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Generating arguments when feeling ambivalent: examining attitude-message congruency

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ABSTRACT

Although a large literature has examined factors that determine how people's attitudes change in the face of existing persuasive messages, less is known about how attitudes guide the production of such messages. This research examines whether ambivalence moderates the degree to which people produce persuasive messages in line with their own attitudes. Prior research on attitude strength would suggest that ambivalence undermines the influence of one's attitude on the message they produce. However, feeling conflicted could motivate people to reduce ambivalence, potentially by producing more attitude-congruent messages. Across two studies, we found that the effects of ambivalence on attitude-message congruency depended on the target of persuasion. When persuading others, people tended to produce more attitude-congruent messages when they experience relatively little ambivalence. This effect of ambivalence, however, was attenuated when people focused on convincing themselves. In Study 2, we also found evidence that these effects on attitude-message congruency in turn predicted people's attitude clarity, but not correctness, after writing a message. Implications of these findings for attitude strength models are discussed.

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behavior consistency

Many issues, products, and people can produce mixed reactions in an individual. A voter might support marijuana legalization but dislike how the state implements these drug policies. Similarly, a person might enjoy the health benefits conferred by running but loathe awaking early to exercise. People with ambivalent attitudes evaluate the attitude object as having both positive and negative qualities (objective ambivalence; Kaplan, 1972; Thompson et al., 1995) and experience the attitudes as producing "conflicted" or "mixed" reactions toward the attitude object (subjective ambivalence; Priester & Petty, 1996).

Ambivalence has been identified as influential in determining information processing and behavior (for a review, see van Harreveld et al., 2015). Research on attitudinal ambivalence has been largely consistent with an *attitude strength* perspective; attitudes are more influential to

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the extent that they are one-sided (i.e., univalent) rather than ambivalent (Fabrigar et al., 2005; Luttrell & Sawicki, 2020). Ambivalence weakens an attitude's impact, such as increasing vulnerability to change (Armitage & Conner, 2000; Bassili, 1996; Luttrell et al., 2016, 2020) and reducing attitude-behavior consistency (Armitage, 2003; DeMarree et al., 2014).

Other research has highlighted the motivational experience of ambivalence. Feeling conflicted can be an aversive state that prompts the individual to reduce the tension of ambivalence by strengthening the weak attitude (e.g., Newby-Clark et al., 2002; see also van Harreveld et al., 2015). Such motives to *bolster* an ambivalent attitude can result in selective processing of information that would potentially reduce evaluative conflict (i.e., pro-attitudinal information) and avoidance of information that would potentially exacerbate the conflict (i.e., counter-attitudinal information). Indeed, individuals who experience greater ambivalence are more likely to process an attitude-consistent message (Clark et al., 2008; Maio et al., 1996) and less likely to process an attitude-discrepant message (Clark et al., 2008). Conceptually parallel bolstering effects were also found on information choices in a selective exposure paradigm (Sawicki et al., 2013). Participants reported attitudes and ambivalence on a topic and then were free to choose from an information buffet comprised of arguments that either supported or opposed an issue. Greater subjective ambivalence about an issue increased the likelihood of making attitude-consistent information choices (when the information was more likely to be unfamiliar and, thus, more capable of reducing the ambivalence; see also Sawicki et al., 2011). This evidence demonstrates that ambivalent attitudes can be predictive of behavioral outcomes (e.g., information choices) under conditions that would alleviate the ambivalent state.

Taken together, the evidence supports two apparently contradictory effects of ambivalence (see also Luttrell & Sawicki, 2020). On the one hand, greater ambivalence is associated with less attitude-consistent outcomes (i.e., behavioral intentions), and on the other hand, greater ambivalence is associated with more attitude-consistent outcomes (i.e., information processing and selection). The present research sought, in part, to identify a type of moderator that would help to reconcile these two patterns. Ambivalence should be (and appears to be) capable of both diminishing and enhancing the link between attitudes and behavioral outcomes in different settings. But what is the nature of these different settings?

We sought to identify a key moderating variable by examining ambivalence effects in a domain for which ambivalence effects have been largely unexplored: persuasive message generation. The rationale for selecting this outcome is twofold. Although a handful of studies have examined ambivalence effects on attitude-behavior consistency, these studies have measured intentions (Armitage, 2003; Armitage & Conner, 2004; DeMarree et al., 2014) rather than actual behavior (cf. Sawicki et al., 2013). Having participants generate persuasive arguments on a topic (a proxy for persuasive behavior) would allow for an examination of the correspondence between attitudes and position of the message they actively generated. That is, one would expect that a source would produce a persuasive message that reflects their summary attitude, but the extent to which this occurs may also depend on other qualities of the attitude like ambivalence.

Although decades of psychology research have closely examined the effects of persuasive messages on recipients' attitudes, little attention has been paid to how sources construct such messages. Research has begun to examine the behavior of

a persuasive source, but the focus to date has been on the effort given to the persuasion attempt (Akhtar & Wheeler, 2016; Akhtar et al., 2013; Briñol et al., 2012; Gal & Rucker, 2010), intentions to persuade others (Akhtar & Wheeler, 2016; Akhtar et al., 2013; Cheatham & Tormala, 2015), or the overall persuasiveness of generated messages (Bohner & Schwarz, 1993; Forgas, 2007; Prislin et al., 2011) rather than the type of content generated. One exception is Forgas (2007), who showed that people in a negative mood produced more concrete persuasive arguments than people in a positive mood. None of these studies considered the effects of a source's ambivalence on persuasive behavior. Thus, we aimed to examine the seemingly contradictory patterns of ambivalence in an understudied domain involving actual behavioral output.

Predictions of the current research

Generally, this research focuses on when a person's summary evaluations (i.e., attitudes) predict their behavior. Across studies, we examine the extent to which individuals' global attitudes about a topic (e.g., the extent to which a person supports gun control) are congruent with the position people take in a persuasive message they generate (e.g., proportion of pro-gun control arguments). Overall, one might expect a person's summary attitude to determine message content. That is, their message should reflect how much they personally evaluate the topic positively or negatively. For instance, someone who supports gun control would presumably write a message comprised exclusively of pro-gun control arguments. This would be what we call an "attitude-congruent message."

