message are in Appendix A.

The argument quality of the second message was manipulated by providing either strong or weak reasons in support of a university service program (Wegener, Petty, & Smith, 1995). The strong arguments included the ability to recruit and maintain prestigious faculty and keep university education affordable for students. The weak arguments included the ability to put more money into beautifying the campus and
having to invest less money into books and computers because students would have less time to study (see Appendix B for complete set of arguments).

**Pre-message university service attitudes.** Among several filler questions, participants answered, “How much would you support a university tuition plan that allowed students to receive reduced tuition by working part time for the university (This plan would not affect students choosing not to participate)?” This item was measured on a 9 point scale (1 = not at all, 9 = very much so).

**Dependent variables**

**Perceptions of bias.** Perceptions of bias were measured using three items on a 9 point scale adapted from Kennedy and Pronin (2008). The items were “To what extent do you feel that Cami the campaigner’s opinion of Patton as a candidate is a product of personal bias?,” “How much do you think that Cami the campaigner has a biased perspective about the candidate she is supporting?,” and “How objective do you think Cami the campaigner is in evaluating Patton as a candidate?” (reverse coded). Each scale was anchored at 1 with “not at all” and at 9 with “very much.” After the second message, participants responded to these same questions except that they were in reference to Cami’s stance on the university service program rather than Ben Patton’s candidacy.

**Perceptions of trustworthiness.** Perceptions of trustworthiness were measured on a three item 7 point scale, anchored with “not at all” to “very much.” The items were “To what extent does it seem like Cami the campaigner is trustworthy?,” “To what extent
does it seem like Cami the campaigner is honest?,” and “How much do you think that Cami truly believes what she is saying?”

**Perceptions of expertise.** Perceptions of expertise were also measured on a three item 7 point scale, anchored with “not at all” to “very much.” The items were “How qualified did you think that Cami was to speak about Patton as a candidate?,” “To what extent does it seem like Cami is an expert on Patton as a candidate?,” and “To what extent does it seem like Cami who wrote this message is knowledgeable about Patton?”

**Attitudes toward Ben Patton.** I measured attitudes toward Ben Patton on a three item nine point scale anchored with 1 (not at all) and 9 (very much). The items were “How much do you support Patton as a candidate for your local county commissioner?,” “How much would it be a good idea for Patton to be elected to be your local county commissioner?,” and “How much is Patton a good candidate for your local county commissioner?”

**Post-message attitudes toward the university service program.** Post-message attitudes toward the university service program were measured with three 7 point items. The items were “How much is the university service program a good idea?” (1 = not at all, 7 = very much), “How much do you support the university service program?” (1 = definitely opposed, 7 = definitely in favor), and “How much is the university service program positive?” (1 = not at all, 7 = very much).

**Results**

**Cami as an advocate for Ben (first message)**
For the first part of the study, I conducted an exploratory factor analysis to determine whether perceptions of bias were distinct from perceptions of trustworthiness and expertise. Correlations for each of the perceptions of the source items were entered into CEFA (Browne, Cudeck, Tateneni, & Mels, 2008), and exploratory factor analyses were conducted using a CF-varimax oblique rotation. The scree plot generated from a reduced correlation matrix suggested a two factor solution (Figure 1), but the Root Mean Square Error of Approximation (RMSEA) value suggested an unacceptable fit, RMSEA=.154, 90% CI [.131, .178]. A four factor solution provided the best fit with RMSEA=.082, 90% CI [.039, .128]. As such, a 4-factor solution will be presented (Table 1. See Appendix C for 2 factor solution.). The factors clumped the items intended to measure bias, trustworthiness, and expertise separately, except that trustworthiness was split into two factors. Because the trustworthiness items are conceptually similar, the three items will still be combined to form a composite. Most importantly, in both a two factor and a four factor solution, the bias items were a distinct factor. This suggests that perceptions of bias might be related to other source perceptions, but it is a distinct construct.
Table 1. Factor loadings for a four factor solution to study 1

<table>
<thead>
<tr>
<th>item</th>
<th>bias</th>
<th>expert</th>
<th>trust1</th>
<th>trust2</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent do you feel that Cami the campaigner’s opinion of Patton as a candidate is a product of personal bias?</td>
<td>-.75</td>
<td>.00</td>
<td>-.19</td>
<td>.02</td>
</tr>
<tr>
<td>How much do you think that Cami the campaigner has a biased perspective about the candidate she is supporting?</td>
<td>-.95</td>
<td>-.05</td>
<td>.04</td>
<td>.01</td>
</tr>
<tr>
<td>How objective do you think Cami the campaigner is in evaluating Patton as a candidate?</td>
<td>.42</td>
<td>.25</td>
<td>.17</td>
<td>-.10</td>
</tr>
<tr>
<td>How qualified did you think that Cami was to speak about Patton as a candidate?</td>
<td>.08</td>
<td>.51</td>
<td>.39</td>
<td>.08</td>
</tr>
<tr>
<td>To what extent does it seem like Cami is an expert on Patton as a candidate?</td>
<td>.05</td>
<td>.80</td>
<td>-.02</td>
<td>-.03</td>
</tr>
<tr>
<td>To what extent does it seem like Cami who wrote this message is knowledgeable about Patton?</td>
<td>.01</td>
<td>.63</td>
<td>.12</td>
<td>-.16</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is trustworthy?</td>
<td>.02</td>
<td>.05</td>
<td>.88</td>
<td>-.06</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is honest?</td>
<td>.10</td>
<td>.06</td>
<td>.57</td>
<td>-.26</td>
</tr>
<tr>
<td>How much do you think that Cami truly believes what she is saying?</td>
<td>-.01</td>
<td>.00</td>
<td>-.01</td>
<td>-1.01</td>
</tr>
</tbody>
</table>

Zero-order correlations for the composites of each variable revealed that all source variables were significantly related to each other and to post-message attitudes (Table 2). Perceptions of bias were moderately negatively related to perceptions of trustworthiness and expertise, suggesting that these perceptions are similar, but ultimately distinct. It is possible that the argument quality manipulation created some of the relation between these variables. However, within cell correlations were just as strong, suggesting that these variables are related even without the effect of the manipulation (see Appendix D).
Table 2. Means, standard deviation, and zero-order correlations between perceptions of the source’s characteristics and attitudes

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bias</td>
<td>6.10</td>
<td>1.93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trustworthiness</td>
<td>4.31</td>
<td>1.33</td>
<td>-573</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Expertise</td>
<td>3.69</td>
<td>1.45</td>
<td></td>
<td>-606</td>
<td>640</td>
</tr>
<tr>
<td>4. Attitudes</td>
<td>4.91</td>
<td>2.40</td>
<td>-272</td>
<td>276</td>
<td>275</td>
</tr>
</tbody>
</table>

*p < .05. ** p < .01

I conducted a t-test to examine whether the argument quality of the message affected how much participants perceived the source as biased. Supporting the hypothesis, when the source provided weak arguments, she was more likely to be seen as biased (M=7.02) than when she provided strong arguments (M=5.12), t(279)=-9.44, p<.001.
Argument quality might have had an indirect effect on perceptions of bias through either trustworthiness or expertise so I controlled for these source variables to test whether argument quality was directly affecting perceptions of bias. Additionally, this study was specifically designed so that people would not begin reading the message with previously held attitudes. However, it is possible that as people were reading the message, they formed an attitude toward Ben Patton and that this attitude then influenced their perceptions of the source’s bias. As such, I controlled for post-message attitudes. To rule out the possibility that the argument quality effect was due to either trustworthiness, expertise, or attitudes, I ran a mean-centered regression in which argument quality, perceptions of trustworthiness, expertise, and attitudes predicted perceptions of bias. Even with these controls, the argument quality of the message continued to affect perceptions of bias, $b=-.46$, $t(273)=-5.02$, $p<.001$, indicating that argument quality had a direct effect rather than working only through other source perceptions or attitudes. Further, trustworthiness $b=-.35$, $t(273)=-4.31$, $p<.001$, and expertise, $b=-.41$, $t(273)=-5.29$, $p<.001$, each significantly predicted perceptions of bias, suggesting that these perceptions might also play a role when deciding whether a source is biased. Post-message attitudes also predicted perceptions of bias, $b=-.14$, $t(273)=3.60$, $p<.001$, consistent with the theory of naive realism and social judgment theory.

**Cami as an advocate for university service (second message)**

In the second part of the study, I predicted that initial perceptions of bias and the argument quality of the second message would predict second perceptions of bias. If argument quality of the second message predicts perceptions of bias, this would be a
conceptual replication of the argument quality effect from the first part of the study, and it would demonstrate that the comparative types of arguments used in the campaign scenario are not necessary for argument quality to impact perceptions of bias. If initial perceptions of bias predict future perceptions of bias, it suggests that being perceived as biased in one setting can increase the likelihood that one would be seen as biased in another at least somewhat distinct setting. Further, there was a pre-message attitude measure in this part of the study, which allowed for control of pre-message agreement, which the theory of naïve realism predicts will have a significant effect on perceptions of bias. Finally, I controlled for initial perceptions of the source as trustworthy and expert to demonstrate that it was the initial perception of bias rather than other perceptions that would affect perceptions of bias related to the second message. As such, I regressed second impressions of bias on initial perceptions of bias, argument quality of the second message, their interaction, perceptions of trustworthiness and expertise, and post-message attitudes.

Replicating the first part of the study with a new manipulation, the argument quality of the second message had a significant effect on perceptions of bias, $b=-.68$, $t(271)=-8.48, p<.001$. Further, initial perceptions of campaigning bias, $b=.14$, $t(271)=3.30, p=.001$, had a significant main effect on later perceptions of bias on the university service topic, suggesting that one detriment of being perceived as biased is that it can impact future perceptions of bias. Moreover, there was a significant interaction, $b=-.10$, $t(271)=-2.47, p=.014$. When the source was seen as biased on the campaign issue and then provided weak arguments in the second (university service) message she was
especially likely to be seen as biased. Conversely, those who provided strong arguments in either one of the messages were buffered somewhat from being perceived as biased. This might represent hypothesis testing on the part of the receivers – when they initially view the source as biased, it prompts them to wonder if the source will be biased on the next message. If the source provides weak arguments, they confirm their hypothesis; if strong arguments, they disconfirm.

