



On the pursuit of desired attitudes: Wanting a different attitude affects information processing and behavior



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ABSTRACT

Recent work suggests that in addition to actual attitudes, people often have desired attitudes that can vary in their congruence with their actual attitudes. We explored whether desired attitudes motivate goal-congruent outcomes by impacting people's evaluative responses over the effects of actual attitudes. Across four studies, we demonstrated that desired attitudes independently predicted behavioral intentions (Study 1), information seeking (Study 2), information processing (Study 3), and overt behavior (Study 4). Further, consistent with the idea that desired attitudes reflect attitudinal goals, these effects were strongest among people who reported that they were highly committed to the pursuit of their desired attitudes (Studies 3 and 4). Last, meta-analyses of the effects of desired attitudes and the desired \times commitment to desired attitudes interaction revealed significant evidence for these effects across the four studies. Implications of the results for research on attitudes and persuasion, motivated reasoning, and goal pursuit are discussed.

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1. Introduction

Besides wanting and choosing and being moved to do this or that, men may also want to have (or not to have) certain desires and motives. They are capable of wanting to be different, in their preferences and purposes, from what they are. (Frankfurt, 1971, p. 7)

In the above quote, philosopher Harry Frankfurt suggests that humans are uniquely capable of reflecting on their attitudes and consequently are capable of wanting to have different attitudes and preferences. In other words, people might simultaneously have actual attitudes (what Frankfurt refers to as desires) and desired attitudes (what Frankfurt and other philosophers have referred to as meta-desires or second order desires) that can sometimes conflict. For example, a dieter might want to like cheesecake less, a Republican might want to be more favorable toward Donald Trump, a married man might want to be less attracted to his single neighbor, or a student might want to enjoy studying more.

This is more than a rhetorical exercise, however. Recent work has demonstrated that people's actual and desired evaluations often differ. Notably, DeMarree and colleagues (e.g., DeMarree, Wheeler, Briñol, &

Petty, 2014) have observed discrepancies between people's reports of actual and desired attitudes on topics as diverse as social groups, political figures, social issues, health-related behaviors, specific companies, and even the self. Although the frequency of such discrepancies varies across sample and topic (e.g., 29% for the topic of exercising and 66% for the self; see DeMarree et al., 2014) and vary in direction (e.g., some people want to like legalized abortion more than they do and others less), they are surprisingly common, suggesting that they are not easily resolved. If they were, people would simply change their actual attitudes to be congruent with their desired attitudes and discrepancies would be relatively rare. However, a dieter who wants to like broccoli more cannot merely "wish" to like it more and then, *poof*, their attitude changes. Instead, their actual attitude (a negative evaluation of broccoli) and their desired attitude (to be positive toward broccoli) may coexist.

DeMarree and colleagues (DeMarree & Rios, 2014; DeMarree et al., 2014) argued that when actual and desired attitudes are discrepant, the conflicting evaluative tendencies created by each type of attitude lead people to experience *subjective ambivalence* – the psychological experience of conflict in their evaluations (Priester & Petty, 1996). Across eight studies, people reported feeling greater conflict as their actual and desired attitudes diverged (DeMarree & Rios, 2014; DeMarree et al., 2014). Further, people reported being motivated to reduce the conflict they experienced (DeMarree et al., 2014, Study 6). The hypothesized

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reason for this – that actual and desired attitudes can independently predict cognitive, affective, and behavioral responses to the attitude object – is the central focus on the current research. For example, if actual and desired attitudes point to different behaviors, people could be conflicted about how to act.

The notion that people sometimes attempt to pursue desired attitudes is a relatively novel idea. The present work tests this by determining whether people interact with their environments in a way that is consistent with pursuit of their desired attitudes. In the original conceptual work on this topic, [Maio and Thomas \(2007\)](#) discussed several strategies people use seemingly to engage in “deliberate self-persuasion” – strategies directed toward the attainment of people’s preferred evaluations. For example, people define positive characteristics in terms of their own personal strengths in order to maintain a positive self-evaluation (i.e., self-attitude), and this tendency is greatest for ambiguous traits for which there is room for biased interpretation without sacrificing accuracy (e.g., [Dunning, Meyerowitz, & Holzberg, 1989](#)). People also suppress potentially negative information about their relationship (e.g., the extent to which their partner might be attracted to someone else) under conditions that may create actual-desired discrepancies in their evaluation of their current relationship, leading to inaccurate, though potentially more positive views of their relationship and relationship partner ([Simpson, Ickes, & Blackstone, 1995](#)). Although there are individual differences in preferences for different types of attitude-pursuit strategies ([Taylor et al., 2014](#)), the ones that have been examined thus far do appear to produce the intended attitude change, at least in the short-term ([Lu, Lord, & Yoke, 2015](#); [Resch & Lord, 2011](#)).

Thus, the existing conceptual and empirical work provides initial evidence for the deployment of *intrapsychic* strategies for pursuing desired attitudes ([Lu et al., 2015](#); [Maio & Thomas, 2007](#)). However, little is known about whether desired attitudes affect how people interact with the external world. In the present work we seek to determine whether people’s behavior, information seeking, and processing of new information reflect the pursuit of their desired attitudes, independent of any influence of their actual attitudes. That is, we aim to show that the pursuit of desired attitudes extends to people’s interactions with the world around them.

Our outcomes of interest are ones that past research has examined as consequences of people’s *actual* attitudes, but that have not been examined in the context of pursuit of desired attitudes. Certainly, one of the major reasons for studying actual attitudes is because of the influence they can exert on people’s emotional, cognitive, and behavioral responses (e.g., [Breckler, 1984](#); [Fishbein & Ajzen, 1975](#); [Kraus, 1995](#); [Lord, Ross, & Lepper, 1979](#); see also [Petty & Krosnick, 1995](#)). For example, research has demonstrated that being more favorable toward religion predicted engagement in religious-congruent behaviors ([Fishbein & Ajzen, 1975](#)) and environmental attitudes predicted ecologically-congruent behaviors ([Weigel & Newman, 1976](#)). Relatedly, research has shown that people’s actual attitudes influence strategies geared toward maintaining and bolstering preferred conclusions, such as selective exposure to attitude confirming information (e.g., [Frey, 1986](#); [Hart et al., 2009](#); [Taber & Lodge, 2006](#)) and motivated evaluation of the validity of attitude confirming or disconfirming information (e.g., [Kunda, 1990](#); [Lord et al., 1979](#)). To our knowledge, however, no research has investigated whether desired attitudes influence these consequences above and beyond the influence of actual attitudes. In fact, to our knowledge, the distinction between actual and desired attitudes has not been made at all in the motivated reasoning literature, thus it is unclear whether each type of attitude can exert unique effects.

As noted above, discrepancies between actual and desired attitudes have been linked to subjective ambivalence (e.g., [DeMarree et al., 2014](#)). However, the current work is distinct from the previous work on ambivalence in a number of ways. First, objective ambivalence by definition involves both positive and negative associations regarding the attitude object, something that is explicit in all objective ambivalence measures (i.e., questions that ask for separate positive and negative evaluations;

see [Kaplan, 1972](#)). In contrast, actual and desired attitudes can lead to the *experience* of conflict (subjective ambivalence) even when both attitudes are (unambivalently) positive or negative overall ([DeMarree et al., 2014](#)) because attitudes of varying extremity might predict different cognitive, affective, or behavioral responses. For example, a moderately positive (actual or desired) attitude might lead to quiet support for a candidate but no additional desire to actively support them, whereas an extremely positive (actual or desired) attitude might lead to more active support for the candidate (e.g., volunteering for, advocating for, or donating to the candidate). Also critical, the outcomes we investigate are not outcomes typically associated with ambivalence. Ambivalence is generally linked to instability of attitudes (e.g., [Bell & Esses, 1997](#)) or increased information processing in general (presumably with the goal of ambivalence reduction; e.g., [Maio, Bell, & Esses, 1996](#)), not the directional sort of biases we examine here.¹

In the present investigation, we examine whether and how desired attitudes influence behavioral and information processing strategies that have the potential to bring about changes in people’s evaluations, beyond the known influence of actual attitudes. Across 4 studies, we tested whether, across a variety of domains, desired attitudes independently predict engagement in information processing and behaviors aimed at obtaining those desired attitudes. Specifically, we examined whether actual and desired attitudes would independently predict behavior (Studies 1 and 4), information seeking (Study 2), and information processing (Study 3). We examined these ideas across multiple topics, and examined the moderating influence of desired attitude commitment on the impacts of desired attitudes (Studies 3 & 4), predicting that desired attitudes should play a greater role when people are highly committed to them. Together these results are consistent with the prediction that desired attitudes motivate informational and behavioral strategies that appear directed toward obtaining desired attitudes, and show that actual and desired attitudes can independently influence people’s evaluative responding. We report all measures, manipulations, and exclusions included in these studies either in the main text or in the online supplement.

2. Study 1

In Study 1, we examined a behavioral outcome of people’s desired attitudes. Specifically, we examined whether people’s desired attitudes would predict their behavioral intentions above and beyond their actual attitudes. In this study, we asked participants to report their behavioral intentions with respect to eating at McDonald’s and examined whether people’s desired attitudes toward McDonald’s explained additional variance in behavioral intentions over that explained by their actual attitudes toward McDonald’s.

2.1. Method

2.1.1. Participants

One hundred twelve Ohio State University undergraduates participated for course credit (54 male, 58 female; 4 Hispanic or Latino, 87 white, 3 black, 14 Asian, 1 American Indian, 3 other; $M_{\text{age}} = 19.29$, $SD = 1.49$). In this study, the sample size was consistent with previous similar studies in this program of research that have consistently obtained significant effects with approximately 100 participants (e.g., [DeMarree et al., 2014](#)).