However, just as ambivalence can undermine or amplify other forms of attitude-consistent behavior, we suggest that it may also be associated with attitude-message congruency. On one hand, according to an *attitude strength perspective*, ambivalence signals a weak attitude, which is not as potent a guide of relevant action. Therefore, when people feel more conflicted about an issue, their global evaluation should be less predictive of the content of a persuasive message they generate. Conversely, according to a *bolstering perspective*, when people feel more conflicted about an issue, they are motivated to alleviate that unpleasant state, which can result in greater processing and selection of attitude-consistent information in service of ambivalence reduction (Clark et al., 2008; Sawicki et al., 2013). In the case of generating a persuasive message, reminding oneself of attitude-consistent arguments could be one attempt at restoring confidence when feeling ambivalent. This would mean that under certain contexts, relatively ambivalent attitudes could have just as much or more predictive power as univalent, unconflicted attitudes. When should the attitude strength versus bolstering pattern of ambivalence emerge? We believe that such effects may depend on the extent to which people engage in meta-cognitive reflection about the attitude itself. That is, in many behavioral settings, the person's focus is on the target of the behavior. When this is the case, people rely on their attitudes to guide these behaviors to the extent that those attitudes are relatively strong. Thus, when people focus on the behavioral target (e.g., generating arguments), traditional attitude strength patterns might emerge. In the current case, more ambivalent attitudes would more weakly guide the message generation process when the goal is focused squarely on making a compelling case for another person.

However, when people instead focus on considering the properties of their own attitude, the dynamics may be different. In particular, engaging in meta-cognitive reflection about their ambivalence would likely alert people to their need to resolve the ambivalence, and bolstering motives may dominate. Paradigms like those used in the selective exposure work described earlier might facilitate this kind of meta-cognitive reflection, because people are being asked to choose between information options that clearly support or oppose their current attitude. In the current setting, however, where the person could focus on the target of the persuasive attempt in addition to consideration of the properties of one's own attitudes, we thought that there would be an opportunity to examine each type of attitude effect (i.e., both strength effects and bolstering effects).

Given the conditions that tend to encourage attitude strength effects versus those that encourage bolstering motivations, we anticipated that the effects of ambivalence on the production of persuasive messages would depend on the target of the persuasive attempt. Although persuasion is often construed as the intention to change another person's attitude, an influential body of research has highlighted the unique experience of generating arguments to shape one's own attitude (Briñol et al., 2012; DeMarree et al., 2014; Janis & King, 1954), which may prompt greater meta-cognitive reflection. That is, when persuasion is other-directed, the persuader's focus is on the other person and on changing that person's attitude. They may thus draw upon their own attitude to guide their efforts to the extent that they have a coherent, unambivalent opinion (i.e., an attitude strength pattern). However, when focused on changing one's own attitude, people may be more attentive to their current degree of ambivalence and their desire to alleviate it. That is, when focused on the self, ambivalence may be associated with a tendency to produce more attitude-congruent messages as a way of bolstering the attitude. In both cases of persuading the self and persuading another person, the common goal is to generate arguments; however, we expect people in the self-persuasion condition should be more likely to consider the relevant attitude and its features, specifically their current level of ambivalence and desire for coherence. This is consistent with research on self-persuasion and the ambivalence of desiring a different attitude (Maio & Thomas, 2007).

For both studies, all measures, manipulations, and exclusions have been disclosed. Full question wordings are available in the online supplement. Data and analysis scripts for reproducing all results are provided on the project's page on the Open Science Framework (https://osf.io/zajep/?view_only=13c0d5ca7e7249e8aeac1fbe9d08a29d).

Study 1

Study 1 was conducted to examine whether the target of persuasion determines whether subjective ambivalence about an issue is associated with more or less attitude-message congruency.¹ Specifically, based on the theoretical account outlined previously, when people are focused on persuading another person, greater ambivalence would be associated with producing *less* attitude-congruent messages. However, when people are focused on persuading themselves, greater ambivalence would be associated with *more* attitude-congruent messages.

Method

Participants and design

One hundred and eighteen adults participated in an online research study via Amazon's Mechanical Turk during 2013. Although this sample size may seem relatively small for the research aims, we conducted the study before norms in the field shifted to appreciate the challenges posed by smaller samples. Furthermore, we have treated this study as a first test of the predictions, strategically examining the pattern at a smaller scale before replicating larger.² Also, to keep surveys brief, demographic information was not collected as we had no strong a priori predictions about its relevance to the hypothesized effects. Attitudes and strength-related attributes (e.g., ambivalence) regarding the topic were measured, and the persuasion target (self vs. other) was manipulated to predict the valence of message content. Fifteen participants opted not to write a message or wrote a message unrelated to the topic (5 in the "persuade self" and 10 in the "persuade other" condition) and were thus dropped from further analysis.

Procedure

The study was presented as an investigation of general impressions regarding social issues. Participants first expressed their attitude and attitudinal qualities (ambivalence, issue importance, knowledge, and certainty) toward gun control. People were then asked to generate a persuasive message regarding the issue of gun control.

Predictor and independent variables

Attitude

Participants reported attitude favorability toward the issue of gun control using two 9-point scales (1 = *opposed, bad*; 9 = *in favor, good*). The attitude scales were correlated ($\alpha = 0.96$) and were averaged to form a composite index of attitudes toward gun control ($M = 5.70$; $SD = 2.87$). In addition, we computed an index of attitude extremity by taking the absolute deviation of attitudes from the scale midpoint (5).

Subjective ambivalence

Participants indicated the extent to which they had "mixed feelings about gun control" using a 9-point scale (1 = *not at all*; 9 = *very much*; $M = 3.49$; $SD = 2.59$).

Target of persuasion

Participants were randomly assigned to condition (persuade other or self) and read instructions designed to elicit the goal of persuasion. Because people generally evaluate themselves favorably, we attempted to equate liking for the other (in *persuade other* conditions) by asking participants to generate arguments they would use to persuade the person they like most. Thus, depending on condition, the instructions read (*persuade self* wording in brackets), "On the next screen, you will be asked to type some arguments that you would use to convince the person that you like the most [yourself] about the issue of gun control. Any thoughts, feelings, or beliefs about this topic may be included as long as they might seem persuasive to the person that you like the most [you]." Target of persuasion was effects coded (-1: Other Focus, +1: Self Focus).

Dependent measure

Message valence

Participants were given unrestricted time to construct the persuasive message. The content generated by participants was coded for arguments position toward the topic of interest in the study. A coder who was unaware of condition classified each argument within the message as pro-, anti-, neutral, or unrelated to the topic. We used the traditional formula for calculating favorability (frequently used to compute thought or information selection favorability). The index of message position was calculated by subtracting the number of anti-arguments from the number of pro-arguments and dividing by the total number of issue-relevant arguments. This index ranged from -1 (wrote only anti-gun control arguments) to $+1$ (wrote only pro-gun control arguments), $M = 0.17$, $SD = 0.86$.

Attitude-message congruency

To quantify how much the valence of participants' written messages corresponded with the valence of their own attitudes, we first rescaled the attitude composite from a $1-9$ scale to a -1 to $+1$ scale so that it matched the scale of our message valence measure. We then computed the absolute difference between rescaled attitudes toward gun control and the coded valence of participants' messages. This resulted in an index of *incongruency* such that higher values reflect more distance between attitudes and message valence. Therefore, to more intuitively present the results, we reverse-scored the absolute differences, giving us a final measure of attitude-message *congruency* ranging from completely incongruent (0) to completely congruent (2), $M = 1.30$, $SD = 0.65$.