Pre-message attitudes did not have a significant effect on perceptions of bias, $b=-.02$, $t(271)=-.37$, $p=.71$, different than previous research on the theory of naïve realism. It is possible that there are times when pre-message attitudes might have an effect on perceptions of bias, but other times the content of a message might play more of a role. Because the issue was novel (actually fictitious), and perhaps not as relevant to the largely non-student sample, it is possible that pre-message attitudes were not strong enough to exert an influence on perceptions of source bias. Neither trustworthiness, $b=.005$, $t(271)=.93$, $p=.95$, nor expertise, $b=.05$, $t(271)=.66$, $p=.51$, had a significant effect, suggesting that bias is something distinct and that these other types of impression did not play a strong role in forming perceptions of bias in the university service setting.

**Study 1 Discussion**

The first part of Study 1 provided initial evidence that sources who provide weak arguments are more likely to be seen as biased than those who provide strong arguments. This effect held even when controlling for perceptions of the source as trustworthy and expert, as well as post-message attitudes toward the candidate. Further, the second part of the study replicated this effect with a different message. Whereas the first message
involved comparing a weak message to a strong one, the second message reflected a more traditional persuasion paradigm, in which participants simply received strong or weak arguments without any comparison between the two types of arguments. This suggests that message factors in addition to source and receiver factors can play a role in determining whether a source is perceived as biased.

Additionally, it provided an initial test of whether perceptions of bias can carry over from one topic to another. Sources are especially likely to be seen as biased when they are initially seen as biased and then provide weak arguments on a second message. Providing strong arguments in favor of either position helped to buffer one from these perceptions of bias, suggesting that being perceived initially as unbiased might also help one to be perceived as unbiased on future topics. This might be because seeing a source as biased on a first message could prompt the receiver to test whether they are biased on future messages.
Chapter 3: Study 2

Introduction

Study 2 provides a second test of the effect of argument quality on perceptions of bias in both the first and second messages as well as the effect of initial perceptions of bias on future perceptions of bias. Further, study 2 includes measures of perceived intelligence and likeability to ensure that the effects on perceptions of bias are not due to these source characteristics.

Method

Design and Procedure.

Study 2’s design and procedure was identical to Study 1 except for two small changes. First, I included measures of how much participants saw Cami as likeable and intelligent. I also included a second measure of bias, which focused on how much Cami was pre-disposed to support her candidate. Second, prior to the second message, participants were told that Cami’s political party backed the university service program. This was an attempt to make the second issue seem more relevant to the first issue. By doing so, this might set the stage for a more direct carry-over of perceived bias from the first topic to the second topic without the moderation by the quality of arguments included in the second message.

Sample.
Two hundred and fifteen Mechanical Turk workers participated in this study. Four participants were excluded who failed the attention check and four participants took the study twice, leaving 207 for analyses.

**Independent and predictor variables.**

Argument quality was manipulated for both topics and pre-message attitudes toward the university service program were measured the same as in Study 1.

**Dependent variables.**

Attitudes, perceptions of bias, trustworthiness, and expertise were measured the same as in Study 1 except that all variables were measured on a nine point scale in this study.

**Perceptions of predisposition.** These perceptions of predisposition items were intended to be a second measure of bias. The questions were “When Cami was deciding who to support in this election, how much do you think she was pre-disposed to support Ben Patton?,” “When Cami was deciding who to support in this election, how much do you think she was pre-disposed to support Jim Smith?,” and “When Cami was deciding who to support in this election, how much do you think that she was open to supporting either candidate?” All three questions were measured on a nine point scale. The first two were anchored with “not at all” to “very much.” The last question was anchored with “completely open to either candidate (1)” to “already had made up her mind to support Patton (9).”

**Perceptions of likeability.** The perceptions of likeability items were anchored with 1 (not at all) to 9 (very much). The items were “How much do you like Cami?,”
“How likeable do you think Cami is?,” and “How much would you enjoy spending time with Cami?”

**Perceptions of intelligence.** The perceptions of intelligence items were “How intelligent do you think Cami is?,” (1 = not intelligent, 9 = very intelligent), “How smart do you think Cami is?,” (1 = not smart, 9 = very smart), and “How high is Cami’s IQ?,” (1 = low IQ, 9 = high IQ).

**Results**

**Cami as an advocate for Ben**

Because I added new scales, I conducted an exploratory factor analysis to determine whether bias was indeed distinct from these related source characteristics. Correlations for each of the perception of the source items were entered into CEFA (Browne, et al., 2008), and exploratory factor analyses were conducted using a CF-varimax oblique rotation. The scree plot suggested a two factor solution (Figure 2), but RMSEA=.159, 90% CI [.148, .170] again suggested unacceptable fit. A six factor solution provided the best fit with RMSEA=.051, 90% CI [.028, .071]. As such, a 6-factor solution will be presented (Table 3. See Appendix E for 2 factor solution). Most importantly, in both two and six factor solutions, the bias items were a distinct factor. This suggests that perceptions of bias might be related to other source perceptions, but it is a distinct construct. The predisposition items that were intended to be a second bias measure did not load with the original bias factor or any other factors in the 6 factor solution, suggesting that they are tapping into something distinct. As such, results for this
scale will not be presented in this section, but results controlling for these measures can be found in Appendix F.

Table 3. Source characteristics factor loadings for study 2

<table>
<thead>
<tr>
<th>item</th>
<th>open</th>
<th>bias</th>
<th>expert</th>
<th>trust</th>
<th>like</th>
<th>IQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>When Cami was deciding who to support in this election, how much do you think she was pre-disposed to support Ben Patton?</td>
<td>.62</td>
<td>.23</td>
<td>-.04</td>
<td>-.02</td>
<td>0.01</td>
<td>.04</td>
</tr>
<tr>
<td>When Cami was deciding who to support in this election, how much do you think she was pre-disposed to support Jim Smith?</td>
<td>.49</td>
<td>-.05</td>
<td>.06</td>
<td>.13</td>
<td>-.14</td>
<td>-.09</td>
</tr>
<tr>
<td>When Cami was deciding who to support in this election, how much do you think that she was open to supporting either candidate?</td>
<td>.48</td>
<td>.12</td>
<td>-.10</td>
<td>-.05</td>
<td>-.03</td>
<td>.06</td>
</tr>
<tr>
<td>To what extent do you feel that Cami the campaigner’s opinion of Patton as a candidate is a product of personal bias?</td>
<td>.08</td>
<td>.83</td>
<td>.04</td>
<td>-.06</td>
<td>-.06</td>
<td>-.04</td>
</tr>
<tr>
<td>How much do you think that Cami the campaigner has a biased perspective about the candidate she is supporting?</td>
<td>.12</td>
<td>.86</td>
<td>-.05</td>
<td>-.03</td>
<td>.03</td>
<td>-.02</td>
</tr>
<tr>
<td>How objective do you think Cami the campaigner is in evaluating Patton as a candidate?</td>
<td>.13</td>
<td>-.46</td>
<td>.14</td>
<td>-.05</td>
<td>.19</td>
<td>.22</td>
</tr>
<tr>
<td>How qualified did you think that Cami was to speak about Patton as a candidate?</td>
<td>-.01</td>
<td>-.12</td>
<td>.52</td>
<td>.03</td>
<td>.09</td>
<td>.14</td>
</tr>
<tr>
<td>To what extent does it seem like Cami is an expert on Patton as a candidate?</td>
<td>-.04</td>
<td>.03</td>
<td>.91</td>
<td>.03</td>
<td>.00</td>
<td>-.01</td>
</tr>
<tr>
<td>To what extent does it seem like Cami who wrote this message is knowledgeable about Patton?</td>
<td>.06</td>
<td>-.04</td>
<td>.72</td>
<td>.05</td>
<td>.04</td>
<td>.09</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is trustworthy?</td>
<td>.15</td>
<td>-.29</td>
<td>.19</td>
<td>.32</td>
<td>.35</td>
<td>-.01</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is honest?</td>
<td>.00</td>
<td>-.02</td>
<td>.00</td>
<td>.99</td>
<td>-.01</td>
<td>.02</td>
</tr>
<tr>
<td>How much do you think that Cami truly believes what she is saying?</td>
<td>.17</td>
<td>.09</td>
<td>.15</td>
<td>.34</td>
<td>.19</td>
<td>-.01</td>
</tr>
<tr>
<td>How much do you like Cami?</td>
<td>.00</td>
<td>-.04</td>
<td>.01</td>
<td>.00</td>
<td>.97</td>
<td>.01</td>
</tr>
<tr>
<td>How likeable do you think Cami is?</td>
<td>-.04</td>
<td>.06</td>
<td>.17</td>
<td>.24</td>
<td>.52</td>
<td>.07</td>
</tr>
<tr>
<td>How much would you enjoy spending time with Cami?</td>
<td>-.15</td>
<td>.06</td>
<td>.03</td>
<td>.17</td>
<td>.51</td>
<td>.22</td>
</tr>
<tr>
<td>How intelligent do you think Cami is?</td>
<td>.06</td>
<td>-.06</td>
<td>.07</td>
<td>.02</td>
<td>.10</td>
<td>.83</td>
</tr>
<tr>
<td>How smart do you think Cami is?</td>
<td>.01</td>
<td>-.07</td>
<td>.06</td>
<td>.06</td>
<td>.01</td>
<td>.89</td>
</tr>
<tr>
<td>How high is Cami’s IQ?</td>
<td>-.10</td>
<td>.06</td>
<td>.04</td>
<td>.11</td>
<td>.02</td>
<td>.74</td>
</tr>
</tbody>
</table>

Note. Factor loadings over .40 appear in bold. The items are clumped by the factor that they were intended to represent, which correspond with the factor titles, left to right.
The correlations among the composites of source perceptions for Study 2 had the same pattern as Study 1, suggesting that these other perceptions of the source could be related to perceptions of bias. Correlations within cells showed a similar pattern (See Appendix G.)