2.1.2. Procedure

Participants completed the study in a room with 11 desktop computer workstations, separated by dividers. Participants first completed

¹ Some recent work has begun to examine directional effects of ambivalence ([Clark et al., 2008](#); [Sawicki et al., 2013](#)). We return to this work, and analyses we conducted to address it, in the General discussion.

the informed consent process. The present materials were included as filler measures for another study. Although the questionnaire included questions on both Walmart and McDonald's, only the questions on McDonald's were followed up by questions related to behavioral intentions, which is the focus of the present study.

2.1.3. Materials

Only those materials related to the present hypotheses are described below. For details on other measures included, as well as the specific items described below, see the online supplement.

2.1.3.1. Actual and desired attitudes. Participants indicated their actual and desired attitudes toward McDonald's, using a modified version of Higgins' (Higgins, 1989) Selves Questionnaire. This portion of the study began with the following prompt, adapted from previous work (DeMarree et al., 2014):

Sometimes the attitudes we have are different from the attitudes we ideally would like to have or the attitudes we feel we should hold. For each issue, please indicate the attitude you ACTUALLY have, the attitude you IDEALLY would like to have, and the attitude you feel you SHOULD or OUGHT to hold using the scales provided.

Participants were given three scales, one at a time, on which to report their actual, ideal, and ought attitudes toward McDonald's. Scales were anchored at 1 (*Strongly opposed*) and 9 (*Strongly support*). Actual attitudes always appeared first, but ideal and ought attitude questions were randomized. Whereas in past work (DeMarree & Rios, 2014; DeMarree et al., 2014), we have averaged ideal and ought attitudes to create a single index of desired attitudes, in the present study, different results emerged for each measure, so we kept ideal attitudes and ought attitudes separate. For 69 participants, their actual and ideal attitudes were not the same, and of these, 23 wanted to be more positive and 46 wanted to be less positive. For 76 participants, their actual and ought attitudes were not the same, and of these, 21 wanted to be more positive and 55 wanted to be less positive.

2.1.3.2. Behavioral intentions. Participants next completed six questions assessing their behavioral intentions to eat at McDonald's. First, there was a general likelihood question, "Over the next month, how likely is it that you will eat at least one meal at McDonald's?" Next, participants completed three meal-specific likelihood questions, asking them "Over the next month, how likely is it that you will eat at least one breakfast/lunch/dinner at McDonald's?" These first four questions were answered on 9-point scales, anchored at *Not at all likely to happen* and *Will definitely happen*. The likelihood questions demonstrated acceptable reliability, and thus were averaged to form a single index ($\alpha = 0.88$). Finally, participants were asked to indicate, in an open-ended format, the total number of meals they expected to eat at McDonald's over the next month.

2.2. Results

For descriptive statistics and correlations among variables, see Table 1

Table 1
Descriptive statistics and correlations between Study 1 measures.

	Descriptives		Correlations				
	M	SD	A	B	C	D	E
A Actual Attitude	4.250	2.491					
B Ideal Attitude	3.563	2.578	0.599**				
C Ought Attitude	3.214	2.145	0.423**	0.579**			
D Likelihood index	3.821	2.145	0.626**	0.557**	0.234*		
E Number of meals	2.169	3.594	0.402**	0.406**	0.110	0.625**	

* $p < 0.05$.

** $p < 0.001$.

To test our hypotheses, we regressed each of the two behavioral intention measures (the likelihood index and the number of meals) onto actual, ideal, and ought attitudes. For the likelihood index, significant positive effects of actual ($b = 0.501$, $SE = 0.093$, 95% CI: [0.317, 0.684], $\beta = 0.478$), $t(108) = 5.412$, $p < 0.001$, and ideal attitudes ($b = 0.384$, $SE = 0.099$, 95% CI: [0.187, 0.581], $\beta = 0.380$), $t(108) = 3.864$, $p < 0.001$, emerged. That is, *ideal* attitudes strongly predicted participants' likelihood of eating at McDonald's over and above that predicted by actual attitudes. Unexpectedly, there was a significant *negative* effect of ought attitudes ($b = -0.228$, $SE = 0.105$, 95% CI: [-0.438, -0.019], $\beta = -0.188$), $t(108) = 2.165$, $p = 0.033$.²

For the number of meals, significant positive effects of actual ($b = 0.394$, $SE = 0.153$, 95% CI: [0.092, 0.697], $\beta = 0.273$), $t(108) = 2.583$, $p = 0.011$, and ideal attitudes ($b = 0.515$, $SE = 0.164$, 95% CI: [0.190, 0.840], $\beta = 0.369$), $t(108) = 3.139$, $p = 0.002$, emerged. That is, *ideal* attitudes strongly predicted the number of meals participants intended to eat at McDonald's over and above those predicted by actual attitudes. Unexpectedly, once again, there was a significant *negative* effect of ought attitudes ($b = -0.368$, $SE = 0.174$, 95% CI: [-0.713, -0.023], $\beta = -0.220$), $t(108) = 2.115$, $p = 0.037$.³

2.3. Discussion

Study 1 offered initial support for our predictions. Actual and ideal attitudes each independently predicted participant's behavioral intentions across both indices included in this study. To the best of our knowledge, this is the first demonstration of desired attitudes predicting a response typically associated with actual attitudes – behavioral intention.

An unexpected finding from this study is that ought attitudes did not show the same pattern as ideal attitudes. This finding is surprising because past work examining ideal and ought conceptualizations of desired attitudes has found that they exert similar effects (DeMarree & Rios, 2014; DeMarree et al., 2014). However, it may be that ideal standards are more "personal" and self-determined (cf. Ryan & Deci, 2000) whereas ought standards are more interpersonal. Maio & Thomas (2007, p. 3) argue that, "deliberate self-persuasion should occur only when the desired attitude is held as a personal goal, over and above any felt compunction from rules or from others." Thus, people might be less motivated to pursue ought attitudes because they are socially determined and less related to one's personal goals than ideal attitudes (but see Lu et al., 2015). Observing a reverse correlation with intentions, however, might suggest that people demonstrated reactance to societal expectations, at least with respect to eating at McDonald's (Brehm, 1966).

² We sought to explore whether this negative effect (observed on both outcomes) was an artifact that could occur if there is too much collinearity with other predictors, but that does not appear to be the case (VIF = 1.53, which is much less than commonly-cited criterion for concern [e.g., <10]). When ideal attitudes are removed from the models, the direction of prediction by ought attitudes remains the same, but it is no longer a significant predictor ($ts < 0.8$). In contrast, when ought attitudes are removed from the model, ideal attitudes remain a strong positive predictor ($ts > 2.4$). If we average ideal and ought attitudes to create a single index of "desired" attitude, that index is also not a significant predictor ($ts < 1.61$)

³ Note that in all studies, we also examined Actual \times Desired attitude interactions (for each operationalization of desired attitude). In these analyses, the focal effect remained significant when the interaction was added, except for the effect of ideal attitudes on the predicted number of meals eaten at McDonald's in the next month in Study 1 (the effect on the likelihood index remained significant, however). In addition, only once did an Actual \times Desired interaction emerge. Specifically, in Study 3, desired attitudes predicted the biased information evaluation index to a greater extent when actual attitudes were more positive. Because this was an isolated effect, we do not attempt to interpret this.

Table 2
Descriptive statistics and average correlations between Study 2 measures.

		Descriptives		Correlations		
		M	SD	A	B	C
A	Actual Attitude	0.998	2.682			
B	Ideal Attitude	1.448	2.777	0.699 (0.180)		
C	Ought Attitude	1.510	2.740	0.601 (0.156)	0.814 (0.049)	
D	Information Interest Bias	0.500	2.587	0.360 (0.189)	0.377 (0.204)	0.308 (0.160)

Because this model has each observation nested within participant and within attitude object, typical zero-order correlations were not appropriate, because they fail to take into account the non-independence of the observations. To partially address this issue, we computed the correlations for each (of the 10) attitude objects and above report the mean and associated standard deviation across attitude objects. All $t_s(9) > 7.5$, all $p_s < 0.001$. For additional descriptive information (e.g., by each attitude object), see DeMarree et al., 2014.

3. Study 2

In Study 2, we shift focus from examining a behavioral outcome of people's desired attitudes to a cognitive-behavioral outcome. Specifically, we examine people's interest in information consistent with desired attitudes. Biased information seeking is one means through which people maintain their existing attitudes (Frey, 1986; Smith, Fabrigar, & Norris, 2008). We sought to examine whether such biases could also be employed in the pursuit of desired attitudes. In the present study, we asked participants to report their interest in reading articles taking a variety of positions, and examined whether the valence of people's desired attitudes predicted the valence of the articles participants were interested in reading.

3.1. Method

3.1.1. Participants

One hundred five Ohio State University undergraduates participated for course credit (51 male, 54 female; 1 Hispanic or Latino, 85 white, 11 black, 6 Asian, 1 American Indian, 1 other; $M_{\text{age}} = 20.06$, $SD = 2.62$).⁴ We again sought to obtain a sample size of at least 100 participants; with ten observations nested within participants, consistent with our prior research.

3.1.2. Procedure

Participants completed the study in a room with 11 desktop computer workstations, separated by dividers. Participants first completed the informed consent process. As reported in DeMarree et al. (2014), participants completed assessments of actual and desired (ideal and ought) attitudes, as well as of subjective and objective ambivalence toward ten attitude objects. The ambivalence results from these data have been reported previously and summarized in the Introduction. However, after the completion of the measures reported in the original paper, participants completed an assessment of their interest in reading positive and negative information toward each of the ten objects. The topics included were African Americans, Hillary Clinton, John McCain, abortion, exercising, gay marriage, the war in Iraq, the self, using condoms, and Wal-Mart. Topics were presented to each participant in a random order.