Results

Centered regression analyses were performed on attitude-message congruency with attitude ambivalence, target of persuasion, and the corresponding two-way interaction term as predictors (Aiken & West, 1991). Results supported the predicted Ambivalence \times Target interaction was significant, $b = 0.05$, $t(99) = 2.14$, $p = .035$, 95% CI: [.004, .103], $f^2 = .05$ (Figure 1).³ Given the relatively small sample size, neither simple slope was statistically significant, but the pattern was such that for other-directed persuasion, increasing ambivalence corresponded to weaker attitude-message congruence, $b = -0.05$, $t(99) = -1.43$, $p = .16$, 95% CI: [-0.12, 0.02]. For self-directed persuasion, however, increasing ambivalence corresponded to stronger attitude-message congruence, $b = 0.06$, $t(99) = 1.59$, $p = .12$, 95% CI: [-0.01, 0.13]. We also computed Johnson-Neyman intervals using the *interactions* package for R (Long, 2024), identifying regions of ambivalence in which the target manipulation significantly ($p < .05$) affected attitude-message congruency. When ambivalence was below 1.78 on the $1-9$ scale (0.66 standard deviations below the mean), people generated significantly more attitude-congruent messages when targeting another person than when targeting oneself. In this study, there was no level of ambivalence at which this effect significantly reversed. At the highest possible level of ambivalence (9), messages are more attitude-congruent when targeting oneself than when targeting another person, albeit not significantly so, $b = 0.23$, $t(99) = 1.53$, $p = .13$, 95% CI: [-0.07, 0.54].

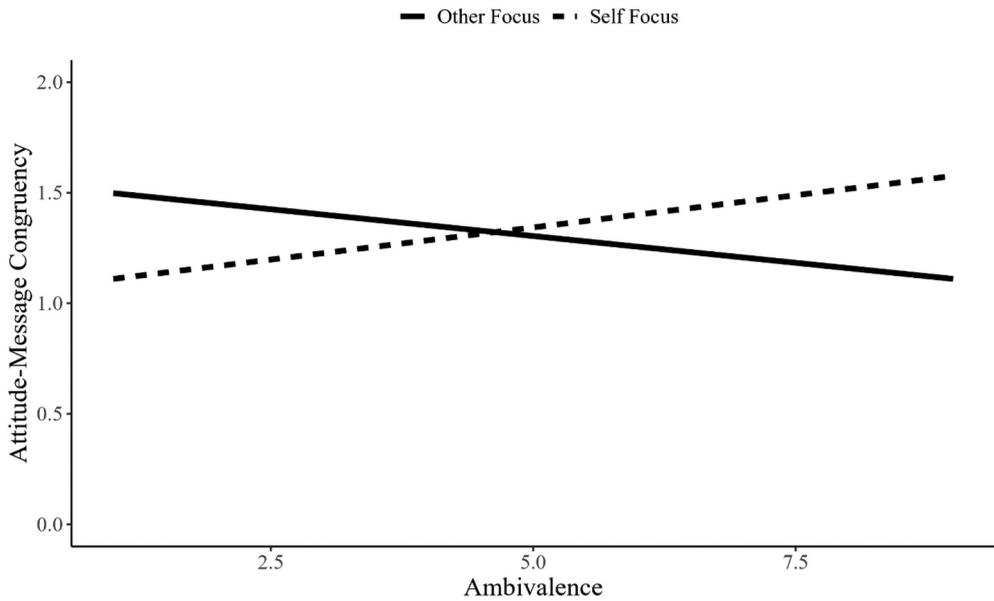


Figure 1. Ambivalence \times target interaction (Study 1).

Note. Predicted values for attitude-message congruency in Study 1 based on subjective ambivalence regarding gun control and target of persuasion (other versus self).

In a follow-up analysis, we also examined the extent to which participants wrote arguments that took a position in favor or against the issue versus neutral arguments, as rated by coders in the measure of message valence. The average proportion of neutral arguments in a message was 0.06. Put another way, on average, 94% of people's on-topic points carried either a positive or negative valence (or a "pro" or "anti" stance). Therefore, the task appears to have evoked participants' grappling with the issue's pros and cons rather than simply striking a largely neutral stance.

Discussion

Study 1 showed that the effects of ambivalence on attitude-message congruency depended on the target of persuasion. The pattern was such that when people aimed to influence others, they produced relatively attitude-consistent content when they felt relatively unconflicted about their attitude. This pattern is consistent with the traditional view of attitude strength in which attitudes associated with strength-enhancing properties are more likely to guide behavior (i.e., attitude-consistent message construction). However, an opposite pattern emerged when persuasion was directed at the self. In this case, people constructed a more attitude-congruent message when they felt relatively *conflicted* about their initial attitude, likely because pro-attitudinal, self-directed arguments would help them resolve ambivalence. It is conceivable that people who possess a univalent attitude feel secure enough to consider and refute opposing viewpoints (consistent with defensive confidence, Albarracín & Mitchell, 2004). Study 1 also helps clarify that these message generation effects stem from ambivalence and not other attitude attributes like certainty (see Footnote 3).

In sum, Study 1 provided some evidence that ambivalence was associated with both more and less attitude-message congruency depending on whether the persuader focused on changing the attitude of another person or his or her own attitude. Nevertheless, the small sample size for this first study did not provide sufficient statistical power to test all simple effects, so we conducted another study to assess the replicability of these patterns.

Study 2

Study 2 was conducted to conceptually replicate and address some possible weaknesses of Study 1. While we have initial evidence that feeling conflicted can motivate or attenuate attitude use in persuasive argumentation, there is a potential alternative explanation for the two distinct patterns of ambivalence. The manipulation of persuasive target might have implied different goals in addition to directing persuasion to oneself versus someone else. Participants may have interpreted the “convince yourself” instructions to mean that they should change their underlying opinion and take a more extreme stance whereas “convince someone else” might evoke the goal of communicating the (un)conflicted attitude as is. Thus, in Study 2, instructions were clarified such that all participants were asked to argue that their stance was correct (and generate these arguments either for another person or for oneself). These modified instructions should reduce any differential implications across persuasive target condition to switch valence during persuasion.

Of greatest interest, we also sought to examine motives behind persuasive behavior, namely one’s goal to express their own attitude versus resolve their own ambivalence. Thus, we also assessed attitude certainty after participants generated their arguments. As we outlined earlier, engaging in self-persuasion should make one’s attitude and associated ambivalence salient and highlight the need to resolve any feelings that one’s attitude is weak. Indeed, Study 1 found that self-persuasion instructions tended to make people generate more attitude-congruent messages when they were relatively ambivalent. Thus, in Study 2, we sought to examine whether engaging in such attitude-consistent argumentation would ultimately be reflected in expressing more confidence in one’s attitude.