Table 4. Zero-order correlations between perceptions of the source and attitudes toward the candidate

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bias</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trustworthiness</td>
<td>-.47**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Expertise</td>
<td>-.45**</td>
<td>.66**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Intelligence</td>
<td>-.49**</td>
<td>.58**</td>
<td>.61**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Liking</td>
<td>-.47**</td>
<td>.71**</td>
<td>.63**</td>
<td>.65**</td>
<td></td>
</tr>
<tr>
<td>6. Attitudes</td>
<td>-.09</td>
<td>.22**</td>
<td>.17*</td>
<td>.23**</td>
<td>.33**</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01
A t-test revealed a replication of the argument quality effect from Study 1, with people perceiving the source as more biased when she provided weak arguments for her position ($M=7.16$) than when she provided strong arguments ($M=5.56$), $t(205)=-6.37$, $p<.001$. Further, in a mean-centered regression controlling for perceptions of trustworthiness, expertise, intelligence, and likeability, as well as post-message attitudes, argument quality still had a significant effect on perceptions of bias (Table 5). In this study, post-message attitudes did not predict perceptions of bias, providing additional evidence that perceptions of bias and attitudes might not always be related.

**Table 5. Regression with source variables and argument quality predicting perceptions of bias**

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$SD$</th>
<th>$b$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument Quality</td>
<td></td>
<td></td>
<td>-.43</td>
<td>-3.27</td>
<td>.001</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>4.31</td>
<td>1.25</td>
<td>-.27</td>
<td>-1.87</td>
<td>.063</td>
</tr>
<tr>
<td>Expertise</td>
<td>3.73</td>
<td>1.52</td>
<td>-.07</td>
<td>-.64</td>
<td>.522</td>
</tr>
<tr>
<td>Intelligence</td>
<td>4.98</td>
<td>1.89</td>
<td>-.25</td>
<td>-2.82</td>
<td>.005</td>
</tr>
<tr>
<td>Liking</td>
<td>4.29</td>
<td>1.73</td>
<td>-.11</td>
<td>-.96</td>
<td>.339</td>
</tr>
<tr>
<td>Post-message attitudes</td>
<td>4.79</td>
<td>2.38</td>
<td>.06</td>
<td>1.06</td>
<td>.292</td>
</tr>
</tbody>
</table>

* $p<.05$. ** $p<.01$. *** $p<.001$.

**Cami as an advocate for university service (message 2)**

To explore the relations between initial perceptions of bias and future perceptions of bias, I regressed perceptions of bias after the second message on initial perceptions of bias, the argument quality of the second message, and their interaction as in the previous study. Additionally, I controlled for all the other source variables and examined the effect
of previously held attitudes. As expected, there was a significant main effect of the quality of arguments presented in the second message, $b=-.26$, $t(190)=-2.47$, $p=.01$. There was a marginal main effect of initial perceptions of bias, $b=.12$, $t(190)=1.865$, $p=.06$. However, there was not a significant interaction between second message argument quality and initial perceptions of bias in this study, $b=-.03$, $t(190)=-.67$, $p=.50$. Thus, the statement about Cami’s political party endorsing the university service program seems to have led people to view the two messages as more connected. People could have been more willing to directly carry their judgments of bias over to the second message when they saw the two messages as more related. Thus, there were two main effects, rather than an interaction (though the pattern in this study was similar to Study 1 in that the highest level of perceived bias was when the source had been perceived as relatively biased on the first topic and then presented weak arguments in the second message). Pre-message attitudes had a significant effect in this study, $b=-.17$, $t(190)=-2.93$, $p=.004$, consistent with the theory of naïve realism, and providing support that there could be times when previously held attitudes play more of a role in perceptions of bias.

**Synthesis of “Carried Over” Perceptions of Bias**

Because there was a significant interaction between the argument quality of the second message and initial perceptions of bias in Study 1, but not in Study 2, I made a meta-analytic combination of the two studies and a comparison between them. The combination of the two studies allowed me to examine whether the combined main effects and interaction were significant on perceptions of bias related to the second topic. Using the procedure established by Rosenthal (1984), for each of the main effects and
interactions, I converted the two-tailed p values to one-tailed p-values and z-scored them. I calculated the joint probability across both studies for each effect by adding the z scores and dividing by the square root of two. This process suggested that across both studies, there were significant argument quality, $p<.001$, and perceptions of bias, $p=.002$ main effects, as well as an interaction between initial perceptions of bias and second message argument quality on second message perceptions of bias, $p=.02$. To compare whether the effects were statistically different from each other, I subtracted the z scores from each other and divided by the square root of two. This process suggested that the argument quality main effects in each study were significantly different from each other, $p=.02$, with the first study having a significantly greater effect, although they were both in the same direction. However, the perceptions of bias main effect, $p=.53$ and the interaction between initial perceptions of bias and argument quality, $p=.19$ were not different for each study. These combinatorial and comparative statistics suggest that across both studies, there was a significant interaction such that when participants initially saw the source as biased and then she provided weak arguments, they were especially likely to view her as biased. This pattern resembles hypothesis testing in which initially seeing a source as biased might prompt participants to wonder if the source will be biased on a future message. If the source provides weak arguments, the participants will conclude that she is more biased than if she provides strong arguments.

It should be noted that in both of these studies, we expected participants to be at relatively high levels of elaboration. Indeed, even when controlling for pre-message attitudes, other source characteristics, initial perceptions of bias, and the interaction
between perceptions of bias and the argument quality of the second message, the argument quality of the second message had a significant effect on post-message attitudes in Study 1, $b=.35$, $t(271)=4.18$, $p<.001$, and a marginal effect in Study 2, $b=.19$, $t(187)=1.72$, $p=.09$, suggesting relatively high elaboration. It seems likely that hypothesis testing is most likely to occur when people are motivated and able to test the hypothesis by attending to the argument quality. If people were at low levels of elaboration, the perception of bias after the second message may have served as a cue to reject the second message or to directly infer that the source is biased.

**Study 2 Discussion**

In both the first and second messages, Study 2 replicated that sources are more likely to be seen as biased when they provide weak arguments than when they provide strong arguments. Even with the addition of perceptions of intelligence and liking, study 2 demonstrated that perceptions of bias are distinct from other impressions people might form of a source. Further, when meta-analyzing both studies, it seems that perceiving a source as biased prompts people to engage in hypothesis testing. One consequence of being seen as biased is that it might prompt others to wonder if the source is biased on future messages, possibly decreasing the impact of future advocacy attempts. This might be especially the case when the messages are moderately related and it is unclear if being perceived as biased on an initial message would indicate bias on a second message. When the messages are clearly related, people could be more likely to infer bias in the second message based on their perceptions of bias associated with the first message.
Chapter 4: Study 3

Introduction

Studies 1 and 2 built upon the theory of naïve realism to demonstrate that the quality of the arguments sources provide also influences how much others view them as biased. Further, they demonstrated that one consequence of being viewed as biased is that it could prompt people to consider whether the source is biased in other domains in which the source is speaking on other topics. Another consequence could be that sources who are seen as biased might often be less persuasive than those who are seen as more objective. Indeed, Eagly, Wood, and Chaiken (1987) demonstrated that sources who were seen as biased were less persuasive than those who were seen as less biased. The Eagly et al. (1987) research did not focus on the mechanisms through which a perception of source bias had its effects. However, persuasion models such as the Elaboration Likelihood Model (Petty & Cacioppo, 1979, 1986) and the Heuristic Systematic Model (Chaiken, 1980; Chaiken, Liberman, & Eagly, 1989) propose a number of possible mechanisms that might be responsible for such effects. These source characteristics can play a number of roles depending on the motivation and ability of the receiver to process the message. Source characteristics can serve as cues to accept or reject a message, affect extent and direction of elaboration, influence structural properties of attitudes, or serve as persuasive arguments (Petty & Brinol, 2008).
In this paper, I will focus on how perceiving a source as biased might affect the direction of thoughts that people generate in response to a persuasive message. When source information comes before the message, it can bias the direction of people’s thoughts (Chaiken & Maheswaran, 1994; Tormala & Clarkson, 2007). Because people have expectations of the source (for example, that biased sources have slanted arguments), they produce thoughts consistent with these expectations. These expectations are most likely to influence the direction of processing when the message arguments could be interpreted differently based on expectancies (Chaiken & Maheswaran, 1994). As such, directional processing is most likely when the arguments presented are of ambiguous quality so that they could be interpreted either favorably or unfavorably, depending on the expectancies a receiver has. Conversely, arguments that are clearly strong or weak are not open to multiple interpretations and as long as participants are elaborating on a message, they should rely on the quality of the arguments and the expectations associated with the source should have less of an impact.

Given that participants reported their previously held attitudes after the second message in Studies 1 and 2, one might think that I could have tested the effect of perceptions of bias on post-message attitudes in the first two studies. However, these studies were not designed to test the hypothesis that perceptions of bias should result in directional processing. In Studies 1 and 2, participants read clearly weak or clearly strong arguments. As noted above, this would not be a situation in which the message could be interpreted based on expectancies of the source and thus source information should have a negligible influence. Indeed, when controlling for other source perceptions, the
argument quality of the second message, and its interaction with perceptions of bias, perceptions of bias have an unexpected significant positive effect on attitudes in Study 1, $b=.11, t(271)=2.03, p=.04$, but a non-significant negative effect on attitudes in Study 2, $b=-.03, t(187)=-.47, p=.64$. A meta-analysis suggests that these effects are not significantly different from each other, $p=.08$ and that across both studies, there is not a significant effect of perceptions of bias on attitudes, $p=.26$. This makes sense given that the conditions in these studies did not make directionally biased processing likely. Such directional biases in processing would require relatively high levels of elaboration likelihood (i.e., high levels of motivation and ability to think carefully about the information) and a message of ambiguous quality in order for source effects to have an influence.