⁴ These data are taken from the same study reported in DeMarree et al. (2014, Study 2), though the focal measures [ambivalence in DeMarree et al., 2014; information interest in the present investigation] differ. Additional descriptive statistics (beyond Table 2) can be found in DeMarree et al., 2014.

3.1.3. Materials

3.1.3.1. Actual and desired attitudes. Measures of actual and desired attitudes (ideal and ought) directly mirrored those described in Study 1.⁵

3.1.3.2. Information interest. Participants completed a series of questions designed to gauge their interest in valenced information about each topic. Specifically, participants were told:

For the next task, we'd like you to read several articles taken from a variety of newspapers all across the country. Because of time, we can't have you read all of them, so we'd like you to tell us how interested you would be in reading articles that take various positions. On the screens that follow, we will present you with the positions taken by the articles we have available. Please rate, on the scale provided, how interested you would be in reading an article that takes each of the positions listed.

Randomly interspersed among possibilities that took balanced stances, were the 20 critical questions. For each topic, participants were asked: "To what extent would you like to read positive (negative) information about *topic x*?" The specific wording of each question was modified slightly to reflect the nature of the topic (e.g., "To what extent would you like to read positive information about Your Self (based on your responses thus far)?" or "To what extent would you like to read information in opposition to Hillary Clinton?"). All responses were on 7-point scales anchored at *not at all* and *very much*. To compute an index of relative interest in each topic, ratings of negative information were subtracted from ratings of positive information.

3.2. Results

To test our hypotheses, we utilized multilevel modeling. Multilevel modeling is ideal for our data structure because we had ten attitude objects nested in each of our 105 participants. Alternatively, one could also

⁵ We also included an additional assessment of desired attitudes modeled after DeMarree et al., 2014, Study 1. Specifically, participants first indicated their attitude toward the focal attitude using a standard attitude scale and were then asked to indicate whether the attitude they reported was the same or different from the attitude they wanted, and if different, whether they wanted to be more positive or more negative than they indicated, and then how much more positive or negative they wanted to be. Results of this measurement strategy failed to support the current predictions ($p_s > 0.24$). However, it is worth noting that the "actual" attitude in that strategy was significantly predicted by both actual ($t > 28$) and desired attitudes (ideal $t = 9.00$, ought $t < 0.26$). In other words, the ideal attitude may have already been captured by the "actual" attitude in the alternative assessment strategy. Further, ideal attitudes more strongly predicted the "actual" attitude ($t = 9$) than the desired attitude ($t = 4.73$) in this alternative assessment strategy. In other words, the two different assessment strategies do not appear to align well with each other. Given the complexity of the branching questions and the difficulty in interpreting desired attitudes in the branching strategy, we decided to rely exclusively on questions more parallel to the selves questionnaire, consistent with the other studies reported in this manuscript.

conceptualize our measures as nested within attitude object (Judd, Westfall, & Kenny, 2012). Multilevel modeling accounts for the non-independence of the multiple responses from a given level, such as participant or attitude object (Hayes, 2006; Kenny, Mannetti, Pierro, Livi, & Kashy, 2002). Taking into account the nesting of observations also allowed us to compute accurate degrees of freedom (which can vary from test to test) and to partition out between-participant/object error variance. Judd et al. (2012) have argued that when the stimulus (in our case, attitude object) is treated as a random factor, and hence, stimulus-specific variance can be accounted for, stronger generalizations beyond the specific stimuli used are possible.

We predicted the relative information interest variable from grand mean-centered actual, ideal, and ought attitudes. Multilevel modeling generates coefficients for each predictor, which are comparable to unstandardized betas in regression. We used both participant and attitude object as nesting variables (i.e., level 2 variables), and allowed intercepts to vary between these levels. Allowing slopes to vary across participants or attitude objects did not alter the results, though it did result in model convergence errors, so slopes were instead treated as fixed effects.

Consistent with predictions, this model revealed significant effects of both actual attitude ($b = 0.183$, $SE = 0.047$, $CI: [0.091, 0.276]$), $t(1039) = 3.91$, $p < 0.001$, and ideal attitude ($b = 0.375$, $SE = 0.063$, $CI: [0.252, 0.498]$), $t(1029) = 5.98$, $p < 0.001$. That is, *ideal* attitudes strongly predicted this information seeking bias over and above the influence of actual attitudes. Ought attitudes did not predict congruent information seeking ($b = -0.072$, $SE = 0.053$, $CI: [-0.175, 0.032]$), $t(1004) = 1.35$, $p = 0.177$.⁶

3.3. Discussion

Study 2 provided additional evidence that people's desired attitudes can drive evaluative responses. People's desired attitudes predicted their interest in congenial information over and above the influence of their actual attitudes. Furthermore, this occurred across a wide range of attitude objects, suggesting that this phenomenon generalizes across domains. This may indicate that when one's actual and desired attitudes conflict, people will sometimes seek information that actually undermines their actual attitude. In other words, if people pursue desired attitudes that are sufficiently different from their actual attitudes, people may display the opposite of the classic biased information seeking effect, and seek information that goes against their (unwanted) actual attitudes. If so, this might be another mechanism by which discrepant actual and desired attitudes can produce feelings of ambivalence (see DeMarree et al., 2014).

Study 2 also replicated the unexpected effect in Study 1 that when ideal and ought attitudes were considered simultaneously, only ideal attitudes predicted biased information interest in a congruent way, although in Study 2 both predicted when considered in isolation. This may again suggest the possibility that ideal attitudes are more relevant to personal goals, whereas ought attitudes are more interpersonal. Future research could elaborate on this distinction.

4. Study 3

In Study 3, we examined whether desired attitudes lead to biased evaluation of information that varies in its congeniality with participants' desired attitudes. Previous research has often found that people view information consistent with their (actual) attitudes to be more credible than information that conflicts with their attitudes (e.g., Houston & Fazio, 1989; Lord et al., 1979).

We sought to examine whether desired attitudes similarly predict this bias, over and above the influence of people's actual attitudes.

One alternative to Studies 1 and 2 is that instead of representing two different constructs, actual and desired attitudes may represent two imperfect measures of attitudes. If this were the case, we might expect some independent prediction of outcomes because each measure contains some non-overlapping true score representing people's attitude toward the attitude object. From this perspective, desired attitudes would not be attitudinal goals.

In an attempt to test this alternative, in this study we also included a measure of participants' commitment to their desired attitude. If people's desired attitudes truly have motivational force, they should have greater impact as people's commitment to them increases. A person's commitment to a particular goal is thought to provide the motivational force behind the goal, predicting both self-regulatory and affective consequences of a particular goal pursuit (e.g., Klein, Wesson, Hollenbeck, & Alge, 1999; Kruglanski et al., 2002; Shah, Friedman, & Kruglanski, 2002). We expected participants to evaluate information that was consistent (versus inconsistent) with their desired attitudes as more credible, especially as commitment to desired attitudes increased.

4.1. Method

4.1.1. Participants

One hundred sixty three University at Buffalo undergraduates participated for course credit (67 male, 96 female; 13 Hispanic, 56 white, 20 black, 79 Asian, 3 other, 1 unreported, multiple categories possible; $M_{age} = 19.644$, $SD = 1.852$). For this study, we sought to collect at least 40 people per "cell" of the predicted Desired Attitude \times Commitment interaction (i.e., target $N = 160$).

4.1.2. Procedure

Participants completed the study in a room with 3–5 desktop computer workstations, separated by dividers. Participants first completed the informed consent process. They then completed the actual and desired attitude measures toward the focal topic (death penalty) and several filler topics. After a brief, unrelated study, participants completed a "research evaluation study," our primary dependent measure. After the focal materials, participants completed materials for other unrelated studies and personality measures before completing the demographic questionnaire and being debriefed.

4.1.3. Materials

4.1.3.1. Actual and desired attitudes. Participants indicated their actual and desired attitudes toward the death penalty along with several filler topics (legalized abortion, nuclear power, taxing junk food, their institution becoming vegetarian only). In this and all subsequent studies, we assess a generic desired attitude rather than ideal and ought attitudes separately, building on our past work that had found generic desired attitudes to be useful predictors of relevant outcomes (e.g., subjective ambivalence; DeMarree et al., 2014). Note that the shift from reliance on ideal and ought attitudes to a more general desired attitude is something that has occurred throughout this program of research (DeMarree & Rios, 2014; DeMarree et al., 2014) as a means to both simplify the measurement of these constructs and to avoid tying our research on desired attitudes to any pre-existing conceptual framework for understanding the effects of attitudinal goals. It is worth noting that one study that included a generic desired attitude as well as specific ideal and ought attitudes found that the desired attitude was most strongly predicted by the ideal attitude, though both were independently related to the generic desired attitude (DeMarree et al., 2014; footnote 4).

⁶ If either ideal or ought attitudes are removed from the model, the other is a strong positive predictor of the information processing bias (all $t_s > 3.2$, $p_s < 0.002$). When the separate ideal and ought attitudes are replaced with the average of ideal and ought attitudes, average "desired" attitude in this context remains a strong predictor.

This portion of the study began with the prompt below, a slightly modified version of the one used in our previous studies:

Sometimes the attitudes we have are different from the attitudes we would like to have and sometimes these are the same. For each issue presented, please indicate the attitude you ACTUALLY hold as well as the attitude you would LIKE to hold using the scales provided.