Finally, we made two key improvements over the prior study to increase statistical power. First, Study 1’s sample size was rather small for testing a two-way interaction. The prior study uncovered a relatively small effect ($f^2 = 0.05$), so we aimed to collect data from at least 300 participants in Study 2, which would provide 80% power to detect regression terms as small as $f^2 = 0.026$ ($\alpha = .05$). Second, we implemented a more refined measure of subjective ambivalence, replacing the single-item measure from Study 1 with the more common three-item scale (Priester & Petty, 1996).

Method

Participants and design

Three hundred four adults participated in an online research study via Amazon’s Mechanical Turk in 2018. Fifteen people failed to generate arguments and could not be included in the analyses ($N = 289$). Attitudes and ambivalence regarding the topic were measured, and

persuasion target (self or other) was manipulated. Our focus was once again on the valence of people's messages and how strongly they overlapped with the valence of their own attitudes.

Procedure

The study was presented as an investigation of general impressions regarding social issues. Participants first expressed their attitude and attitudinal ambivalence toward mandatory concussion testing of football players. People were then asked to generate a persuasive message either directed at themselves or another person regarding the issue of mandatory concussion testing of football players.

Predictor and independent variables

Pre-message attitude

After reading a brief description of the topic, participants reported their attitudes toward mandatory concussion testing of football players using two 9-point scales (1 = *opposed, bad*; 9 = *in favor, good*). The attitude scales showed strong internal reliability ($\alpha = .93$) and were averaged into an index of participant attitudes ($M = 7.77$; $SD = 1.56$).

Pre-message subjective ambivalence

Participants reported their degree of ambivalence using established measures (Priester & Petty, 1996) of three 10-point scales paired with the statement "With regard to mandatory concussion testing of football players, I feel . . ." (1 = *completely one-sided reactions, no indecision, no conflict at all*; 10 = *completely mixed reactions, maximum indecision, maximum conflict*). Responses to these items were internally consistent ($\alpha = .90$) and were averaged to form an index of ambivalence ($M = 3.23$; $SD = 2.26$).

Target of persuasion

Participants were randomly assigned to condition (persuade other or self). Depending on condition, the instructions read: "Whether you lean toward supporting concussion testing or opposing concussion testing of all football players, in the form below, type a brief persuasive essay to convince [someone else/yourself] that you are right about this issue. Try to develop an approach that would influence [that person's/your own] stance on the issue." Target of persuasion was again effects coded (-1 : Other Focus, $+1$: Self Focus).

Dependent measures

Message valence

The content generated by participants was coded identically to Study 1. This index ranged from -1 (wrote only anti-concussion testing arguments) to $+1$ (wrote only pro-concussion testing arguments), $M = 0.86$, $SD = 0.38$.

Attitude-message congruency

This variable was computed just as it was in Study 1. Once again, higher values reflect more attitude-congruent messages, $M = 1.72$, $SD = 0.32$.

Post-message attitude certainty

After generating their persuasive messages, participants reported how certain they were in their own attitudes toward mandatory concussion testing. We administered four items adapted from Petrocelli et al.'s (2007) two-component measure of attitude certainty. Two items assessed the "clarity" component (e.g., "To what extent does your opinion of mandatory concussion testing reflect your true thoughts and feelings?"), and two items assessed the "correctness" component (e.g., "How certain are you that your attitude toward mandatory concussion testing is the correct attitude to have?"). Responses were given on 7-point scales.

Results

Attitude-message congruence

Centered regression analyses were performed on attitude-message congruence, with ambivalence, target of persuasion condition, and the corresponding two-way interaction as predictors. The data once again supported the Ambivalence \times Target of Persuasion interaction, $b = 0.02$, $t(285) = 2.67$, $p = .008$, $f^2 = .03$, 95% CI: [0.005, .033] (Figure 2). For other-directed persuasion, the pattern is again consistent with attitude strength predictions: increasing ambivalence corresponded to weaker attitude-message congruence, $b = -0.10$, $t(285) = -9.62$, $p < .001$, 95% CI: [-.12, -.08]. For self-directed persuasion, however, ambivalence was not as strongly associated with attitude-message congruence, $b = -0.06$, $t(285) = -6.69$, $p < .001$, 95% CI: [-0.08, -0.04].

We also computed Johnson-Neyman intervals, as in Study 1. Results found that people produced significantly more attitude-congruent messages when persuading themselves

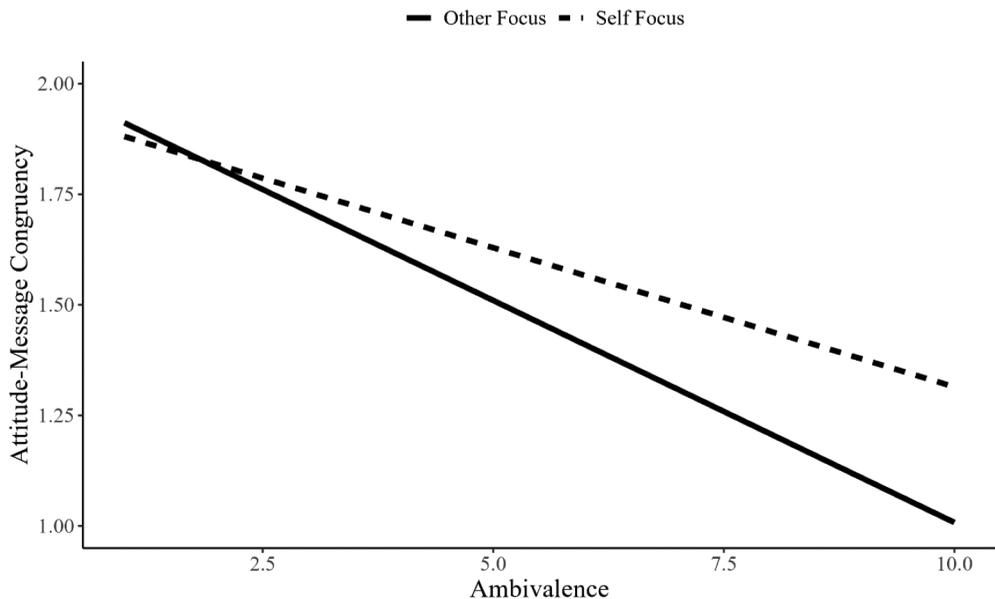


Figure 2. Ambivalence \times target interaction (Study 2).

Note. Predicted values for attitude-message congruency in Study 2 based on subjective ambivalence regarding mandatory concussion testing and target of persuasion (other versus self).