Study 3 was designed to test the hypothesis that perceiving a source as biased would result in directional processing. The second message in Study 3 was made easy to process to create conditions of high elaboration likelihood. It also contained strong, weak, and mixed argument conditions in order to create an opportunity for directionally biased processing. It is most likely that source bias will make people process the message more negatively in the mixed condition. It is possible that people would also directionally process in the strong and weak conditions, but it wouldn’t be expected given the previous work on biased processing and the results from Studies 1 and 2. In order to demonstrate that perceptions of bias formed on the basis of argument quality can result in directional processing, I will begin with an initial message and then use perceptions of bias after the initial message to predict directional processing in the second message.
As an additional direction, in Study 3, I attempted to re-examine the effects of pre-message agreement on perceptions of bias by measuring political affiliation and then assigning the candidates to be either economically conservative or liberal. I hypothesized that this pre-message attitude might have more of an effect given that it would be for a pre-existing and real topic.

**Method**

**Design**

Participants received either strong or weak arguments in an initial message from a source. Then they completed measures of their initial perceptions of bias, expertise, trustworthiness, intelligence, and liking of the source as well as post-message attitudes.

Participants read a second message from the same source in which she provided strong, weak, or a mix of strong and weak arguments. After participants received the message, they listed their thoughts in response to the message and then coded their thoughts for valence. Finally, they reported their post-message attitudes and perceptions of bias.

**Procedure**

Mechanical Turk Workers (N=205) completed this study online. They were told that the study was about attitudes and forming impressions of others. Among several filler items, they answered several pre-message attitude questions about whether they were economically conservative or liberal. Then, they read the same messages about the politicians as in studies 1 and 2 in which Cami provided either strong or weak arguments.
in support of Ben Patton. In this study, participants either learned that Ben Patton supported either liberal or conservative economic policies. Participants reported perceptions of Cami as biased, expert, trustworthy, smart, and likeable, as well as their post-message attitudes toward the candidate she was endorsing.

Next, among several filler items, participants reported their pre-message attitudes toward a university service program. In this study, the university service program was framed more negatively than in the previous study to increase the possibility that people would process the message. They read that Cami was also endorsing the university service program through which university students would be required to work part time for their university as janitors and cafeteria staff in order to maintain current tuition levels. Further, to ensure that elaboration of the message was high, I simplified the arguments in support of the program and presented them in a bullet-pointed list. Cami provided strong, weak, or a mix of strong and weak arguments in support of the university service program. After reading the message, participants listed up to six thoughts that they had while reading the message and then rated each of these thoughts on their favorability. Finally, they reported their post-message attitude toward the university service program and their perceptions of Cami as biased.

Sample

Two hundred and five Mechanical Turk workers (55.6% female) participated in this study. All participants only took the study once and passed the attention check so they were all included in the analyses.

Independent and predictor variables
**Pre-message attitudes toward economic philosophies.** Pre-message attitudes for the first message about political candidates who were either economically conservative or liberal were measured on a three item 9 point scale. For each item, they answered “Where do you fall between these two positions?” The first item (reverse scored) was anchored with “1 – the liberal economic approach is a good idea” to “9 – the conservative economic approach is a good idea.” The second item was anchored with “1 – I support a conservative economic approach” to “9 – I support a liberal economic approach.” The final item was anchored with “1 – I prefer a conservative economic approach” to “9 – I prefer a liberal economic approach.” In analyses, I computed an index of agreement with the candidate’s position by reverse coding the pre-message attitude score for those in the condition in which Patton was economically conservative. This resulted in an “agreement” variable in which higher numbers indicated more agreement with the candidate.

**Argument quality of the first message.** Argument quality was manipulated in the same way as in Studies 1 and 2.

**Pre-message attitudes toward the university service program.** Pre-message attitudes toward the university service program were assessed with a single item, “How much would you support a mandatory university tuition plan through which the current tuition levels would be maintained by having the students work as secretarial and maintenance staff?” (1= not at all, 9 = very much). This was slightly different than Studies 1 and 2, reflecting the more negative framing of the university service program.
Argument quality of the second message. Participants were provided with strong, weak, or a mix of strong and weak arguments for the university service program. The strong arguments included “This university service plan will keep tuition affordable for students” whereas the weak arguments included “Because students won’t want to participate in this program, enrollment will decrease, allowing easier access to football tickets.” See Appendix H for a complete list of arguments.

Dependent variables

Perceptions of the source as biased, trustworthy, expert, likeable, and smart as well as the post-message attitude measures toward Ben Patton and the university service program were the same as in previous studies.

Thought listing. After participants read the message about the university service message, they read,

“We are now interested in what you were thinking about as you were reading Cami’s speech. You might have had ideas all favorable to the university service program, all opposed, all irrelevant, or a mixture of the three. Any case is fine: simply list what it was that you were thinking for the last few minutes. Simply write down your first idea in the first box, your second idea in the second box, and so on. You should record only the ideas you had while reading Cami’s speech. Please state your ideas as concisely as possible - a phrase is sufficient.”

Participants had the opportunity to list up to six thoughts. After they listed their thoughts, they rated the valence of each of their thoughts (1=positive, 0=neutral, and -1=negative). I created an index of their thoughts by adding the valence of the thoughts and dividing by the number of thoughts that participants had. Participants did not code their thoughts for relevance so this index captures both thoughts that were relevant and irrelevant to the
Research assistants also coded the thoughts for valence. They also coded them for relevance. An index of the research assistant coded thoughts was created by adding the valence of only the relevant thoughts and dividing by the number of relevant thoughts. Only 40 of the 980 thoughts (4.08%) were coded as irrelevant, suggesting that the participants were elaborating on the message. The participant-coded and research-assistant-coded thoughts were correlated at .75, suggesting that the research assistants and participants tended to agree on the valence of the thoughts.

**Results**

**Cami as an advocate for Ben Patton (message 1)**

Replicating the findings of studies 1 and 2, when Cami provided weak arguments in the first message, participants saw her as more biased ($M=6.93$, $SD=1.31$) than when she provided the strong arguments ($M=5.72$, $SD=1.45$), $t(203)=-6.24$, $p<.001$.

Further, the manipulation continued to be significant when controlling for other source perceptions and pre-message attitudes, providing further support that bias is distinct from these other source variables (Table 6). The fact that pre-message attitudes did not have an effect on perceptions of bias suggests that there might be times when pre-message agreement plays less of a role. This effect has been variable across studies, though I might not have been addressing issues that have been consistently important enough to participants to play a strong role in perceptions of bias (as has been true in previous Naïve Realism research).
Table 6. Regression with argument quality predicting perceptions of bias after the first study controlling for pre-message agreement and other source variables

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument Quality</td>
<td>-34</td>
<td></td>
<td>-3.69</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Pre-message agreement</td>
<td>5.17</td>
<td>2.57</td>
<td>-0.02</td>
<td>-0.61</td>
<td>.951</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>5.40</td>
<td>1.57</td>
<td>-0.03</td>
<td>0.35</td>
<td>.728</td>
</tr>
<tr>
<td>Expertise</td>
<td>4.67</td>
<td>1.77</td>
<td>-0.17</td>
<td>-2.49</td>
<td>.014</td>
</tr>
<tr>
<td>Intelligence</td>
<td>5.08</td>
<td>1.76</td>
<td>-0.18</td>
<td>-2.11</td>
<td>.036</td>
</tr>
<tr>
<td>Liking</td>
<td>4.66</td>
<td>1.69</td>
<td>-0.11</td>
<td>-1.22</td>
<td>.224</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01. ***p<.001.

Persuasive effects of perceptions of source bias

To begin to explore the hypothesis that perceiving a source as biased before receiving a message would bias processing of that message, I explored the effect of initial perceptions of bias on post-message attitudes toward the university service program. Argument quality should also affect post-message attitudes, indicating elaboration of the message. First, using a General Linear Model, I entered argument quality as a multi-categorical variable, perceptions of bias, their interaction, pre-message attitudes, and the other source variables predicting post-message attitudes. There was not a significant main effect of either perceptions of bias, $F(1, 194)=1.52, p=.22$ or of argument quality, $F(2, 194)=2.01, p=.14$. However, there was a marginal interaction between the two, $F(2, 104)=2.81, p=.06$, suggesting that perceptions of bias could have an effect on post-message attitudes at some levels of argument quality. This would be consistent with the expectation that perceptions of bias will only affect post-message attitudes in the mixed argument conditions. Further, none of the source variables had a significant effect.
message attitudes did significantly relate to post-message attitudes, $F(1, 194)=2.81$, $p<.001$, as one would expect. By controlling for pre-message attitudes, effects of perceptions of bias on post-message attitudes can be interpreted as influences of perceived source bias on attitude change.

In order to probe the interaction, I contrast coded argument quality, with the first argument quality variable (AQ-SW) comparing the strong condition to the weak condition (strong=1, weak=-1, mixed=0). The second argument quality variable (AQ-Mixed) compared the mixed condition to the strong and weak conditions (strong=1, weak=1, mixed=-2). Both argument quality variables were entered into a mean-centered regression with initial perceptions of bias and each of the resulting interactions predicting post-message attitudes (Figure 3). I also controlled for pre-message attitudes in order to capture change in attitudes. There was a significant main effect of pre-message attitudes on post-message attitudes, $b=.74$, $t(198)=11.68$, $p<.001$. There were no other main effects, but there was a significant interaction between the AQ-Mixed variable and perceptions of bias, $b=.16$, $t(198)=2.34$, $p=.02$. Analysis of the simple effects suggests that perceptions of bias had a marginal effect on post-message attitudes when participants saw the mixed message, $b=-.28$, $t(198)=-1.67$, $p=.09$, but not when they saw only the strong arguments, $b=.23$, $t(198)=1.47$, $p=.14$ or the weak argument, $b=.18$, $t(198)=1.13$, $p=.26$. 