Participants were given three scales, one at a time, on which to report their actual and desired attitudes toward each topic. Scales were anchored at -4 (*Negative, Bad, Against*) and 4 (*Positive, Good, In Favor*). Items were presented in a random order across topic, attitude type (actual and desired), and scale anchor. Reliability was acceptable for both actual ($\alpha = 0.94$) and desired attitudes ($\alpha = 0.95$), so scales were averaged for each. For 97 participants, their actual and desired attitudes were not the same, and of these, there was a relatively even split between those who wanted to be more positive ($n = 43$) and those who wanted to be more negative ($n = 54$). Note that with three scales each for actual and desired attitudes, many of these discrepancies were relatively small (e.g., 0.33 scale points; average absolute discrepancy across all participants = 0.77, $SD = 1.12$).

4.1.3.2. Commitment. Participants next completed a measure of commitment to their desired attitude for each topic. Specifically, participants were presented with their actual and desired attitudes they had reported earlier, using the following text:

Earlier, you indicated that your current attitude towards the Death Penalty is ## (on a -4 to $+4$ scale), and that your desired attitude is ##. How committed are you towards PURSUING/KEEPING your desired attitude towards the Death Penalty?

The ## were replaced with the actual average values to the three actual and three desired attitude questions. Further, the word *pursuing* was used whenever actual-desired attitude discrepancies were >0.5 scale points. The commitment scale was anchored at 1 (*Not at all*) and 9 (*Extremely committed*). Participants' commitment to their desired attitude was modest, on average (see Table 3), but represented the full range of possible values.

4.1.3.3. Biased evaluation of information. After a brief questionnaire (<5 min) for another program of research that asked participants to form an impression of a person based on brief trait lists (modeled after DeMarree, Briñol, & Petty, 2015), participants completed a "Research Evaluation Study," which provided our focal outcomes for the present study. Participants were told that we were interested in the extent to which psychology training adequately prepared students to evaluate research, and to this end, they'd be presented with brief descriptions of research studies, and would be asked to evaluate the study methods and conclusions. Participants then read a description of one study, which made either a pro- or an anti-death penalty conclusion and evaluated it before reading a description of another study, which made the opposite conclusion.

The basic study descriptions were taken from previous research (Houston & Fazio, 1989; Lord et al., 1979). The one-paragraph descriptions briefly described the rationale, methods, findings, and conclusions of a single study. Specifically, one study used a pre-post research design comparing murder rates before and after implementation of the death

penalty, whereas the other study used a neighboring states research design comparing murder rates of bordering states that did or did not have the death penalty. One study found support for the deterrent effect of the death penalty whereas the other study found the opposite. Between participants, the specific study design that made each conclusion was counterbalanced, and the order of pro- versus anti-death penalty studies was randomly determined for each participant.

After reading each study, participants were asked to evaluate it and were given an opportunity to revisit the study description prior to their ratings if they so chose. The two critical questions, taken from previous research (Houston & Fazio, 1989; Lord et al., 1979), were "How well conducted was the study you just read about?" (-5 *Very poorly conducted* to 5 *Very well conducted*) and "How convincing were the conclusions made from the study you just read about?" (-5 *Very unconvincing* to 5 *Very convincing*).

Responses to these questions were averaged for the pro- ($\alpha = 0.85$) and anti-death penalty ($\alpha = 0.88$) studies. Then, evaluations of the anti-death penalty study were subtracted from ratings of the pro-death penalty study ($r[163] = 0.15, p = 0.06$) to create an index of relative preference. Higher values on this index represent the belief that the study that found that the death penalty is effective was more credible than the study that found that the death penalty is not effective.

4.2. Results

Descriptive statistics and correlations among critical measures can be found in Table 3.

Recall that we predicted that people's desired attitudes would predict relative preference for desired-attitude congruent (over incongruent) information, over and above any comparable impact of people's actual attitudes, and that this bias should be greater as people's commitment to their desired attitude increased. To examine this question, we regressed the relative bias index on the study counterbalancing factor (coded such that $+0.5 =$ pro-DP study was the pre/post design, whereas -0.5 pro-DP study was the neighboring state comparison design), actual attitude, desired attitude, and desired attitude commitment (all mean centered) and the Actual \times Commitment and Desired \times Commitment interactions. Note that "commitment" in this study is commitment to the *desired* attitude.

This regression revealed a significant main effect of the counterbalancing condition ($b = 1.037, SE = 0.462, 95\% CI: [0.124, 1.949], \beta = 0.168, t(156) = 2.244, p = 0.026$, such that people tended to view the pro-death penalty study as relatively more credible when it was associated with a pre-post than a neighboring state research design. Additionally, there was a main effect of desired attitude ($b = 0.472, SE = 0.225, 95\% CI: [0.027, 0.917], \beta = 0.370, t(156) = 2.095, p = 0.038$, such that people who wanted to be more positive on average viewed the pro-death penalty study as more credible. As can be seen in Fig. 1, the Desired Attitude \times Commitment to Desired Attitude interaction also emerged ($b = 0.177, SE = 0.073, 95\% CI: [0.033, 0.320], \beta = 0.405, t(156) = 2.428, p = 0.016$. In addition, the Actual Attitude \times Commitment to Desired Attitude interaction was marginally significant ($b = -0.141, SE = 0.075, 95\% CI: [-0.288, 0.007], \beta = -0.310, t(156) = 1.886, p = 0.061$).

We decomposed these interactions at ± 1 standard deviation on commitment. At low commitment to desired attitudes, we find that neither actual attitudes ($b = 0.227, SE = 0.229, 95\% CI: [-0.225, 0.678], \beta = 0.169, t(156) = 0.992, p = 0.323$, nor desired attitudes ($b = 0.008, SE = 0.198, 95\% CI: [-0.383, 0.398], \beta = 0.006, t(156) = 0.038, p = 0.970$, predicted people's relative bias for pro-death penalty information. In contrast, at high commitment to desired attitudes, we found that desired attitudes ($b = 0.936, SE = 0.368, 95\% CI: [0.209, 1.663], \beta = 0.735, t(156) = 2.543, p = 0.012$, but not actual attitudes ($b = -0.513, SE = 0.367, 95\% CI: [-1.238, 0.212], \beta = -0.384, t(156) = 1.399, p = 0.164$, significantly predicted people's relative bias for pro-death penalty information. The pattern observed for desired

Table 3
Descriptive statistics and correlations between Study 3 measures.

		Descriptives		Correlations		
		M	SD	A	B	C
A	Actual Attitude	-0.198	2.307			
B	Desired Attitude	-0.460	2.423	0.843***		
C	Commitment to Desired	5.47	2.628	-0.084	0.079	
D	Biased Evaluation	0.571	3.087	0.263***	0.273***	0.013

*** $p < 0.001$.

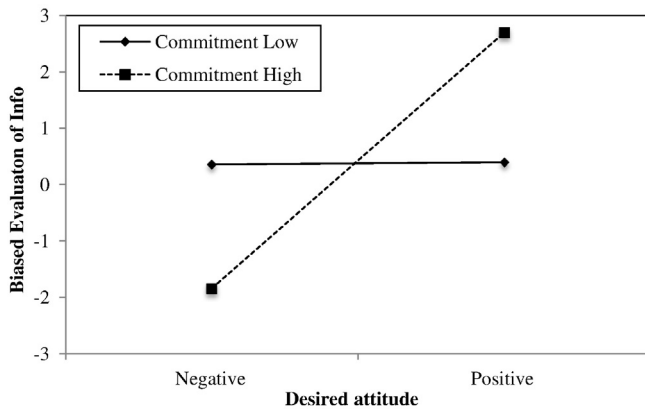


Fig. 1. Study 3. Interaction between desired attitudes and commitment to desired attitudes predicting more positive evaluations of the pro-death penalty study relative to the anti-death penalty study.

attitudes was in line with predictions, as desired attitudes only predicted biased evaluations when commitment was high. In contrast, the pattern observed for actual attitudes, although not significant, was in the opposite direction, such that as people became more committed to their desired attitude, actual attitudes tended to be associated with less attitude-congruent information processing.⁷ The interaction with actual attitudes should be interpreted with caution, however, as we failed to replicate past work that has found effects of actual attitudes on biased evaluation using the same paradigm (Lord et al., 1979). It is possible that we would have observed this effect among people whose actual attitudes were highly accessible (Houston & Fazio, 1989) or who were highly committed to their actual attitude.

4.3. Discussion

Study 3 again offered support for the idea that people pursue their desired attitudes. Notably, people evaluated information that was consistent with their desired attitudes as more credible than information that was inconsistent with their desired attitudes, and this relationship was stronger as people's commitment to their desired attitudes increased. This finding suggests that even when exposed to a representative information environment, people will walk away finding support for their desired attitude. The commitment result is encouraging, as this pattern of moderation is consistent with actual pursuit of people's desired attitudes (e.g., Klein et al., 1999; Kruglanski et al., 2002; Shah et al., 2002). Further, because commitment had different moderating effects on actual and desired attitudes, this study provides further support for the conceptual uniqueness of these measures. Admittedly, the measure of commitment used in this study was not ideal because it used different wording depending on whether or not actual and desired attitudes were the same or different. We addressed this issue by improving the wording of this item and by adding a measure of commitment to participants' actual attitudes in our next study.

5. Study 4

The goal of Study 4 was to determine whether desired attitudes influence two different types of real, overt behavior directed toward a relevant attitude object above the influence of one's actual attitudes. Specifically, we sought to determine whether desired attitudes would lead people to engage in behaviors that might shift the desirability of the attitude object, and second, whether desired attitudes would lead

people to behave consistently with their desired attitudes. In this study, participants were informed they would be evaluating a product, specifically, a cup of coffee. Participants reported both their actual and desired attitudes toward drinking coffee. In a paradigm in which actual coffee was provided for participants to try, participants were given the opportunity to make additions to their coffee (e.g., sugar, cream), and then drank the coffee while filling out a coffee evaluation form and several personality measures.