(vs. persuading others) when ambivalence was higher than 3.49 (0.11 standard deviations above the mean) on the 1–10 scale. In this study, there was no level of ambivalence at which other-directed messages were more attitude-congruent than self-directed ones. In a follow-up analysis, we examined the extent to which participants wrote arguments that took a position on the issue versus neutral arguments. The average proportion of neutral arguments in a message was 0.03. On average, 97% of people’s on-topic points carried either a positive or negative valence (or a “pro” or “anti” stance). Across both studies, neutral arguments were very uncommon.

Post-message certainty

To test whether generating attitude-consistent messages served to strengthen participants’ attitudes, we examined whether the previously reported effects on attitude-message congruency further predict post-message attitude certainty. The study included items regarding two facets of attitude certainty – clarity and correctness – which are highly related but nevertheless distinct constructs (Petrocelli et al., 2007). We submitted these items to a confirmatory factor analysis, specifying separate clarity and correctness factors, and the data strongly fit such a model, $RMSEA = 0.00$, $SRMR = 0.003$, $CFI = 1.00$. Indeed, the two-factor model fit significantly better than a unidimensional model ($RMSEA = 0.154$; $CFI = 0.981$), $\chi^2(1) = 15.45$, $p < .001$. We thus considered these dimensions separately, although they are strongly correlated, $r = 0.76$.

We ran two additional linear regression models, treating post-message clarity as the outcome variable and controlling for post-message correctness (and vice versa). In each case, attitude-message congruency was included as a predictor, along with all predictors from the previous model: initial attitude ambivalence, persuasion target condition, and the ambivalence \times condition interaction. The results show that the more people’s messages were congruent with their own attitudes, the more *clear* they were about their attitudes after the message generation procedure, $b = 0.84$, $t(283) = 5.01$, $p < .001$, 95% CI: [0.51, 1.17] (Figure 3).⁴ Notably, these results also show that post-message clarity is independently predicted by lower initial ambivalence, $b = -0.06$, $t(283) = -2.44$, $p = .02$, 95% CI: [-0.11, -0.01]. Also, as expected, post-message correctness has a strong unique association with post-message clarity, $b = 0.55$, $t(283) = 12.95$, $p < .001$, 95% CI: [0.47, 0.64].

These effects, however, are unique to clarity; attitude-message congruency did not uniquely predict post-message correctness, $b = .03$, $t(283) = .18$, $p = .86$.

Finally, we conducted a mediation analysis using the *mediation* package for *R* (Tingley et al., 2014). Specifically, we tested the ambivalence \times condition interaction on post-



Figure 3. Indirect effect on post-message clarity.

Note. * $p < .05$, ** $p < .01$.

message clarity via attitude-message congruency, controlling for post-message correctness. Estimates of the indirect effect were tested using Quasi-Bayesian Confidence Intervals with 10,000 iterations. As anticipated, results supported the indirect effect, $b = 0.02$, $p = .009$, 95% CI: [.004, .030]. That is, these data show that the previously reported ambivalence \times condition interaction on attitude-message congruency ultimately predicts greater post-message attitude certainty.

Combined Analysis *Ambivalence \times Target interaction*

Although the same two-way interaction appeared in each study, the strength of evidence for each simple effect varied somewhat between studies, due partly to the relatively small sample size in Study 1. Because the measures and procedures between studies were nearly identical, however, we combined the data in order to offer a stronger test of our hypotheses. Because ambivalence was on two different scales in each study, we rescaled the ambivalence responses from Study 1 (1–9) to the 1–10 scale used in Study 2. The key Ambivalence \times Target interaction was not significantly moderated by topic, $p = .10$, so we moved forward with analyses collapsing across study.

Across all of these data, results support the Ambivalence \times Target interaction on attitude-message congruency, $b = 0.03$, $t(388) = 3.33$, $p < .001$, 95% CI: [0.01, 0.05]. The interaction is such that we find evidence for the expected attitude strength pattern when people wrote messages to persuade another person; less ambivalence was associated with more attitude-congruent messages, $b = -0.09$, $t(387) = -6.59$, $p < .001$, 95% CI: [-0.11, -0.06]. This strength pattern, however, is significantly attenuated when people aim to persuade themselves; but still we find a marginally significant effect of ambivalence on attitude-message congruency, $b = -0.03$, $t(388) = -1.94$, $p = .05$, 95% CI: [-0.05, 0.00]. From a different perspective, using Johnson-Neyman intervals, messages were more congruent with attitudes when persuading another person (vs. oneself) at levels of ambivalence below 1.99 (0.57 standard deviations below the mean). On the other hand, attitude-message congruency was higher for self-focused (vs. other-focused) messages at levels of ambivalence above 5.61 (0.91 standard deviations above the mean).

Attitude \times Ambivalence \times Target interaction

We also took this opportunity to conduct an alternative analysis of these data. That is, another way to test our hypotheses is to assess how much ambivalence and our manipulation moderate the correlation between participants' attitudes and the valence of their messages. Although we favor our main approach of indexing attitude-message congruency as a dependent measure because it is more parsimonious, combining data from the two studies affords a higher-powered test of a three-way interaction. Indeed, this alternative approach offers a unique advantage, assessing the role of attitude extremity in the effects we evaluate while also considering how the effects apply across a valence continuum.

We submitted the data to a multiple regression analysis predicting the position taken in participants' messages (i.e., "message valence"), entering attitudes, ambivalence, target, and topic (i.e., study) and all corresponding two-, three-, and four-way interaction terms as

predictors. Attitudes were mean-centered within study, and the other three predictors were coded as in the previous combined analysis. A full set of results from this model can be found in Table S1 in the supplement. Here, we focus on the results most directly relevant to our research question.

The results support an Attitude \times Ambivalence \times Target three-way interaction, $b = 0.03$, $t(376) = 4.28$, $p < .001$, 95% CI: [0.01, 0.04], $f^2 = 0.09$ (Figure 4). With other-directed persuasion, the Attitude \times Ambivalence interaction was in the predicted direction, $b = -.02$, $t(376) = -2.64$, $p = .009$, 95% CI [-0.04, -0.01]. When persuading another person, the relationship between one's attitude and the valence of their message content was stronger when ambivalence was relatively low (1 SD below the ambivalence mean), $b = .11$, $t(376) = 4.16$, $p < .001$, 95% CI [0.06, 0.16] than when it was relatively high (1 SD above the ambivalence mean), $b = -.01$, $t(376) = -0.30$, $p = .77$, 95% CI [-0.08, 0.06].