40
Moderated mediation analyses

In order to test the primary hypothesis that perceiving a source as biased would lead people to process the message more negatively, in PROCESS (Hayes, 2013) I tested a moderated mediation model (Model 8) in which perceptions of bias would lead to more negative thoughts about the message which would lead to a more negative attitude when people heard the mixed arguments, but not when they heard the strong or weak arguments (Figure 4). In order to include both argument quality variables in the model, I first entered AQ-SW as the W (moderator) variable and included AQ-Mixed and its interaction with perceptions of bias as covariates. This analysis tested the indirect effects for the strong and weak argument conditions. Because the AQ-SW variable has three levels, PROCESS automatically tests the indirect effects at the mean and plus or minus

Figure 3. Effect of perceptions of bias on post-message attitudes for each argument quality condition
one standard deviation from the mean. In order to test the indirect effects at 1 (strong argument condition) and -1 (weak argument condition), I ran this model twice, once specifying to test the indirect effect at 1 and the other specifying to test the indirect effect at -1. In order to test the indirect effect for the mixed condition, I ran the same model, but entered AQ-Mixed as the W variable and entered AQ-SW and its interaction with perceptions of bias as covariates. PROCESS recognized that this variable only had two levels, and thus automatically tested the indirect effect at -2 (mixed condition). For all of these analyses, I seeded the random number generator with 915434 so that the 95% percentile bootstrap confidence intervals would not change as I re-ran the analyses.

For this analysis, I used research assistant coded thoughts. The pattern is similar for participant coded thoughts (Appendix I). Consistent with previous analyses, I controlled for the other source perceptions and pre-message attitudes by including them as covariates alongside perceptions of bias. As mentioned above, the total effect of perceptions of bias on post-message attitudes was not significant, but was marginal when participants received the mixed message, and not significant in the strong and weak message conditions. There was a significant interaction of the effect of perceptions of bias on thoughts in the mixed compared to the strong and weak conditions, $b=.04$, $t(194)=2.02$, $p=.04$, but not in the strong compared to weak conditions, $b=.07$, $t(194)=1.78$, $p=.08$. The effect of perceptions of bias on thoughts was marginal when participants read the mixed message, $b=-.09$, $t(194)=-1.68$, $p=.10$, but not when they read the weak, $b=-.03$, $t(194)=-.56$, $p=.57$. There was an unpredicted marginal effect of perceptions of bias on thoughts in the opposite direction in the strong condition, $b=.10$, $t(194)=1.91$, $p=.05$. There was no significant interaction of bias beliefs and perceptions of bias on thoughts in the weak compared to strong conditions, $b=-.01$, $t(194)=-.12$, $p=.90$.
It is unclear why perceiving someone as biased would have led people to generate more positive thoughts in the strong argument condition. It is possible that the surprise of receiving strong arguments from a source who had just provided weak arguments might have led recipients to process the message more favorably. There was a significant effect of thoughts on post-message attitudes, $b=1.94$, $t(193)=10.40$, $p<.001$, suggesting high elaboration. The indirect effect was not statistically significant using 10,000 percentile 95% confidence intervals for the mixed condition, $b=-.18$, 95% CI [-.39, .03], the strong, $b=.11$, 95% CI [-.06, .32] condition, or the weak condition, $b=-.14$, 95% CI [-.36, .06]. However, the index of moderated mediation comparing the mixed condition indirect effect and the strong and weak indirect effects was significant, $b=.25$, 95% CI [.01, .51], suggesting that the indirect effect in the mixed condition was different than the indirect effects in the strong and weak conditions. The index of moderated mediation comparing the strong and weak conditions’ indirect effects was not statistically significant, suggesting that these indirect effects are similarly non-existent, $b=.13$, 95% CI [-.01, .29].

These findings suggest that when the quality of a message is ambiguous, perceiving the source as biased can result in biased processing such that people think about the message more negatively than they otherwise would have.

**Study 3 Discussion**

Study 3 provided evidence that perceiving a source as biased can lead receivers to process a message more negatively. Thus, being perceived as biased can result in reduced
advocacy effectiveness and would be something that sources would want to avoid if they desire to be persuasive. Furthermore, the first part of Study 3 provided a fifth replication of the effect of argument quality on perceptions of bias, providing substantial evidence that the content of the message can affect how much receivers view sources as biased.

Figure 4. Moderated mediation from perceptions of bias through thought favorability to post-message attitudes.

Note. Number in parentheses is the total effect.

Chapter 5: Study 4

Study 4 Introduction

In the final study, I wanted to replicate the biased processing effects of Study 3 with a novel manipulation of perceptions of bias to ensure that it was not something about using argument quality to create variation in perceptions of bias that led to the
observed directional biases in processing. In this study, all participants received the same message, which contained mixed arguments. Because directional processing should be most likely to occur when the quality of arguments was ambiguous, this message was used to create conditions for directional processing.

Method

Design

First participants responded to a pre-message attitude measure. Then I manipulated whether the source had a reputation of being relatively objective or biased. They read a persuasive message and reported their attitudes, and the same perceptions of the source as in previous studies.

Procedure

Participants in the OSU Psychology Research Experience Program Pool took this study online. They were told that the study was about their attitudes and impressions of others. First they reported their pre-message attitudes toward the university service program among other filler questions. Next, they were told that Dr. Brown, an administrator at OSU, had proposed a new tuition program that he genuinely thought would benefit students and that they would receive a message from him advocating for it. Then they received information that Dr. Brown either had the reputation of being generally biased or objective in his opinion on the university service program. Next, they received information about the proposed program, which would require OSU students to work as part time maintenance and custodial staff for the university in order to maintain
current tuition levels. Finally, they reported their post-message attitudes toward the tuition program as well as their perceptions of the source.

Sample

One hundred and forty nine undergraduates at Ohio State (51% female) enrolled in an Introduction to Psychology course participated in this study. Twelve participants were dropped who said that they did not read the passages provided.

Independent and predictor variables

Pre-message attitudes. Pre-message attitudes were assessed with a single item on a 9 point scale reading, “How much would you support a university tuition plan through which students would have to work as part-time secretarial and maintenance staff in order to maintain current tuition levels?” (1= not at all, 9 = very much).

Perceptions of bias. All participants were told that “Dr. Brown has his PhD in student affairs and has spent his career studying student success. His honest opinion is that his proposed university tuition program would benefit Ohio State students immensely.” These sentences were intended to reflect that Dr. Brown is expert and trustworthy, respectively, in order to control for these other source characteristics. Those who were in the bias condition were told that “Dr. Brown has the reputation of being quite biased and one-sided in his views on the university service program. He is a strong advocate for the program and is not open to considering other perspectives on this issue.” Those in the objective condition read that “Dr. Brown has the reputation of being quite objective and balanced in his views on the university service program. He is a strong
advocate for the program but is always open to considering other perspectives on the issue.”

**Thoughts.** The instructions for thoughts were the same as in Study 3 except that participants did not code their own thoughts in this study. Research assistants coded the thoughts for valence and relevance and the thought index was calculated the same as in Study 3.

**Dependent variables**

Post-message attitudes as well as perceptions of the source as biased (a manipulation check), trustworthy, expert, likeable, and smart were the same as in previous studies. Additionally, the thought listing was the same as in study 3 except that participants did not code their own thoughts – research assistants coded them. They resolved any discrepancies in the coding through discussion.

**Results**

First, I conducted a t-test to examine whether the manipulation of perceptions of bias was successful. Those in the bias condition ($M=6.60$) saw the source as more biased than those in the objective condition ($M=5.52$), $t(131)=3.98$, $p<.001$.

To examine whether perceptions of bias affected persuasion, perceptions of bias, all other source perceptions, and pre-message attitudes were entered into a mean-centered regression predicting post-message attitudes. Even when controlling for other characteristics, both pre-message attitudes and perceptions of bias had a significant effect on post-message attitudes (Table 7).
Table 7. Regression with perceptions of bias, pre-message attitude and source characteristics predicting post-message attitudes

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>b</th>
<th>SE</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bias</td>
<td>-25</td>
<td>.12</td>
<td>2.16</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-message attitu</td>
<td>3.73</td>
<td>2.08</td>
<td>.44</td>
<td>.06</td>
<td>7.60</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Trust</td>
<td>5.06</td>
<td>1.57</td>
<td>-.04</td>
<td>.10</td>
<td>-.40</td>
<td>.69</td>
</tr>
<tr>
<td>Expertise</td>
<td>4.72</td>
<td>1.83</td>
<td>-.08</td>
<td>.09</td>
<td>.84</td>
<td>.40</td>
</tr>
<tr>
<td>Liking</td>
<td>3.72</td>
<td>1.69</td>
<td>.45</td>
<td>.09</td>
<td>4.76</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Intelligence</td>
<td>5.64</td>
<td>1.79</td>
<td>-.08</td>
<td>.09</td>
<td>-.89</td>
<td>.37</td>
</tr>
</tbody>
</table>

**Mediation analyses**

Most importantly, my primary hypothesis was that knowing that a source is biased would lead people to process the message relevant information more negatively. As such, I tested a mediation model in which the index of people’s relevant thoughts (total valence/total number) mediated the relation between perceptions of bias and post-message attitudes controlling for pre-message attitudes and all of the other source perceptions (Figure 5). As noted above, perceptions of bias have a significant effect on post-message attitudes. Further, perceiving someone as biased leads to marginally more negative thoughts. When post-message attitudes are regressed on both perceptions of bias and thoughts, thoughts have a significant effect on post-message attitudes, but the effect of perceptions of bias becomes non-significant. Ninety-five percent bias-corrected bootstrap confidence intervals demonstrate that the decreases in the effect of perceptions of bias on post-message attitudes from the indirect effects of thoughts was not significant, $b=-.09$, 95% CI [-.206, .009]. Although not significant, this meditation analysis directionally supports the hypothesis that perceiving a source as biased would lead to directionally biased processing of the message, such that people would have more
negative thoughts in response to the message compared to those who did not view the source as biased.

Figure 5. Meditation from perceptions of bias to post-message attitudes through thoughts

\[ b = -0.07^\dagger \]

\[ b = 1.21^{***} \]

\[ b = -0.15 \]

\[ (b = -0.25^*) \]

\[ b = -0.07^\dagger \]

Study 4 Discussion

Study 4 replicated that perceiving a source as biased can lead receivers to process a message more negatively than they would have otherwise. Ultimately such directional biases in processing results in reduced persuasion, suggesting that advocates would want to avoid being seen as biased if they desire to be persuasive in similar high elaboration situations.
Chapter 6: General Discussion
These studies demonstrated that the quality of arguments a source provides can influence how much the source is perceived as biased. This paper expanded upon the current knowledge about source and receiver impacts on perceptions of bias to demonstrate that message content can also affect perceptions of bias. There are many times when people do not have explicit information about a source, and they must rely on other information in the persuasion setting to make inferences about the quality of a source. This paper shows that in such a situation, receivers might rely on argument quality to make determinations of source bias. These argument quality effects on perceptions of bias persist even when controlling for other information in the persuasion setting, like agreement, and other inferences that recipients could be making about the source, like the source’s expertise and trustworthiness. Given the number of roles that source variables can play in the persuasion process, it is important to understand the factors that lead people to perceive a source in one way or another.