Our first dependent variable of interest was how many additions participants made to their coffee. Although actual attitudes and desired attitudes will often predict the same behavior (e.g., actually liking exercise and wanting to like exercise could both predict more exercising), this dependent variable used in this study provides an opportunity to disentangle actual and desired attitudes, as they should predict different behavioral responses. Presumably, people who actually like drinking coffee a great deal would do little to adjust the flavor of their coffee because they like it as is, while people who want to like drinking coffee more would perhaps make more adjustments to their coffee in order to improve the flavor and move closer to their desired attitude. Therefore, we hypothesized that participants desiring to like coffee more would make more additions to their coffee as a means of acquiring their desired attitude (to like coffee), controlling for actual attitudes, and that this relationship would be strongest for those committed to pursuing their desired attitude. These results would indicate that desired attitudes lead people to take behavioral measures directed toward achieving their desired attitude – in this case by altering the attitude object.

Our second dependent variable of interest was the volume of coffee participants actually drank. One strategy people might adopt to obtain their desired attitudes is a “fake it until you make it” strategy (e.g., Hudson & Fraley, 2015; Willard & Gramzow, 2009). This could be effective if the attitude-congruent behavior initiates self-perception (Bem, 1972) or dissonance (Festinger, 1957) processes, or if, in the case of coffee, repeated exposure increases one's tolerance of the bitter flavor. We hypothesized that in addition to participants' actual attitudes toward coffee predicting coffee consumption, participants who desired to like coffee more would also drink more coffee, especially when they were highly committed to liking coffee more. Building on the results of Study 1, this result would indicate that desired attitudes influence behavioral engagement consistent with the desired attitude.

5.1. Participants

One hundred sixty-eight University at Buffalo undergraduates participated in exchange for course credit (78 male, 90 female; 14 Hispanic, 51 white; 8 black; 98 Asian [Chinese, Korean, Filipino, Japanese, Vietnamese, Taiwanese, Other Asian], 9 Asian Indian, multiple selections available; $M_{\text{age}} = 19.382$, $SD = 1.587$). We sought to recruit as large of a sample as we could because we worried that the overt behavior measure might be less sensitive than the self-report measures used in our earlier studies. However, because we began running this study in the final weeks of the semester, we recruited as many participants as we were able to before the end of the semester.

5.2. Procedure

A research assistant greeted participants and told them that they would be participating in a taste test and that we were interested in “how people weigh various factors when evaluating a product.” Participants were informed that they would be evaluating a specific brand of coffee. As our first dependent variable of interest, participants were given an opportunity to make additions to their cup of coffee prior to evaluating it. Each participant was handed a sheet with pictures and descriptions of four possible additions (sugar packet, Splenda® packet, half & half creamer mini cup, lactose-free creamer mini cup). Below each picture was a line for them to write in the number of each addition

⁷ If the Actual Attitude \times Commitment to Desired Attitude interaction is dropped from this model, the Desired Attitude \times Commitment to Desired Attitude interaction reduces in its significance ($b = 0.059$, $SE = 0.038$, 95% CI: $[-0.016, 0.13]$, $\beta = 0.15$), $t(157) = 1.56$, $p = 0.12$, although the pattern remains the same.

they wanted added to their coffee. A display cup was presented on a table next to the participants so they could see the size of the cup of coffee they would receive prior to selecting their additions (the cup was 12-oz, but was filled to approximately 10-oz each time).

Before excusing him/herself to prepare the cup of coffee, the research assistant handed the participant a questionnaire regarding their attitudes toward drinking coffee. On this questionnaire, participants reported both their actual and desired attitudes toward drinking coffee. Participants received the same prompt as in Study 3, except specific to the topic of drinking coffee. Participants then reported their actual attitudes on three questions: “What is the attitude toward drinking coffee that you ACTUALLY have?” answered on a 9-point scale from -4 *Strongly negative* to 4 *Strongly positive*, “How do you ACTUALLY feel about drinking coffee?” answered on a 9-point scale from -4 *Strongly hate it* to 4 *Strongly love it*, and “What do you ACTUALLY think about the harms/benefits of drinking coffee?” answered on a 9-point scale from -4 *Very harmful* to 4 *Very beneficial*. These items were combined into an index of actual attitudes ($\alpha = 0.82$; $M = 1.279$, $SD = 1.551$). Desired attitudes were then reported on the same three questions, but rather reporting how they ACTUALLY felt, they reported how they would LIKE TO feel. These items were combined into an index of desired attitudes ($\alpha = 0.80$; $M = 1.607$, $SD = 1.498$). For 133 participants (79.17%), their actual and desired attitudes were not the same (0.33 to 5.67 points difference, $M_{\text{difference}} = 0.918$, $SD = 1.028$), and of these, 48 wanted to be more negative and 85 wanted to be more positive. Participants were retained for the analyses irrespective of the presence or absence of a discrepancy between actual and desired attitudes.

We also asked participants how committed they were to keeping their actual attitude ($M = 5.467$, $SD = 2.262$) as well as how committed they were to pursuing their desired attitude ($M = 5.030$, $SD = 2.224$) on separate 9-point scales from 1 *Not at all Committed* to 9 *Extremely Committed*. This questionnaire also contained a variety of other filler questions to give the research assistant adequate time to prepare the coffee, for example, “What do you typically order at coffee shops?”; “Would you say you are addicted to coffee or coffee-type beverages in the sense that you drink them every day in order to feel energized?”

While participants completed this questionnaire, the research assistant prepared the cup of coffee. To ensure consistency across participants, the coffee was Green Mountain Coffee® Nantucket Blend k-cups brewed using a Keurig® single-cup brew system on the tenounce setting. After adding the sweetener and creamer additions specified by the participant, the research assistant recorded the weight of the coffee (in grams) so we could later determine how much coffee the participant consumed during the study.

The research assistant then returned to the lab with the prepared cup of coffee. Participants were asked to drink as much or as little as they like, but to drink enough that they felt able to adequately evaluate the product. The research assistant then gave the participant a

questionnaire packet and explained to the participant, “Here are the questionnaires we would like you to complete. You will see there are a couple of personality measures before the product evaluation form. We are having you complete these measures first so you have more time to try the coffee before you evaluate it. You may also continue drinking your coffee after you complete the product evaluation form if you want. When you have finished all of the surveys in the packet, you can come get me. I will be out in the hallway.”

The questionnaire packet contained a variety of personality measures (e.g., the Rosenberg Self-Esteem Scale [Rosenberg, 1965], the Need for Cognition Scale [Cacioppo & Petty, 1982], the General Regulatory Focus Scale [Lockwood, Jordan, & Kunda, 2002]) to provide ample time for participants to drink the coffee. Consistent with the cover story, the last questionnaire in the packet was a coffee evaluation form, on which they evaluated the cup of coffee they had been drinking in terms of strength, temperature, boldness, aroma, flavor, quality, as well as an overall evaluation of how much they liked it on relevant 9-point scales (e.g., for strength, -4 *Too weak* to 4 *Too strong*; for quality, -4 *Very poor* to 4 *Very high*). For items where the midpoint was the highest rating (e.g., neither too strong nor too weak), we took the absolute value and reverse scored, and then converted all ratings to Z-scores before combining into an index of coffee ratings ($\alpha = 0.75$). Participants also reported how much they would be willing to pay for the cup of coffee ($M = \$1.904$, $SD = \$0.933$), and an open-ended question asking what they would do to improve the coffee. The packet also contained a demographics questionnaire and a suspicion probe (no participants correctly guessed study hypotheses).

After each participant completed the packet and retrieved the research assistant, the research assistant took the cup from the participant to weigh how much coffee remained. The research assistant then returned and debriefed the participant about the true purpose of the study. After the first week of running the study, research assistants noted there was a great deal of variability in how much time it took participants to complete the coffee evaluation portion of the study (i.e., the amount of time they had available to consume the coffee), with some participants seeming to rush through the study, so after the first week, the research assistants also began recording the total time of participation.

5.3. Results

A correlation matrix between all variables included in the subsequent analyses is available in Table 4.

5.3.1. Additives

Participants added on average 1.057 sugars ($SD = 1.187$; range: 0–5), 0.550 Splenda®s ($SD = 0.980$; range: 0–4), 1.050 half & halves ($SD = 1.031$; range: 0–6), and 0.410 lactose-free creamers ($SD = 0.852$; range: 0–5). We combined the number of each item to get a

Table 4
Descriptive statistics and correlations between Study 4 measures.

		Descriptives		Correlations								
		M	SD	A	B	C	D	E	F	G	H	
A	Additives (units)	2.68	1.51									
B	Consumption (grams)	96.95	79.08	0.11								
C	Coffee Rating	0.80	1.05	0.10	0.17*							
D	Coffee Value (dollars)	1.90	0.91	−0.02	0.13	0.27**						
E	Time (minutes)	22.33	3.97	0.16+	0.29**	0.05	−0.11					
F	Actual Attitude	1.28	1.57	−0.03	0.17*	0.31**	0.10	−0.07				
G	Desired Attitude	1.60	1.50	0.13	0.12	0.34**	0.08	−0.10	0.63**			
H	Commitment to Actual	5.48	2.32	0.02	0.10	0.11	0.03	−0.06	0.36**	0.33**		
I	Commitment to Desired	5.03	2.29	0.003	0.13	0.13+	0.04	−0.08	0.44**	0.35**	0.72**	

+ $p < 0.10$.

* $p < 0.05$.