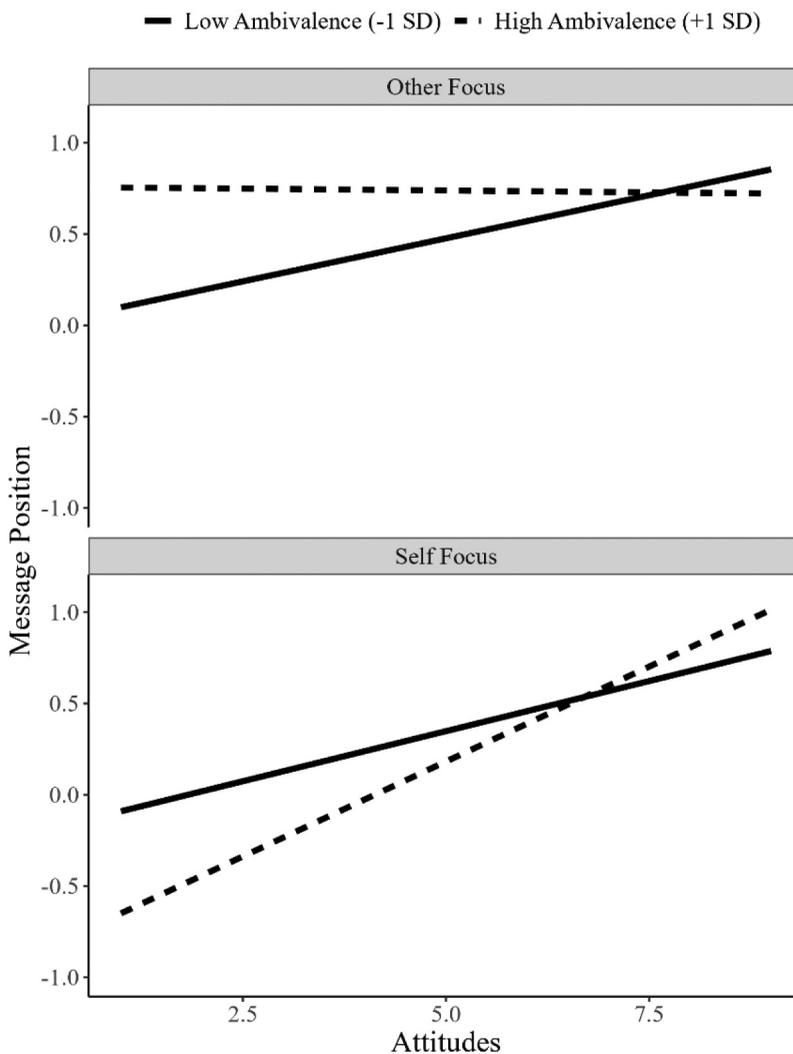


Figure 4. Attitude \times ambivalence \times target interaction (both studies).

With self-directed persuasion, the Attitude \times Ambivalence interaction was in the opposite direction, $b = .03$, $t(376) = 3.53$, $p < .001$, 95% CI [0.01, 0.04]. Here, the relationship between one's attitude and the valence of their message content was stronger when ambivalence was relatively high (1 SD above the ambivalence mean), $b = .21$, $t(376) = 7.91$, $p < .001$, 95% CI [0.16, 0.26] than when it was relatively low (1 SD below the ambivalence mean), $b = .08$, $t(376) = 2.82$, $p = .005$, 95% CI [0.02, 0.13].

Notably, this analysis found a significant four-way interaction, $b = -0.01$, $t(376) = -2.06$, $p = 0.04$, 95% CI: [-0.02, 0.00], showing that the key Attitude \times Ambivalence \times Target effect is more pronounced in Study 1 (Gun Control). See online supplement for full analyses of this effect for each study separately.

General discussion

Although much attention has been paid to the myriad conditions that sway a persuasive target, less is known about psychological influences on the content generated by a persuasive source. Although a message might reflect a source's evaluation of that issue, not all attitudes guide behavior equally well. Consistent with research on attitude strength, the current research showed that attitudinal qualities determine the impact of the source's evaluation on persuasive behavior. Two studies provided evidence that attitudinal ambivalence is related to the construction of persuasive messages. When people were focused on persuading another person, they wrote messages that were more closely aligned with their personal attitudes when they had relatively unambivalent attitudes, consistent with attitude strength predictions. However, we found a reversed (Study 1) or attenuated (Study 2) pattern when participants focused on convincing themselves. We expected that increased ambivalence might lead to increased attitude use (the pattern found in Study 1), however, we found the traditional ambivalence effect was at least tempered, if not reversed, when generating arguments for self-persuasion.

Importantly, this research integrates two seemingly paradoxical perspectives on attitudinal ambivalence. On one hand, research indicates that having a weak attitude undermines an evaluation's influence (Petty & Krosnick, 1995). On the other hand, emerging evidence has highlighted the motivational consequences associated with ambivalence (Clark et al., 2008; Sawicki et al., 2013). Because of the drive to resolve ambivalence, feeling conflicted can propel attitude-consistent behavior more than a less conflicted attitude lacking that motivational push. In fact, new evidence highlights how ambivalence can correspond with greater intentions to take extreme attitude-consistent action (Siev & Petty, 2024). The current research identified a key moderator that determines whether the extent to which ambivalence determines attitude use in persuasive content. Namely, whether the persuader focused on another person (or that person's attitude) rather than one's own attitude changed the strength of the ambivalence effects on message generation. Importantly, producing more attitude-congruent messages appears to be an effective technique for bolstering a weak attitude, specifically enhancing a sense of attitude clarity rather than correctness. It is worth noting that our strong bolstering hypothesis predicted that people trying to convince themselves would produce *more* attitude-consistent messages when they were relatively ambivalent. Our results, however, show the strength effect merely attenuated. There are a few possible explanations for these null effects. It is possible that experiencing high ambivalence makes it difficult to generate

a congruent message when the person's current mixed knowledge base has not been persuasive on its own (hence the current state of ambivalence). It also might be that the motivation to bolster varies across these individuals and some conflicted people might accept ambivalence as a reasonable way to understand a given issue. It is also possible that a more direct instruction of meta-cognitive reflection would better elicit the bolstering side of high ambivalence regardless of target of persuasion (i.e., instructing participants to consider how engaging in the message generation task might affect their current attitude). Similarly, it may be that persuading oneself is a peculiar scenario that activates several motivations. First, focusing on oneself may indeed activate bolstering motivations that urge one to settle on a clear opinion. However, the same self-reflection exercise may mirror recent work on sharing one's attitude with a partner trained to provide high-quality listening. This work finds, for example, that being listened to can free a person to appreciate and tolerate their ambivalence (Itzchakov et al., 2017). Finally, the self-persuasion instructions ask participants to convince themselves that they are right, which may activate myriad lay theories about persuasion that nudge people to present extremely one-sided arguments. Together, our attenuation effects are plausibly strong evidence that self-persuasion attenuates influences that would otherwise produce an attitude strength effect.