Beyond demonstrating a new antecedent of perceiving a source as biased, this paper demonstrated two consequences of being perceived as biased. First, being perceived as biased on an initial message might lead receivers to test whether a source is biased on future messages, making it more likely that the source will be perceived as biased in the future. In this case, the perception of bias after the first message serves as a
hypothesis that can be verified or not by aspects of the second message that relate to the hypothesis of potential bias. When the hypothesis is validated by weak arguments, the receiver perceives the source as biased on the second message. When the hypothesis is invalidated with compelling arguments, the receiver perceives the source as not so biased. Although any second message could potentially serve as a domain in which to test a second hypothesis, the relations between domains might determine whether the hypothesis is taken to the second domain for testing. When the messages are too related, people might not test the hypothesis, but rather simply infer that the bias associated with the first topic also applies to the second related topic. If the messages are completely unrelated, people could decide that it is not worth testing the hypothesis because the topics are so clearly unrelated. The fact that Study 1 had a stronger interaction than Study 2 and the topics were presented as less related in Study 1 than Study 2 suggests that hypothesis testing effects could be most common when there are moderate relations between the topics in each message.

As a second consequence, the current work demonstrated that perceptions of bias of a source can lead to directional biases in processing of the message presented by the source. That is, under conditions that promote high levels of message processing, when the quality of the message is ambiguous, perceiving a source as biased can lead to processing a message more negatively than when the source is perceived as relatively objective. Thus, in conditions that are likely to result in directional processing – high elaboration with an ambiguous message – being perceived as biased can result in reduced persuasion. This second consequence highlights why it might be so detrimental that being
perceived as biased on an initial message can lead to hypothesis testing. If being perceived as biased can lead to reduced persuasion, at least under these conditions, and hypothesis testing can make it more likely that receivers would view a source as biased, an initial perception of bias has the potential to reduce the persuasive impact of a source across many domains. Further, the fact the perceptions of bias have these consequences controlling for other source variables that have been more commonly studied suggests that the perception of bias is a distinct construct with its own influence on persuasion that is important to study.

**Role of agreement in perceptions of bias**

These studies also raise questions about when people’s pre-message agreement with the source will predict perceptions of bias and when it will play less of a role. In general, the effects of previously held attitudes on perceptions of bias were inconsistent and weak across these studies. In Study 2, pre-message attitudes toward the university service program predicted perceptions of bias. However, pre-message attitudes toward the university service program didn’t predict perceptions of bias in Study 1 and pre-message attitudes toward economic political philosophies didn’t predict perceptions of bias in Study 3. This suggests that source, message, and recipient factors might be more or less influential at different times.

Attitudes might have more of an effect on perceptions of bias when attitudes are strong – held with certainty, lots of knowledge, importance or morally-based, perhaps. Naïve Realism research has used topics such as responses to the 9/11 terrorism attacks, abortion, capital punishment, affirmative action, and an unpopular grading policy that
would make grades incontestable (Kennedy & Pronin, 2008; Pronin, Gilovich, & Ross, 2004). People in these studies could have had stronger attitudes toward these topics than the topics that the current studies used. People’s political attitudes are often strong and Kennedy and Pronin gave the message about the new grading policy to undergraduates, for whom it was probably an important topic. Conversely, in the current studies, the messages about the university service program in the first three studies were given to Mechanical Turk workers, for whom it is probably not a particularly important topic. Further, the messages about the politicians involved novel entirely made up people so participants should not have had strong attitudes toward them.

Message effects probably have different moderators than attitude effects. It seems likely that argument quality should play more of a role when people are elaborating or systematically processing a message (Chaiken, 1980; Chaiken et al., 1989; Petty & Cacioppo, 1979, 1986). Further, the assumptions people make about the availability of strong arguments for a position might affect how they interpret argument quality. In the current studies, participants received messages about novel topics for which they could not have had much information. In general, it is the norm for people to endorse positions that they can support with reasonable arguments. Thus weak arguments led people to view the source as biased. However, when receivers know about a topic and believe that there are few good reasons but many weak reasons to support a particular position, they might view a source who provides only the few good reasons in support of the position as more biased than one who also provides weak arguments. In this case, receivers might view the strong arguments as a sign that the source has thought a lot about the topic in
order to intentionally deceive them, as would be consistent with various persuasion
settings in which the persuader has strong self-interest. Similarly, the normative or non-
normative standing of the position might lead people to interpret argument quality
differently. Presenting only strong reasons for a non-normative position could lead
receivers to wonder if there is more information that the source is not sharing because
others tend not to take this position. Ultimately, more research is needed to understand
when agreement will play more of a role, consistent with theory of naïve realism, and
when message factors might play more of a role.

Other message factors that might affect perceptions of bias

These studies demonstrated that the argument quality of a message can impact
perceptions of bias, but it is likely that other message-related factors can also affect
perceptions of bias. For example, the number of arguments might impact how much a
receiver sees a source as biased. If sources provide only a few strong arguments, the
receiver might infer that they only have access to those few arguments in support of their
position. If the source provides many strong arguments, the receiver would likely infer
that they could not be biased because they have so many strong arguments. The one or
two-sidedness of a message could also affect perceptions of bias. If sources present
strong arguments for and against a particular position, it is likely that receivers will view
them as less biased to the extent that they perceive that there are roughly an equal number
of arguments for each position. There might also be times when it is enough to simply
acknowledge the other side and then refute their arguments to demonstrate consideration
of both sides. Conversely, if the knowledge on a particular topic suggests that one
position could be more suitable, a one-sided message might lead a source to be seen as less biased if the receiver finds it agreeable and more biased if the receiver finds it disagreeable.

**Other potential consequences of perceptions of bias**

This paper explores two consequences of being seen as biased, but many others could be explored in future research. Consistent with the ELM notion of multiple roles, perceptions of bias likely can play several roles in the persuasion process depending on how much the receiver is elaborating (Petty & Wegener, 1998). The current studies demonstrated that at levels of high elaboration when the arguments provided in a message are of ambiguous quality, perceptions of bias can bias the direction of people’s thoughts to be more negative when they learn that someone is biased before a message. Consistent with the work on self-validation (Tormala, Briñol, & Petty, 2007), learning that sources are biased after receiving messages from them might either make receivers more doubtful or confident in their thoughts in response to the message depending on if they were generally agreeing or disagreeing with the sources. Perceiving someone as biased could also serve as an argument if it is relevant to the evaluation a person is making. For example, if a person evaluates a political candidate and learns that the candidate tends to have a biased perspective, that might serve as an argument not to support that candidate (perhaps unless that bias reflects the views of the candidate’s constituents). At low levels of elaboration, learning that a source is biased might serve as a cue to disregard their message. Finally, learning someone is biased when they agree with a person’s position might prompt them to process the message more because they...
might be concerned that their position will be represented poorly (cf. Priester & Petty, 1995, on trustworthiness and processing). Thus, perceptions of bias could also affect the extent to which people choose to think about a message. There are many potential roles that perceptions of bias could play in the persuasion process.

Types of bias

The current paper did not distinguish between different types of bias that receivers might be inferring, but previous work has pointed to some potential differences between bias associated with slanted knowledge and bias associated with lack of trustworthiness. Eagly, Wood, and Chaiken (1978) identified these as knowledge and reporting biases on the part of sources. Knowledge biases refer to non-veridical information. People might acquire knowledge biases simply because they encounter a biased set of information or because they have some motivation leading them to process information in a biased way. A reporting bias refers to selectively choosing which pieces of information to share in order to appeal to an audience. It seems likely that participants in the first three studies were inferring a motivationally-based knowledge bias when they reported that the source was biased. Only having weak arguments for one’s position and choosing to share it anyway suggests that someone must really think it is the correct position. It seems likely that people’s lay definitions of bias mostly refer to motivational biases. Although they could have inferred the source had a non-motivational knowledge bias, it seems unlikely that most people think of this type of bias when categorizing someone as biased. It is also possible that people inferred a reporting bias, but it seems less likely that someone who was intentionally trying to deceive an audience would provide such weak arguments. It is
possible that perceptions of different kinds of biases have different antecedents and consequences. As such, future research could explore the differences in these types of bias perceptions.

Conclusions

The studies presented here suggest that perceiving a source as biased can have an impact on persuasion that is independent of previously studied source characteristics. Perceptions of bias led receivers to process a message more negatively in high elaboration, ambiguous message conditions and increased the likelihood that perceivers would view sources as biased in the future. Perceptions of bias are infrequently studied but impactful. As such, future work should explore the effect of perceptions of bias. Furthermore, because of the consequences, it is important to understand what might lead a receiver to view someone as biased in the first place. Previous work has emphasized the role of agreement and expectations between the source and the receiver. This paper adds that message content can also affect these perceptions.
References


Appendix A: Political candidate messages

<table>
<thead>
<tr>
<th>Strong Message</th>
<th>Weak Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Patton has been in public office since 1983. He will be running for one of the two vacant seats on the local county commission in the fall elections.</td>
<td>Ben Patton has been in public office since 2010. He will be running for one of the two vacant seats on the local county commission in the fall elections.</td>
</tr>
<tr>
<td>Patton was born in 1952. He earned his undergraduate degree from the Stanford and his law degree from Northwestern University.</td>
<td>Patton was born in 1952. He attended California Community College for three semesters, and attended Southern Illinois University for one semester.</td>
</tr>
<tr>
<td>Patton has a long history of public service. He served two terms as a state senator and has served for ten years as the local treasurer.</td>
<td>Patton worked as a clerk for the city for two years before he left the position for reasons that were undisclosed.</td>
</tr>
<tr>
<td>I have cherished the opportunity to help the residents of my county. I continue to be invested in my community. In my spare time, I like to spend time with my grandchildren and volunteer at the local animal shelter.</td>
<td>As a clerk, I had to learn how to work with people during their most trying times. I continue to be invested in my community. In my spare time, I enjoy reading magazines.</td>
</tr>
<tr>
<td>Patton thinks that education is of primary importance to any society and as such has championed funding for elementary and high schools in the county, as well as fighting for university funding in the state senate.</td>
<td>Patton thinks that it is important to support education and as such has regularly donated pens and pencils to local school children as well as attending university football games.</td>
</tr>
<tr>
<td>Join me in supporting Ben Patton for county commissioner!</td>
<td>Join me in supporting Ben Patton for county commissioner!</td>
</tr>
</tbody>
</table>
Appendix B: University service program arguments (studies 1 & 2)

**Strong condition**

Join me this election season in supporting the university service tuition program! This program will allow students at our state's universities to get reduced tuition by working as part-time staff members at the university. This plan is good for our state and good for our students! Here's why:

First, the option for students to provide university services will ensure that a university education will remain affordable for the vast majority of students desiring to earn a university education. Another "across the board" raise in tuition would make the price of a university education, already at a high level, virtually prohibitive to a great number of students pursuing a university degree.