** $p < 0.001$.

total number of ‘additives’ per participant ($M = 3.075$, $SD = 1.991$; range: 0–10). Due to reports from research assistants that some participants added unusually high numbers of additives (considering a ten-ounce cup of coffee) and occasional participant comments that the coffee was much too sweet, we checked the frequency distribution for additives. We found that it was quite common for participants to add between 0 and 5 additives (ranging from 14 to 40 participants adding each amount), but only 3 participants added 6 additives, 7 added 7, and 1 added each of 8, 9, and 10. Due to this sudden drop off after five additives, and because too many additives could render the coffee unpleasant to consume (as mentioned by some participants) thereby influencing the amount consumed and coffee ratings, we omitted participants who added more than five additives in the remaining analyses.⁸ For reference, there are twenty grams of sugar in five sugar packets, while there are only fifteen grams of sugar in a package of Swiss Miss® Marshmallow Lovers® hot cocoa.

We regressed additives on actual attitude, desired attitude, commitment to actual attitude, commitment to desired attitude, the interaction between actual attitude and commitment to actual attitude, and the interaction between desired attitude and commitment to desired attitude. As expected, we found that having more positive actual attitudes toward drinking coffee predicted adding fewer items to the coffee ($b = -0.255$, $SE = 0.109$; $\beta = -0.266$), $t(146) = -2.333$, $p = 0.021$, indicating that people who like drinking coffee do less to change the taste than people who do not like drinking coffee. In contrast, as hypothesized, desiring more positive attitudes toward drinking coffee predicted adding more items to the coffee ($b = 0.297$, $SE = 0.113$; $\beta = 0.295$), $t(146) = 2.627$, $p = 0.010$. These results indicate that individuals who want to like drinking coffee were more likely to engage in behaviors with the potential to make drinking coffee more enjoyable. There were no significant effects for commitment to desired attitudes, commitment to actual attitudes, nor the actual attitude \times commitment to actual attitudes interaction, $ps > 0.671$.

However, there was a significant interaction between desired attitudes and commitment to desired attitudes ($b = 0.097$, $SE = 0.040$; $\beta = 0.250$), $t(146) = 2.450$, $p = 0.015$. As can be seen in Fig. 2, simple slopes one standard deviation above and below the mean of commitment indicated that when commitment to obtaining desired attitudes was high, desiring more positive attitudes toward drinking coffee predicted adding more items ($b = 0.519$), $t(146) = 2.873$, $p = 0.005$, but when commitment to obtaining desired attitudes was low, desiring more positive attitudes toward drinking coffee was unrelated to the number of additives ($b = 0.075$), $t(146) = 0.625$, $p = 0.533$.

5.3.2. Consumption

We regressed total weight consumed (in grams) on time spent on the taste-testing portion of the study,⁹ additives, actual attitude, desired attitude, commitment to actual attitude, commitment to desired attitude, the interaction between actual attitude and commitment to actual attitude, and the interaction between desired attitude and commitment to desired attitude. The only significant main effect was for time ($b = 6.443$, $SE = 1.822$; $\beta = 0.318$), $t(111) = 3.537$, $p = 0.001$. Not surprisingly, participants who took longer to participate drank more coffee. There were no significant effects for additives, actual attitudes, desired attitudes, commitment to actual attitudes, commitment to desired attitudes, nor the actual attitude \times commitment to actual attitudes

⁸ Repeating analyses with all participants, actual attitudes ($b = -0.250$, $SE = 0.141$; $\beta = -0.195$), $t(160) = -1.778$, $p = 0.077$, desired attitudes ($b = 0.255$, $SE = 0.143$; $\beta = 0.192$), $t(160) = 1.787$, $p = 0.076$, and the interaction between desired attitudes and commitment to desired attitudes reduce in statistical significance for additives ($b = 0.070$, $SE = 0.052$; $\beta = 0.133$), $t(160) = 1.343$, $p = 0.181$. The interaction also reduces in statistical significance for amount consumed ($b = 3.798$, $SE = 2.423$; $\beta = 0.18$), $t(123) = 1.568$, $p = 0.120$.

⁹ Time was the largest predictor of amount consumed, and so we felt it was important to control for time. However, recall that time was not recorded for participants in the first week, so there is a reduced sample size for this dependent variable.

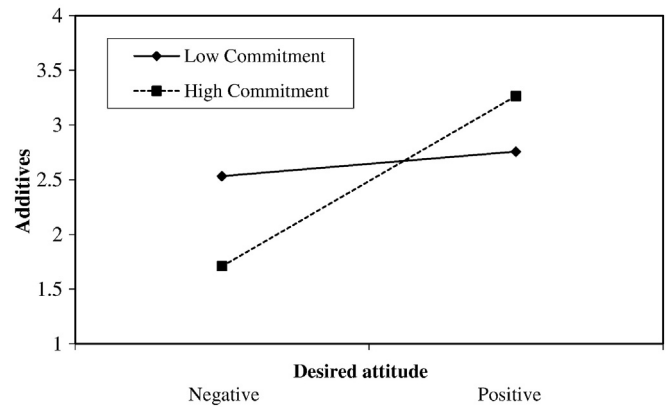


Fig. 2. Study 4. Interaction between desired attitudes and commitment to desired attitudes with relevant controls predicting total number of coffee additives.

interaction, $ps > 0.247$. There was, however, a marginal interaction between desired attitudes and commitment to desired attitudes ($b = 4.144$, $SE = 2.382$; $\beta = 0.208$), $t(111) = 1.740$, $p = 0.085$. As can be seen in Fig. 3, simple slopes one standard deviation above and below the mean indicated that when commitment to obtaining desired attitudes was high, desiring more positive attitudes toward drinking coffee marginally predicted greater consumption ($b = 17.615$), $t(111) = 1.685$, $p = 0.095$, but when commitment to obtaining desired attitudes was low, desiring more positive attitudes toward drinking coffee was unrelated to consumption ($b = -0.867$), $t(111) = -0.128$, $p = 0.898$.¹⁰

5.4. Discussion

The present study again offered support for our predictions, but with several new advances over our previous studies. First, desired attitudes – especially when participants were committed to them – predicted two actual overt behaviors: the number of items added to the coffee and the

¹⁰ As part of our cover story, we also included participants' ratings of the coffee and their willingness to pay for the cup of coffee. Although we did not have a priori predictions about these measures, we submitted them to the above regression for exploratory purposes. On coffee ratings, there was a marginal main effect for actual attitudes ($b = 0.078$, $SE = 0.044$; $\beta = 0.192$), $t(144) = 1.756$, $p = 0.081$, and a significant main effect for desired attitudes ($b = 0.117$, $SE = 0.046$; $\beta = 0.274$), $t(144) = 2.533$, $p = 0.012$, such that participants who actually liked coffee more and desired to like coffee more rated the coffee sample more favorably. There was a significant interaction between actual attitude and commitment to actual attitudes ($b = -0.030$, $SE = 0.015$; $\beta = -0.192$), $t(144) = -1.985$, $p = 0.049$. Unexpectedly, when commitment to maintaining actual attitudes was high, there was no relationship between actual attitudes and the coffee ratings ($b = 0.008$), $t(144) = 0.266$, $p = 0.791$, but when commitment to maintaining actual attitudes was low, more positive actual attitudes toward coffee predicted rating the coffee more positively ($b = 0.148$), $t(144) = 4.668$, $p < 0.001$. More relevant to the present investigation, there was a significant interaction between desired attitudes and commitment to desired attitudes ($b = 0.033$, $SE = 0.016$; $\beta = 0.204$), $t(144) = 2.074$, $p = 0.040$. Desiring more positive attitudes toward coffee predicted the ratings when commitment to desired attitudes was high ($b = 0.192$), $t(144) = 4.291$, $p < 0.001$, but not when commitment was low ($b = 0.041$), $t(144) = 0.919$, $p = 0.360$.

For participants' willingness to pay, there were no significant main effects, $ps > 0.183$. There was a significant interaction between actual attitude and commitment to actual attitudes ($b = -0.051$, $SE = 0.023$; $\beta = -0.233$), $t(142) = -2.197$, $p = 0.030$. However, neither the simple slope for high commitment to actual attitudes ($b = -0.132$), $t(142) = -1.287$, $p = 0.200$, nor the simple slope for low commitment to actual attitudes reached statistical significance ($b = 0.106$), $t(142) = 1.043$, $p = 0.299$. More relevant to the present investigation, there was a significant interaction between desired attitudes and commitment to desired attitudes ($b = 0.051$, $SE = 0.025$; $\beta = 0.219$), $t(142) = 2.035$, $p = 0.044$. Desiring more positive attitudes toward coffee marginally predicted participants' willingness to pay when commitment to desired attitudes was high ($b = 0.213$), $t(142) = 1.748$, $p = 0.083$, but not when commitment was low ($b = -0.021$), $t(142) = -0.282$, $p = 0.778$. Thus, although not focal to the present investigation, findings on these measures generally were consistent with the overall pattern observed on the behavioral dependent measures.

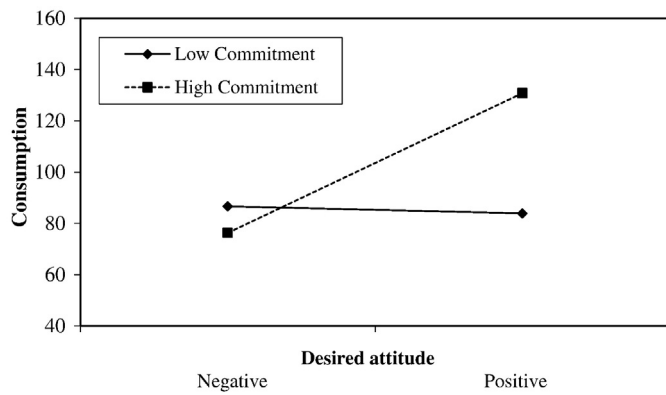


Fig. 3. Study 4. Interaction between desired attitudes and commitment to desired attitudes with relevant controls predicting coffee consumption in grams.

total amount of coffee consumed. Use of such overt behavioral outcomes is increasingly rare in contemporary social psychology (Baumeister, Vohs, & Funder, 2007). Whereas Studies 2 and 3 examined informational means to achieving desired attitudes (e.g., biased interpretation of research findings), the former behavioral response measure (adding cream and sugar to the coffee) may represent an affective means by which to pursue one's desired attitude – by adding positive affective experiences (i.e., improved taste). Further, these results may suggest that one way people might pursue their desired attitudes is by attempting to change the attitude object into something more desirable (similar to strategies such as exercising with a friend to make exercise more enjoyable or meeting one's in-laws at a favorite restaurant rather than in their home for a more pleasant meeting).