Study limitations

Despite attempts to standardize instructions across persuasion target (other versus self), it is possible that the participants had different interpretations across conditions. For example, one possibility is that some participants in the self-persuade condition approached the task of generating arguments more as a thought listing exercise, compared to the other-persuade condition. If so, the arguments generated in the self-persuasion conditions may have less more cogent and persuasive than in the persuade other conditions. In a post-hoc analysis, we coded the messages for persuasiveness using Copilot (Microsoft, 2025), an artificial intelligence tool powered by large language models. We tested whether these persuasiveness scores differed across targets of persuasion using an independent samples t-test. We found no mean differences in the persuasiveness of messages resulting from self-persuasion ($M = 3.36$ $SD = 0.74$) versus other-persuasion ($M = 3.4$ $SD = 0.82$), $t(388) = -0.23$, $p = 0.82$. However, without checks on participants' own interpretations, the experience of self-persuasion could have been interpreted to mean changing an attitude or reinforcing the current one. In addition, this experimental induction of self-persuasion might differ from the organic experience of desiring another attitude (e.g., wanting to like exercise more or to feel more negatively toward an unhealthy habit; DeMarree et al., 2014), more so than the difference between genuinely wanting to versus being instructed to persuade another person.

Future directions

Although this research provided evidence that persuasive behavior might depend on the nature of the communicator's existing attitude, it remains to be seen whether these effects ultimately have consequences for persuasive success. The present results suggest more nuanced predictions for future research. That is, whereas prior studies have shown

how some sources generate messages that are more persuasive (assessed by coders' subjective ratings or by the message's ability to change attitudes; Bohner & Schwarz, 1993; Forgas, 2007; Lees et al., 2023; Prislin et al., 2011), the present research documents effects on message content, which reflects a persuasion strategy that might be more effective in some situations than in others. Finally, it is worth noting how little is known about the behavior of a persuasive source. We have examined but one characteristic (i.e., attitude ambivalence) of the source that might determine message construction. The same features that influence attitude change in a target may influence the message generated by a source of persuasion. Variables relating to the source (e.g., need for cognition), target (e.g., perceived similarity), and message (e.g., content delivered in person or online) should also influence generated persuasive content. Thus, this research represents a first step in understanding the multitude of factors that shape the content of a persuasive message.

Notes

1. Because of the predicted motivational effects of ambivalence, in the current research, we focus on the potentially tense state of feeling mixed (subjective ambivalence) rather than the relative positivity versus negativity of the evaluative response (objective ambivalence).
2. We did not have an *a priori* estimate for the size of the predicted 2-way interaction. Nevertheless, our sample size in this study ($N = 118$) provided 80% power to detect a small-medium 2-way interaction ($f^2 = 0.07$) in a multiple regression model using a two-tailed analysis where $\alpha = .05$. Generally, we took the approach of "test small and replicate big" and doubled this initial sample size in Study 2. Furthermore, we later present analyses across the data from both studies to further address any concerns about power.
3. To test whether the effects of ambivalence might be more proximally related to other relevant attitude attributes such as knowledge, confidence, or importance, three regression analyses were run that included the model reported in the main text plus parallel terms that substituted knowledge, confidence, or importance for ambivalence. In all three cases, the predicted Ambivalence \times Target interaction emerged, $ps < .06$. Across analyses, the Strength Feature \times Target interaction was nonsignificant, $ps > .61$. The ambivalence effects appear not to be driven by these other strength-related attitude attributes.
4. The effect of attitude-message congruency on post-message clarity, however, was not moderated by condition, $p = .92$. That is, post-message clarity (controlling for correctness) was greater to the extent that people produced attitude-congruent messages when the message was directed at the self, $b = 1.00$, $t(284) = 4.86$, $p < .001$, 95% CI: [0.60, 1.41], and when it was directed at another person, $b = 1.03$, $t(284) = 5.06$, $p < .001$, 95% CI: [0.63, 1.43].

Disclosure statement

No potential conflict of interest was reported by the author(s).

References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage.
- Akhtar, O., Paunesku, D., & Tormala, Z. L. (2013). Weak > strong: The ironic effect of argument strength on supportive advocacy. *Personality & Social Psychology Bulletin*, 39(9), 1214–1226. <https://doi.org/10.1177/0146167213492430>

- Akhtar, O., & Wheeler, S. W. (2016). Belief in the immutability of attitudes both increases and decreases advocacy. *Journal of Personality & Social Psychology*, 111(4), 475–492. <https://doi.org/10.1037/pspa0000060>
- Albarracín, D., & Mitchell, A. L. (2004). The role of defensive confidence in preference for proattitudinal information: How believing that one is strong can sometimes be a defensive weakness. *Personality & Social Psychology Bulletin*, 30, 1565–1584. <https://doi.org/10.1177/0146167204271180>
- Armitage, C. J. (2003). Beyond attitudinal ambivalence: Effects of belief homogeneity on attitude-intention-behaviour relations. *European Journal of Social Psychology*, 33(4), 551–563. <https://doi.org/10.1002/ejsp.164>
- Armitage, C. J., & Conner, M. (2000). Attitude ambivalence: A test of three key hypotheses. *Personality & Social Psychology Bulletin*, 26(11), 1421–1432. <https://doi.org/10.1177/0146167200263009>
- Armitage, C. J., & Conner, M. (2004). The effects of attitudinal ambivalence on attitude-intention-behavior relations. In G. Haddock & G. R. Maio (Eds.), *Contemporary perspective on the psychology of attitudes* (pp. 121–143). Psychology Press.
- Bassili, J. N. (1996). Meta-judgmental versus operative indexes of psychological attributes: The case of measures of attitude strength. *Journal of Personality & Social Psychology*, 71(4), 637–653. <https://doi.org/10.1037/0022-3514.71.4.637>
- Bohner, G., & Schwarz, N. (1993). Mood states influence the production of persuasive arguments. *Communication Research*, 20(5), 696–722. <https://doi.org/10.1177/009365093020005004>
- Briñol, P., McCaslin, M. J., & Petty, R. E. (2012). Self-generated persuasion: Effects of the target and direction of arguments. *Journal of Personality & Social Psychology*, 102(5), 925. <https://doi.org/10.1037/a0027231>
- Cheatham, L., & Tormala, Z. L. (2015). Attitude certainty and attitudinal advocacy: The unique roles of clarity and correctness. *Personality & Social Psychology Bulletin*, 41(11), 1537–1550. <https://doi.org/10.1177/0146167215601406>
- Clark, J. K., Wegener, D. T., & Fabrigar, L. R. (2008). Attitudinal ambivalence and message-based persuasion: Motivated processing of proattitudinal information and avoidance of counterattitudinal information. *Personality & Social Psychology Bulletin*, 34(4), 565–577. <https://doi.org/10.1177/0146167207312527>
- DeMarree, K. G., Wheeler, S. C., Briñol, P., & Petty, R. E. (2014). Wanting other attitudes: Actual-desired attitude discrepancies predict feelings of ambivalence and ambivalence consequences. *Journal of Experimental Social Psychology*, 53, 5–18. <https://doi.org/10.1016/j.jesp.2014.02.001>
- Fabrigar, L. R., MacDonald, T., & Wegener, D. T. (2005). The structure of attitudes. In D. Albarracín, B. Johnson, & M. Zanna (Eds.), *The handbook of attitudes* (pp. 79–124). Erlbaum.
- Forgas, J. P. (2007). When sad is better than happy: Negative affect can improve the quality and effectiveness of persuasive messages and social influence strategies. *Journal of Experimental Social Psychology*, 43(4), 513–528. <https://doi.org/10.1016/j.jesp.2006.05.006>
- Gal, D., & Rucker, D. D. (2010). When in doubt, shout! Paradoxical influences of doubt on proselytizing. *Psychological Science*, 21(11), 1701–1707. <https://doi.org/10.1177/0956797610385953>
- Itzhakov, G., Kluger, A. N., & Castro, D. R. (2017). I am aware of my inconsistencies but can tolerate them: The effect of high quality listening on speakers' attitude ambivalence. *Personality & Social Psychology Bulletin*, 43(1), 105–120. <https://doi.org/10.1177/0146167216675339>
- Janis, I. L., & King, B. T. (1954). The influence of role playing on opinion change. *Journal of Abnormal and Social Psychology*, 49(2), 211–218. <https://doi.org/10.1037/h0056957>
- Kaplan, K. J. (1972). On the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. *Psychological Bulletin*, 77(5), 361–372. <https://doi.org/10.1037/h0032590>
- Lees, J., Todd, H., & Barranti, M. (2023). Women, the intellectually humble, and liberals write more persuasive political arguments. *PNAS Nexus*, 2(5), pgad143. <https://doi.org/10.1093/pnasnexus/pgad143>
- Long, J. A. (2024). Interactions: Comprehensive, user-friendly toolkit for probing interactions. <https://doi.org/10.32614/CRAN.package.interactions>. R package version 1.2.0. <https://cran.r-project.org/package=interactions>