Second, this provision for university service by students will allow universities to direct fiscal expenditures toward maintaining and increasing the quality of the faculty. That is, a greater portion of the university budget can be invested in monetary incentives for research and teaching. Exceptional faculty, currently employed in the university system will be more likely to remain in their respective universities. Moreover, the funding will be available to recruit additional outstanding professors, researchers, and Nobel prize-winning laureates.

In addition to increasing the quality of the faculty at universities, there will also be improvements in the courses offered. With the additional money available, more teaching positions can be funded for both professors and graduate teaching associates. Therefore, more courses can be offered as well as a greater number of smaller classroom sessions and individualized instruction possibilities.

With students performing university services, the additional funds and personnel will be available to maintain and increase the quality of services provided by the library systems. More money can be spent on the acquisition of new books and journals. In addition, students providing library services will ensure that the libraries will be able to maintain and even extend current operating hours.

Students working in university services will help to alleviate the huge monetary pressure placed on university budgets that are currently dedicated merely for maintaining the physical upkeep of the university. With students performing basic grounds keeping services such as landscaping, mowing, and painting, university campuses will remain beautiful and the money will become available for the fundamental purpose of the university: education.

Finally, students' participation in university services will provide the opportunity for students to enhance their social life by meeting and getting to know other students with whom they otherwise would not have the opportunity to become friends. Universities are
an environment in which diversity is encouraged. However, often one's experiences with people, especially early on, can be vastly limited to one's classes or one's dormitory floor. The university service program can provide the opportunity to widen one's experiences and one's circle of friends.

Anything that can help increase the quality of education in universities, and thus add to the positive reputation of each university, may enhance the desirability of a degree in the real world. That's what this program is capable of doing.

**Weak Condition:**

Join me this election season in supporting the university service tuition program! This program will allow students at our state's universities to get reduced tuition by working as part-time staff members at the university. This plan is good for our state and good for our students! Here's why:

First, enrollments at state-funded universities are sure to decrease because some students won't want to work extra hours. Therefore, for instance, universities will likely return to a size more comparable to local community colleges. This will reduce the student load on many of the university facilities, parking lots, and paths. Tickets to athletic events should also be easier to acquire as a result of the decrease in enrollments.

Second, students that choose to perform university services will have a substantial reduction in their amount of leisure time. This will help students to learn how to structure their remaining time to maximize the efficiency with which they study, work, and relax. This, of course, will be excellent training for when students graduate from university, become employed, and have families. They will have gained the experience of having to maximize the quality of their leisure time.

In addition to learning how to maximize their leisure time, there will be much less time for students to spend partying, drinking, and frequenting bars. Therefore, there will be a reduction in the number of campus police and security officers necessary to keep student rowdiness under control. There will likely be a large reduction in the number of civil disturbance complaints, and fewer campus crimes.

Students will also have less time to spend in the libraries and computer labs because they will be performing the university services. Therefore, it will be possible to reduce the numbers of hours these facilities must remain open and staffed. This will contribute to an increase in the savings of university money that can be put to alternative uses.

With students performing university services, there will be a great deal more money with which to improve and beautify the campus environment. A greater proportion of the fiscal budget can be spent on materials such as paint for buildings, new machinery for mowing and landscaping, and planting shrubbery, flowers, and trees, in order to make each university an even more scenic and beautiful place to spend one’s university years.

Finally, students working in university services will gain the experience of working in dining hall, janitorial, and clerical positions. Although these positions are not likely to contribute to work experience in students' chosen majors, the work experience might prove useful in obtaining other part-time jobs during their university years and for some time after graduation.
Anything that can help increase the quality of education in universities, and thus add to the positive reputation of each university, may enhance the desirability of a degree in the real world. That's what this program is capable of doing.
Appendix C: 2 factor solution (Study 1)

Table 8. Factor loadings for a two factor solution (study 1)

<table>
<thead>
<tr>
<th>item</th>
<th>bias</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent do you feel that Cami the campaigner’s opinion of Patton as a candidate is a product of personal bias?</td>
<td>.81</td>
<td>-.09</td>
</tr>
<tr>
<td>How much do you think that Cami the campaigner has a biased perspective about the candidate she is supporting?</td>
<td>1.00</td>
<td>.09</td>
</tr>
<tr>
<td>How objective do you think Cami the campaigner is in evaluating Patton as a candidate?</td>
<td>-.49</td>
<td>.36</td>
</tr>
<tr>
<td>How qualified did you think that Cami was to speak about Patton as a candidate?</td>
<td>-.24</td>
<td>.63</td>
</tr>
<tr>
<td>To what extent does it seem like Cami is an expert on Patton as a candidate?</td>
<td>-.21</td>
<td>.51</td>
</tr>
<tr>
<td>To what extent does it seem like Cami who wrote this message is knowledgeable about Patton?</td>
<td>-.14</td>
<td>.63</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is trustworthy?</td>
<td>-.16</td>
<td>.79</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is honest?</td>
<td>-.15</td>
<td>.73</td>
</tr>
<tr>
<td>How much do you think that Cami truly believes what she is saying?</td>
<td>.06</td>
<td>.61</td>
</tr>
</tbody>
</table>

Table 9. Correlation between bias factor and other factor

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Bias</td>
<td>1</td>
</tr>
<tr>
<td>2. Other</td>
<td>-.50</td>
</tr>
</tbody>
</table>

Appendix D: Within cell correlations between source variables and attitudes (Study 1)

Table 10. Means, standard deviations, and correlations between perceptions of the source and attitudes in strong argument condition

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bias</td>
<td>5.12</td>
<td>1.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trustworthiness</td>
<td>4.80</td>
<td>1.07</td>
<td>-.505**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Expertise</td>
<td>4.30</td>
<td>1.22</td>
<td>-.522**</td>
<td>.678**</td>
<td></td>
</tr>
<tr>
<td>4. Attitudes</td>
<td>5.37</td>
<td>2.09</td>
<td>-.102</td>
<td>.237**</td>
<td>.213*</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01

Table 11. Means, standard deviations, and correlations between perceptions of the source and attitudes in weak argument condition

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bias</td>
<td>7.02</td>
<td>1.64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trustworthiness</td>
<td>3.87</td>
<td>1.41</td>
<td>-.491**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Expertise</td>
<td>3.12</td>
<td>1.42</td>
<td>-.509**</td>
<td>.525**</td>
<td></td>
</tr>
<tr>
<td>4. Attitudes</td>
<td>4.49</td>
<td>2.60</td>
<td>-.303**</td>
<td>.226**</td>
<td>.232**</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01
Appendix E: 2 factor solution (study 2)
Table 12. Factor loadings for a two factor solution (study 2)

<table>
<thead>
<tr>
<th>Item</th>
<th>Bias</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>When Cami was deciding who to support in this election, how much do you think she was pre-disposed to support Ben Patton?</td>
<td>.22</td>
<td>.58</td>
</tr>
<tr>
<td>When Cami was deciding who to support in this election, how much do you think she was pre-disposed to support Jim Smith?</td>
<td>.11</td>
<td>.24</td>
</tr>
<tr>
<td>When Cami was deciding who to support in this election, how much do you think that she was open to supporting either candidate?</td>
<td>.09</td>
<td>.42</td>
</tr>
<tr>
<td>To what extent do you feel that Cami the campaigner’s opinion of Patton as a candidate is a product of personal bias?</td>
<td>.03</td>
<td>.91</td>
</tr>
<tr>
<td>How much do you think that Cami the campaigner has a biased perspective about the candidate she is supporting?</td>
<td>.10</td>
<td>.97</td>
</tr>
<tr>
<td>How objective do you think Cami the campaigner is in evaluating Patton as a candidate?</td>
<td>.38</td>
<td>-.44</td>
</tr>
<tr>
<td>How qualified did you think that Cami was to speak about Patton as a candidate?</td>
<td>.57</td>
<td>-.20</td>
</tr>
<tr>
<td>To what extent does it seem like Cami is an expert on Patton as a candidate?</td>
<td>.64</td>
<td>-.10</td>
</tr>
<tr>
<td>To what extent does it seem like Cami who wrote this message is knowledgeable about Patton?</td>
<td>.66</td>
<td>-.11</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is trustworthy?</td>
<td>.63</td>
<td>-.31</td>
</tr>
<tr>
<td>To what extent does it seem like Cami the campaigner is honest?</td>
<td>.67</td>
<td>-.16</td>
</tr>
<tr>
<td>How much do you think that Cami truly believes what she is saying?</td>
<td>.55</td>
<td>.11</td>
</tr>
<tr>
<td>How much do you like Cami?</td>
<td>.70</td>
<td>-.19</td>
</tr>
<tr>
<td>How likeable do you think Cami is?</td>
<td>.73</td>
<td>-.10</td>
</tr>
<tr>
<td>How much would you enjoy spending time with Cami?</td>
<td>.67</td>
<td>-.14</td>
</tr>
<tr>
<td>How intelligent do you think Cami is?</td>
<td>.79</td>
<td>-.14</td>
</tr>
<tr>
<td>How smart do you think Cami is?</td>
<td>.76</td>
<td>-.18</td>
</tr>
<tr>
<td>How high is Cami’s IQ?</td>
<td>.68</td>
<td>-.10</td>
</tr>
</tbody>
</table>

Note. Factor loadings over .40 appear in bold. The items are clumped by the factor that they were intended to represent, which correspond with the factor titles, left to right.
Table 13. Correlations between bias factor and other factor (study 2)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bias</td>
<td>1.00</td>
</tr>
<tr>
<td>2. Other</td>
<td>-0.37</td>
</tr>
</tbody>
</table>


Appendix F: Within cell correlations (Study 2).