Additionally, whereas in our earlier studies, both actual and desired attitudes predicted the same evaluative response tendencies, in this study, people's actual attitudes predicted adding fewer items to their coffee, whereas people's desired attitudes predicted adding more. This allowed us to better disentangle the independent effect of desired attitudes on behavioral responses, providing support for our contention that desired attitudes exert an independent influence on evaluative responses. Finally, because in this study participants selected the additives *before* they reported their actual and desired attitudes toward drinking coffee, this study suggests that desired attitudes need not be made especially salient in order for them to have an impact. This is likely because a choice situation, such as the one we presented participants with, may naturally activate people's actual *and* desired evaluations.

Of course, this study presented a number of challenges. First, some participants were lost for the consumption analyses due to our late addition of the 'participation time' measure, which ended up being the strongest predictor of consumption. Second, some participants added as much sugar to their coffee as is found in a two-pack of Reese's® Peanut Butter Cups®, and we had to make a decision about how to deal with them. The consistency of our results across the two confirmatory dependent measures (consumption amount and additives) and the two exploratory dependent measures (coffee ratings and willingness to pay) reduces these concerns somewhat, but to more holistically evaluate the effects found in this four study package, we meta-analyzed the effects of both desired attitudes and the desired \times commitment to desired interaction both with and without data exclusions.

6. Meta-analysis

To test the statistical significance of the effects of desired attitudes and of the desired \times commitment to desired interaction, we meta-analyzed the results of Studies 1–4. To be conservative, we conducted analyses with and without the data exclusions in Study 4 (there were no

data exclusions in Studies 1–3). We included one effect size for each study in the analyses (i.e., the effect sizes for the two DVs were averaged in both Studies 1 and 4; Card, 2012), thus four effect sizes were included for the desired attitudes meta-analyses and two effect sizes were included for the desired \times commitment to desired attitude meta-analyses (the minimum necessary for a meta-analysis; Valentine, Pigott, & Rothstein, 2010). For Studies 1, 2, and 4, we used the semipartial correlations as conservative estimates of our effect sizes. For Study 3 (in which we analyzed the data with multi-level modeling), we computed an r effect size from the t -statistic for the slope coefficient. For fixed effects, all r s were converted to Z s, the Z s were weighted by $n - 3$,¹¹ averaged, and then converted back to r . We utilized the Stouffer's Z test to determine the statistical significance. For random effects, all r s were converted to Z s, and then we performed a one-sample t -test on the Z s. Due to the small number of studies, we interpret the weighted (fixed) effects (see Hedges & Vevea, 1998), but the unweighted (random) effects are also reported.

Maintaining the participant exclusions from Study 4 (i.e., without those who added greater than five additives), there was a significant effect for desired attitudes (fixed: $r = 0.19, p = 0.004$, random: $r = 0.19, p = 0.006$) and the desired attitudes \times commitment to desired attitudes interaction (fixed: $r = 0.18, p = 0.010$, random: $r = 0.18, p = 0.006$). Including all participants, there remained a significant effect of desired attitudes (fixed: $r = 0.18, p = 0.007$, random: $r = 0.18, p = 0.011$), and a significant effect of the desired attitudes \times commitment to desired attitudes interaction (fixed: $r = 0.15, p = 0.031$, random: $r = 0.15, p = 0.129$). Thus, desiring more positive attitudes predicts a variety of pursuit-oriented outcomes, and this is especially the case for those committed to pursuing their desired attitude.

7. General discussion

We began this paper with the observation that people sometimes want to have evaluations that differ from the evaluations they actually have. These "desired" attitudes, we argued, may predict people's evaluative responses in a manner that could bring about their attainment. Across four studies we offered support for this prediction. Specifically, we found that people's desired attitudes predicted people's behavioral intentions, information seeking, biased information processing, and overt behavior, all above any influence of their actual attitudes. Indeed, perhaps surprisingly, overall, desired attitudes were more predictive of these outcomes than were actual attitudes, perhaps reflective of their goal-like nature. In addition, two of our studies examined people's commitment to their desired attitude, and found that desired attitudes most strongly predicted congruent evaluative response tendencies when people were highly committed to pursuing their desired attitudes. Much like how the "strength" of people's actual attitudes moderates the relationship between actual attitudes and behavior (for a review, see Petty & Krosnick, 1995), it appears that the strength of people's desired attitudes – here instantiated as commitment – can play a similar role. Together, these results demonstrate that people's desired attitudes are impactful, and suggest that a complete understanding of attitude-relevant processes will require a consideration of the attitudes people *want* to have along with those they already have. Below, we discuss a number of implications of the current work, as well as new questions raised by it. We divide these discussion points around three relevant topics of study within social psychology: attitudes and persuasion, goal pursuit, and motivated reasoning.

¹¹ To be conservative, the effect size for Study 2 was weighted by the number of participants minus 3, rather than three less than the n from the MLM slope coefficient. For Study 4, the aggregated effect size (additives and consumption) was weighted by three less than the smaller of the two n s.

7.1. Attitudes and persuasion

7.1.1. Pursuit of desired attitudes

One unanswered question is whether people ever actually obtain their desired attitudes. Certainly, based on the present work, people do appear to engage in strategies that have the potential to produce attitude change that is in line with one's desires. However, in the present studies and in past work on the topic, a large number of people seem to possess different actual and desired attitudes, suggesting that such discrepancies may be difficult to resolve. This raises a number of interesting possibilities. One is that people don't engage in these strategies across all situations, and instead, only employ them when needed. For example, although a reasonably healthy person might wish he liked broccoli more, unless this person is actually trying to eat more broccoli, this person may not feel the need to change his actual attitude to become more positive. It is possible that our "commitment" variable used in Studies 3 and 4 was, in part, picking up on people's perceived need to resolve the conflict (e.g., a student who feels a need to study late might be more committed to their desire to like coffee more, leading to greater consumption, whereas the same student on holiday break might be less committed to their desire to like coffee more, thus their desired attitude has little impact on their behavior). A second possibility is that people's desired attitudes are but one influence on their evaluations. People's attitudes are embedded in complex intrapersonal and interpersonal context, and the attitudes we hold might balance multiple constraints (e.g., the information environment, the attitudes of close others, hierarchical belief structures like values or ideologies), each of which might affect people's actual attitudes and dynamically influence or even compete with people's desired attitudes.

Understanding the conditions under which a given factor influences people's evaluative responses over other factors could represent a useful avenue for future research. For example, desired attitudes, which might be conceptualized as hypothetical future states, might represent relatively abstract influences on people's evaluative responses. Consequently, desired attitudes may better predict people's responses in an abstract (versus concrete) mindset. Initial data support this idea (Carrera, Caballero, Muñoz, & Fernández, 2017). In contrast, the immediate social environment might represent a relatively concrete influence on people's evaluative responses, and as such, will predict evaluative responses to a greater extent in a concrete (versus abstract) mindset (Ledgerwood & Trope, 2011).

A third possibility is that the strategies people employ are simply ineffective, or at least not fully effective. Just as people have naïve theories about how to change other's attitudes, they can also have intuitions about how to change their own preferences and those lay theories can be consequential (for reviews of people's persuasion beliefs, see Briñol & Petty, 2012; Briñol, Rucker, & Petty, 2015). Perhaps, for example, people's lay theories of what affects their attitudes do not align with those factors that actually affect their attitudes (Wilson, Houston, & Meyers, 1998), and as such, their efforts are misguided. This might be especially likely if people's actual and desired attitudes are based on different types of information. For example, if a person's actual attitude is based on affective reactions (e.g., negative reaction to the taste of broccoli) and one's desired attitude is based on cognitions about broccoli (e.g., its healthy qualities such as high fiber), their cognitive desired attitude might motivate *cognitive* strategies to produce change. However, work on attitude change suggests that cognitive strategies are generally less effective than are affective strategies at changing affectively based attitudes, and vice versa (e.g., Edwards, 1990; Fabrigar & Petty, 1999; but see Millar & Millar, 1990).

In addition to creating issues for the resolution of actual-desired attitude discrepancies, it may also be possible that mismatches in one's attitude base and outside influences could create actual-desired attitude discrepancies because of the failure to change one's actual attitudes. For example, although Harry might love the taste of chocolate cake (an affective response), learning facts about its negative health

consequences (cognitive information) might not change his positive actual attitude, but it might create a negative desired attitude. Similarly, if Sally has a negative attitude toward religious belief based on her work as an evolutionary biologist (a cognitive attitude), watching an uplifting movie featuring the positive emotional impact of faith in people's lives might not change her negative actual attitude, but it might create a positive desired attitude. These issues raise several questions that should be addressed in future research, such as the extent to which the basis of a desired attitude determines the strategies one employs to enact change, the extent to which particular change strategies are effective at producing change in an actual attitude with a given base, and whether "mismatched" (e.g., affective message with a cognitive attitude) change attempts result in larger actual-desired attitude discrepancies.