- Luttrell, A., Petty, R. E., & Briñol, P. (2016). Ambivalence and certainty can interact to predict attitude stability over time. *Journal of Experimental Social Psychology*, 63, 56–68. <https://doi.org/10.1016/j.jesp.2015.11.008>
- Luttrell, A., Petty, R. E., & Briñol, P. (2020). The interactive effects of ambivalence and certainty on political opinion stability. *Journal of Social and Political Psychology*, 8(2), 525–541. <https://doi.org/10.5964/jspp.v8i2.1247>
- Luttrell, A., & Sawicki, V. (2020). Attitude strength: Distinguishing predictors versus defining features. *Social and Personality Psychology Compass*, 14(8), e12555. <https://doi.org/10.1111/spc3.12555>
- Maio, G. R., Bell, D. W., & Esses, V. M. (1996). Ambivalence and persuasion: The processing of messages about immigrant groups. *Journal of Experimental Social Psychology*, 32(6), 513–536. <https://doi.org/10.1006/jesp.1996.0023>
- Maio, G. R., & Thomas, G. (2007). The epistemic-teleologic model of deliberate self-persuasion. *Personality and Social Psychology Review*, 11(1), 46–67. <https://doi.org/10.1177/1088868306294589>
- Microsoft. (2025). Copilot (GPT-4) [large language model]. <https://copilot.microsoft.com/>
- Newby-Clark, I. R., McGregor, I., & Zanna, M. P. (2002). Thinking and caring about cognitive inconsistency: When and for whom does attitudinal ambivalence feel uncomfortable? *Journal of Personality & Social Psychology*, 82(2), 157. <https://doi.org/10.1037/0022-3514.82.2.157>
- Petrocelli, J. V., Tormala, Z. L., & Rucker, D. D. (2007). Unpacking attitude certainty: Attitude clarity and attitude correctness. *Journal of Personality & Social Psychology*, 92(1), 30–41. <https://doi.org/10.1037/0022-3514.92.1.30>
- Petty, R. E., & Krosnick, J. A. (Eds.). (1995). *Attitude strength: Antecedents and consequences*. Erlbaum.
- Priester, J. R., & Petty, R. E. (1996). The gradual threshold model of ambivalence: Relating positive and negative bases of attitudes to subject ambivalence. *Journal of Personality & Social Psychology*, 71(3), 431–449. <https://doi.org/10.1037/0022-3514.71.3.431>
- Prislin, R., Boyle, S. M., Davenport, C., Farley, A., Jacobs, E., Michalak, J., Xu, Y., Zandian, F., & Xu, Y. (2011). On being influenced while trying to persuade: The feedback effect of persuasion outcomes on the persuader. *Social Psychological & Personality Science*, 2(1), 51–58. <https://doi.org/10.1177/1948550610377238>
- Sawicki, V., Wegener, D. T., Clark, J. K., Fabrigar, L. R., Smith, S. M., & Bengal, S. T. (2011). Seeking confirmation in times of doubt: Selective exposure and the motivational strength of weak attitudes. *Social Psychological & Personality Science*, 2(5), 540–546. <https://doi.org/10.1177/1948550611400212>
- Sawicki, V., Wegener, D. T., Clark, J. K., Fabrigar, L. R., Smith, S. M., & Durso, G. R. O. (2013). Feeling conflicted and seeking information: When ambivalence enhances and diminishes selective exposure to attitude-consistent information. *Personality & Social Psychology Bulletin*, 39(6), 735–747. <https://doi.org/10.1177/0146167213481388>
- Siev, J. J., & Petty, R. E. (2024). Ambivalent attitudes promote support for extreme political actions. *Science Advances*, 10(24). <https://doi.org/10.1126/sciadv.adn2965>
- Thompson, M. M., Zanna, M. P., & Griffin, D. W. (1995). Let's not be indifferent about (attitudinal) ambivalence. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude Strength: Antecedents and Consequences* (pp. 361–386). Hillsdale, NJ: Erlbaum.
- Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). Mediation: R package for causal mediation analysis. *Journal of Statistical Software*, 59(5). <https://doi.org/10.18637/jss.v059.i05>
- van Harreveld, F., Nohlen, H. U., & Schneider, I. K. (2015). The ABC of ambivalence: Affective, behavioral, and cognitive consequences of attitudinal conflict. In *Advances in Experimental Social Psychology* (Vol. 52, pp. 285–324). Academic Press. <http://dx.doi.org/10.1016/bs.aesp.2015.01.002>