Table 14. Means, standard deviations, and correlations between perceptions of the source and attitudes in strong argument condition

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bias</td>
<td>5.57</td>
<td>1.93</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trustworthiness</td>
<td>4.78</td>
<td>1.20</td>
<td>-.492**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Expertise</td>
<td>4.40</td>
<td>1.28</td>
<td>-.397**</td>
<td>.659**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Liking</td>
<td>5.01</td>
<td>1.55</td>
<td>-.345**</td>
<td>.735**</td>
<td>.545**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Intelligence</td>
<td>5.69</td>
<td>1.66</td>
<td>-.381**</td>
<td>.674**</td>
<td>.602**</td>
<td>.592**</td>
<td></td>
</tr>
<tr>
<td>6. Attitudes</td>
<td>5.08</td>
<td>2.25</td>
<td>-.102</td>
<td>.168</td>
<td>-.013</td>
<td>.200*</td>
<td>.196*</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01

Table 15. Means, standard deviations, and correlations between perceptions of the source and attitudes in weak argument condition

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bias</td>
<td>7.14</td>
<td>1.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Trustworthiness</td>
<td>3.91</td>
<td>1.15</td>
<td>-.250**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Expertise</td>
<td>3.10</td>
<td>1.45</td>
<td>-.286**</td>
<td>.569**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Liking</td>
<td>3.64</td>
<td>1.61</td>
<td>-.389**</td>
<td>.593**</td>
<td>.558**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Intelligence</td>
<td>4.30</td>
<td>1.84</td>
<td>-.435**</td>
<td>.376**</td>
<td>.489**</td>
<td>.585**</td>
<td></td>
</tr>
<tr>
<td>6. Attitudes</td>
<td>4.53</td>
<td>2.46</td>
<td>-.010</td>
<td>.209*</td>
<td>.267**</td>
<td>.407**</td>
<td>.215*</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01
Appendix G. Study 2 analyses controlling for perceptions of openness

The second item in the predisposition scale, “When Cami was deciding who to support in this election, how much do you think she was pre-disposed to support Jim Smith?” was intended to be reverse-coded because people who view Cami as more biased toward Ben Patton should view her as less predisposed to support Jim Smith. However, when reverse coded, this item had a negative relation with the other predisposition measures ($\alpha=-.37$). This suggests that this item might be capturing a general predisposition rather than a specific one toward Jim Smith, the other candidate. When the second item is not reverse coded, the scale has moderate internal consistency ($\alpha=.60$). As such, the second item will not be reverse-coded and the scale will be created by taking the average of the three items to create a scale that captures Cami’s perceived tendency to be predisposed.

In a centered regression with argument quality predicting perceptions of bias controlling for previously held attitudes and all source perceptions, including perceptions of predisposition, argument quality continued to predict perceptions of bias (see Table 16). Further, perceptions of predisposition predicted perceptions of bias. Corroborating the evidence from the factor analysis, the fact that perceptions of predisposition did not get rid of the argument quality effect, but did predict perceptions of bias suggests that it is a distinct, but related concept. It does not function as another perception of bias the way that I expected it do, but it does seem to be capturing something related.
In the second part of the study, I examined whether initial perceptions of bias would predict perceptions of bias after a second message. In this study, I did not find the same significant interaction as in study 1. In a centered regression, when controlling for pre-message attitudes and other initial source perceptions including perceptions of predisposition, the interaction between initial perceptions of bias and argument quality of the second message remains non-significant (Table 17).

<table>
<thead>
<tr>
<th>Source Variable</th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument Quality</td>
<td>-.37</td>
<td>-3.05</td>
<td>.003</td>
</tr>
<tr>
<td>Post-message attitudes</td>
<td>.06</td>
<td>1.17</td>
<td>.243</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>-.35</td>
<td>-2.63</td>
<td>.009</td>
</tr>
<tr>
<td>Expertise</td>
<td>-.07</td>
<td>-.63</td>
<td>.529</td>
</tr>
<tr>
<td>Intelligence</td>
<td>-.22</td>
<td>-2.69</td>
<td>.008</td>
</tr>
<tr>
<td>Liking</td>
<td>-.04</td>
<td>-.38</td>
<td>.707</td>
</tr>
<tr>
<td>Predisposition</td>
<td>.39</td>
<td>5.74</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01. ***p<.001.
Table 17. Study 2 regression with initial perceptions of bias, argument quality of the second message and their interaction predicting future perceptions of bias controlling for other source variables

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument Quality</td>
<td>-.23</td>
<td>-2.28</td>
<td>.024</td>
</tr>
<tr>
<td>Initial perceptions of bias</td>
<td>.10</td>
<td>1.43</td>
<td>.153</td>
</tr>
<tr>
<td>AQxbias interaction</td>
<td>-.04</td>
<td>-.83</td>
<td>.406</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>.07</td>
<td>.57</td>
<td>.573</td>
</tr>
<tr>
<td>Expertise</td>
<td>.08</td>
<td>.80</td>
<td>.427</td>
</tr>
<tr>
<td>Intelligence</td>
<td>.10</td>
<td>1.26</td>
<td>.209</td>
</tr>
<tr>
<td>Liking</td>
<td>-.23</td>
<td>-2.38</td>
<td>.019</td>
</tr>
<tr>
<td>Predisposition</td>
<td>.04</td>
<td>.53</td>
<td>.599</td>
</tr>
<tr>
<td>Pre-message attitudes</td>
<td>-.17</td>
<td>-2.82</td>
<td>.005</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01. ***p<.001.
Appendix H. University Service Program arguments (Studies 3 & 4)

**STRONG:**

1) This university service plan will keep tuition affordable for students
2) Our state universities will be able to keep and recruit outstanding faculty
3) Our universities will be able to offer a greater number of classes and have an overall smaller student to teacher ratio
4) The state universities will be able to funnel more resources to the library and provide access to new electronic journals
5) With students performing service, universities will be able to funnel funds previously used for grounds keeping into education.
6) Finally this program will provide an opportunity for students to get to know others outside of their primary social circles.
7) Anything that can help increase the quality of a university education may enhance the desirability of a degree in the real world. That's what this program is capable of doing.

**MIXED:**

1) This university service plan will keep tuition affordable for students
2) Because students won’t want to participate in this program, enrollment will decrease, allowing easier access to football tickets.
3) OSU will be able to keep and recruit outstanding faculty
4) With less leisure time, students will have to learn how to structure their day in order to maximize their time to relax, an important life skill.
5) OSU will be able to offer a greater number of classes and have an overall smaller student to teacher ratio
6) Students’ experiences as janitors and cafeteria workers may help them get a well-paying job in the future.
7) Anything that can help increase the quality of education of an OSU education may enhance the desirability of a degree in the real world. That's what this program is capable of doing.

**WEAK:**

1) Because students won’t want to participate in this program, enrollment will decrease, allowing easier access to football tickets.
2) With less leisure time, students will have to learn how to structure their day in order to maximize their time to relax, an important life skill.
3) There will be less time for students to drink so there will be less disturbances on campus.
4) Students will have less time to spend at the library so the university won’t have to spend so much money on library services.
5) With students performing service, the university will have more money to spend on campus beautification initiatives.
6) Students’ experiences as janitors and cafeteria workers may help them get a well-paying job in the future.
7) Anything that can help increase the quality of a university education may enhance the desirability of a degree in the real world. That's what this program is capable of doing.
Appendix I. Moderated Mediation with participant coded thoughts (Study 3)

Participants did not code the relevance of their thoughts. As such, these analyses included thoughts that might or might not be relevant to the message. Despite that thought index from the RA coded thoughts only included thoughts they had coded as relevant, whereas the index computed from participant coded thought included both relevant and irrelevant thoughts, the thought indices were significantly correlated at .74.

As in the previous model, the total effect of perceptions of bias on post-message attitudes was not significant overall, but was marginal when participants received the mixed message, not significant when they read only the strong or weak messages. Further, there was not a main effect of bias on thoughts, $b=.01, t(194)=.23, p=.82$. There was a significant interaction of the effect of perceptions of bias on thoughts in the mixed compared to the strong and weak conditions, $b=.07, t(194)=3.39, p<.001$, but not when comparing the strong and weak conditions, $b=.06, t(194)=1.77, p=.08$. The effect of perceptions of bias on thoughts was significant when participants read the mixed message, $b=-.13, t(194)=-2.42, p=.02$, but not when they read the weak arguments, $b=.01, t(194)=.25, p=.80$. Once again, there was an unexpected significant reversal in the strong argument condition, $b=.14, t(194)=2.56, p=.01$. There was a significant effect of thoughts on post-message attitudes, $b=1.87, t(194)=9.43, p<.001$, suggesting high elaboration. The indirect effect in the mixed message condition was statistically significant using 10000 percentile 95% confidence intervals, $b=-.24, 95\% \text{ CI } [-.47, -.01]$. The indirect effects in the strong, $b=.14, 95\% \text{ CI } [-.05, .35]$ and weak conditions, $b=-.11, 95\% \text{ CI } [-.28, .07]$. 79
were not statistically significant. The index of moderated mediation was significant when comparing the mixed to the strong and weak conditions, $b=.39$, 95% CI [.13, .66]. but not when comparing the strong and the weak conditions, $b=.12$, 95% CI [-.01, .26].