However, it is worth noting that even if people's motivated change efforts fail to initiate the intended change on actual attitudes, this would not necessarily mean that such efforts were completely in vain. For example, some work on persuasion has found that failed persuasion attempts (i.e., those that do not produce changes in the valence of people's attitudes) sometimes do have "hidden" impacts on attitude certainty (e.g., Rucker & Petty, 2004; Tormala & Petty, 2002; for a review, see Rucker, Tormala, Petty, & Briñol, 2014). If a self-persuasion attempt fails to change one's actual attitude, but does manage to undermine the confidence in that actual attitude, then future self-persuasion attempts might be more successful because attitudes held with doubt are more malleable and less predictive of information processing biases than attitudes held with confidence (Visser & Holbrook, 2012).

7.1.2. Ambivalence

DeMarree and colleagues (2014; see also DeMarree & Rios, 2014) argued that competing evaluative responses from discrepant actual and desired attitudes could produce feelings of ambivalence. However, until the current paper, there was no support for the idea that desired attitudes could predict evaluative responses. So, if actual and desired attitudes differ and both impact behavior and information processing, as the current studies demonstrate, the conflicting evaluative responses should result in a person experiencing indecision, conflict, and ambivalence, as observed in past work (DeMarree et al., 2014). This is also consistent with existing models of ambivalence, such as the MAID model (van Harreveld, van der Pligt, & de Liver, 2009), that argue that the experience of conflict arises from competing action tendencies, particularly when a behavioral response is required. It is also possible that the conflict and discomfort that stems from people's ambivalence might further motivate change attempts (see also van Harreveld et al., 2009). Indeed, past work has argued that both routes – that actual-desired attitudes might produce feelings of ambivalence and that feelings of ambivalence might motivate change attempts are both plausible, and bidirectional links are likely (DeMarree et al., 2014).

Because actual and desired attitudes combine to predict the experience of ambivalence (DeMarree & Rios, 2014; DeMarree et al., 2014), it is sensible to wonder whether ambivalence can explain the effects observed in the current studies. As noted in the introduction, in contrast to the present work, most previously documented effects of ambivalence are not directional in nature – ambivalence predicts the malleability of the attitude or general increases in information processing (e.g., Bell & Esses, 1997; Maio et al., 1996). However, more recent work has begun to examine directional influences, based on the rationale that it is easier to resolve ambivalence in the direction of one's dominant side (e.g., to become more positive if one is positive but ambivalent; Clark, Wegener, & Fabrigar, 2008; Sawicki et al., 2013). In this work, subjective ambivalence interacted with the valence of participants' attitudes to predict relevant outcomes (e.g., increased processing of pro but not counter-attitudinal persuasive messages; Clark et al., 2008).

If the current results were driven by a similar motive, we would expect the interaction between subjective ambivalence and desired attitudes to predict the relevant outcomes in each study. As described in

the methodological supplement online, measures of subjective ambivalence were included in our first three studies, and consequently we were able to determine whether our effects were qualified by subjective ambivalence. In each of these studies, we conducted a full Actual attitude \times Desired attitude \times Subjective ambivalence regression. If our effects stem from a desire to reduce the feeling of ambivalence, we would expect that desired attitudes would be particularly predictive of relevant outcomes when subjective ambivalence is high. Instead, the analyses were consistent with the results reported in the text and revealed no significant interactions of actual or desired attitudes with subjective ambivalence. In other words, the current results do not appear to be due to the experience of ambivalence or a motivation to reduce it (see also DeMarree et al., 2016).

Instead, the results appear to be due to people's motivation to pursue their desired attitude. Although most classic models of self-regulation posit the role of some sort of affective "signal" to the need to resolve discrepancies (e.g., Carver & Schier, 1998; Higgins, 1989), other perspectives on goal pursuit do not emphasize this. Instead, such approaches focus on the cognitive representations of goals or systems of goals that predict the conditions under which a given goal will be activated and pursued (e.g., Fishbach & Ferguson, 2007; Kruglanski et al., 2002). One factor that has been identified as an important predictor of goal-congruent behavior and information processing is the degree of commitment to the goal (e.g., Klein et al., 1999; Kruglanski et al., 2002; Shah et al., 2002). Consistent with this literature, our Studies 3 and 4 found that higher commitment to people's desired attitudes increased the likelihood of desired-attitude-congruent outcomes (information processing and behavior).

Although the current studies did not investigate the origins of participants' commitment to their desired attitudes, it is worth considering possible predictors. Generally speaking, one's commitment to one's desired attitude might stem from the origin of the desired attitude in the first place. There are many possible sources of one's desired attitudes, including one's higher order goals or consistency with other attitudes, identities, or ideologies (for an extended discussion, see DeMarree et al., 2014). If, for example, a person wanted to be more favorable toward their political party's presidential nominee, their commitment to this desired attitude might be strongly predicted by their commitment to their party identity or to their ideological beliefs. In addition to commitment stemming from the higher order origins of one's desired attitudes, commitment could also emerge via compensatory processes (McGregor, Zanna, Holmes, & Spencer, 2001). A growing body of research has suggested that one way in which people respond to threats, such as those induced by uncertainty, is through compensatory approach processes, which can manifest as increased commitment to one's current goals (for a review, see Jonas et al., 2014).

7.2. Goal pursuit

People's attitudes often serve their goals. That is, people may be more successful at goal pursuit if they like those objects and behaviors that facilitate goal pursuit and dislike those objects and behaviors that interfere with goal pursuit (Ferguson & Bargh, 2004). Recent work even suggests that people's automatic and deliberative attitudes can shift in a manner that reflects their current goal pursuit efforts (e.g., Ferguson, 2008; Ferguson & Bargh, 2004; Fishbach & Trope, 2008; Fitzsimons & Shah, 2008; Trope & Fishbach, 2000).

However, people may not always be able to change their evaluations in the service of their goals. For example, many dieters have thoughts along the lines of, "I wish I didn't like cheesecake!" In other words, people may often *want* different attitudes – attitudes that would better serve their goals. The present work showed that although people may not always be able to shift their attitudes on demand, the attitudes they *want to have* (i.e., their desired attitudes) can still impact judgment and behavior. These desired attitudes thus appear to have the potential to aid goal pursuit, even though they may still conflict with people's

actual attitudes. These desired attitudes can be thought of as goals in their own right – just ones in which the desired endstate is an evaluation rather than another outcome. Reframing the above discussion, desired attitude can sometimes serve the role of subordinate goals (for discussion of other origins of desired attitudes, see DeMarree et al., 2014), in much the same way other subordinate goals can serve higher order goals (e.g., Maria's goal to get an A in chemistry could be in the service of her goal to become a doctor; Carver & Scheier, 1998).

In addition, people's pursuit of desired attitudes in the service of higher order goals have the potential to shape people's beliefs about the higher order goals. Notably, Fishbach and colleagues (e.g., Fishbach & Dhar, 2005; Fishbach, Dhar, & Zhang, 2006; Koo & Fishbach, 2008) have found that successes and failures at specific goal-relevant behaviors can increase or decrease future goal-directed actions depending on a person's construal of the initial goal-directed behavior. If someone evaluates their *commitment* to a higher order goal, initial successes lead to increases and initial failures lead to decreases in subsequent goal-directed behavior. The opposite holds when someone evaluates their *progress* toward the higher order goal. If a desired attitude (e.g., to like broccoli more) serves a higher order goal (to consume a more healthy diet), then people's construal of their success or failure in pursuing the desired attitude could lead to inferences about their commitment or progress toward the higher order goal.

7.3. Motivated reasoning

The outcomes we used in Study 2 and especially in Study 3 are ones that are often used in research on motivated reasoning. Past work on motivated reasoning has often examined the effects of people's preexisting attitudes and beliefs on information seeking and information processing (see e.g., Frey, 1986; Kunda, 1990). However, this past literature hasn't made the explicit distinction between actual and desired attitudes. For example, consider work demonstrating motivated skepticism: that people will spend more time and energy scrutinizing information inconsistent with their preferred conclusions. In some work, this is in reference to information consistent with their prior attitudes (e.g., political attitudes; Taber & Lodge, 2006); in other work, this is in reference to more or less normatively desirable information (e.g., a positive vs. negative medical test result; Ditto & Lopez, 1992).

It is interesting to consider how the concepts discussed in the current paper might map onto paradigms that have been used to study motivated reasoning. For example, it is possible that prior to exposure to preference inconsistent information (e.g., negative self-relevant feedback), actual and desired attitudes were congruent, but the new information shifted people's actual attitude (to be more negative) and may have increased people's commitment to their desired attitude (to be positive). In other words, some of the manipulations employed in this literature appear to have the potential to impact the direction and magnitude of people's discrepancies or people's commitment to their desired attitudes. To our knowledge, these distinctions have not been considered or measured in prior work, but the present work suggests that this distinction is meaningful, and may occasionally lead to different predictions regarding how people will evaluate information.

7.4. Conclusion

Considerable research has shown that people engage in behaviors consistent with their existing attitudes. They also enact information seeking and processing strategies designed to bolster and maintain their current attitudes. These patterns, although well documented, have not always proven robust (e.g., see Hart et al., 2009; Houston & Fazio, 1989; Smith et al., 2008), and the idea that people always work to maintain their current attitudes belies the potential for human growth and change. The current work sheds some novel insights into why attitudes may sometimes fail to accurately predict people's behavior, information seeking, and information processing. People seek not

only to act and think in accord with the attitudes they actually hold. They also pursue the attitudes they wish they held, and in doing so, can sometimes act in opposition to the attitudes they endorse. This research shows that the actions and thoughts of people are not just products of their attitudes, but rather are sometimes the products of their desires. Our participants were willing to think and act in ways that were congruent with their desired attitudes in the service of aligning their true evaluations with the ones they wish they had.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.jesp.2017.01.003>.

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