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Wanting other attitudes: Actual–desired attitude discrepancies predict feelings of ambivalence and ambivalence consequences ☆

Kenneth G. DeMarree [a,*], S. Christian Wheeler [b], Pablo Briñol [c], Richard E. Petty [d]

[a] Department of Psychology, University at Buffalo, SUNY, USA
[b] Graduate School of Business, Stanford University, USA
[c] Department of Social Psychology and Methodology, Universidad Autónoma de Madrid, Spain
[d] Department of Psychology, Ohio State University, USA

HIGHLIGHTS

- People can desire attitudes that differ in valence from their current attitude.
- Actual–desired discrepancies lead people to feel ambivalent.
- Discrepancies also reduce prediction of behavior and increase information interest.

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ABSTRACT

The experience of attitudinal ambivalence (subjective ambivalence) is important because it predicts key consequences of attitudes (e.g., attitude–behavior correspondence, attitude stability). However, the field's understanding of the antecedents of subjective ambivalence is still developing. We explore an unexamined antecedent of subjective ambivalence. Specifically, we examined discrepancies between participants' actual attitudes and their desired attitudes as antecedents of subjective ambivalence and ambivalence consequences. Six studies using a variety of attitude objects were conducted to test these ideas. The first four studies demonstrated that actual–desired attitude discrepancies predicted subjective ambivalence over its previously documented antecedents. Critically, two additional studies showed that actual–desired attitude discrepancies predicted important consequences of ambivalence. As actual–desired attitude discrepancies increased, participants' attitude–behavior correspondence decreased (Study 5), and desire to reduce attitudinal conflict increased (Study 6). Process data in these latter studies revealed indirect effects through subjective ambivalence that held after controlling for the objective presence of evaluative conflict.

Introduction

Everyone has experienced evaluative conflict, or the simultaneous presence of positive and negative reactions towards the same object (e.g., de Liver, van der Pligt, & Wigboldus, 2007; Kaplan, 1972; Priester & Petty, 1996; Rosenzweig, 1938; Thompson, Zanna, & Griffin, 1995). One can love the taste of chocolate cake, but hate the calories; approve of a political candidate's foreign policy stances, but disapprove of his or her environmental policies; or have conflicting feelings (e.g., joy and anxiety) about a new romance. The term ambivalence broadly refers to these mixed evaluative reactions whether they stem from explicit or implicit discrepancies (Petty & Briñol, 2009). People can be ambivalent about a wide variety of topics (e.g., abortion, career choices) and domains (e.g., health, race, self), and the study of ambivalence has therefore interested scholars in psychology (Conner & Armitage, 2008; van Harreveld, van der Pligt, & de Liver, 2009), political science (Lavine, 2001; Rudolph & Popp, 2007), sociology (Hajda, 1968), and other related disciplines (e.g., Otnes, Lowrey, & Shrum, 1997) for decades.

Ambivalence is often experienced as an unpleasant state that results in negative affect and psychologically undesirable outcomes (e.g., Abelson & Rosenberg, 1958; Hass, Katz, Rizzo, Bailey, & Moore, 1992; Newby-Clark, McGregor, & Zanna, 2002; Newcomb, 1968; Osgood & Tannenbaum, 1955; Rydell, McConnell, & Mackie, 2008). Understanding ambivalence is critically important for understanding attitudes. For example, the more ambivalence one experiences regarding an object, the less functional one's attitude becomes in orienting one's behavior (Armitage & Conner, 2000; Sparks, Harris, & Lockwood, 2004). Consistent with this idea, people with ambivalent (versus univalent) attitudes tend to be slower to report their attitudes (Bargh, Chaiken, Govender, & Pratto, 1992), are more sensitive to context effects in attitude expression

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* Corresponding author at: Department of Psychology, University at Buffalo, SUNY, 214 Park Hall, Buffalo, NY 14260, USA.
E-mail address: kgdemarree@gmail.com (K.G. DeMarree).

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(Batista & Lima, in press; Tourangeau, Rasinski, Bradburn, & D'Andrade, 1989), and are less extreme in their evaluations (Kaplan, 1972). Because ambivalence tends to be a negative state, people often attempt to reduce it. For example, the motivation to reduce ambivalence leads people to pay careful attention to information that might help them resolve their ambivalence (e.g., Briñol, Petty, & Wheeler, 2006; Clark, Wegener, & Fabrigar, 2008; Maio, Bell, & Esses, 1996; Rydell et al., 2008).[1]

Two related but distinct ambivalence constructs have been identified in prior work: objective ambivalence and subjective ambivalence. Objective ambivalence represents the actual presence of conflicting evaluative reactions within a given person (i.e., having both positive and negative reactions towards the same object). Subjective ambivalence represents the *experience* of evaluative conflict, including a sense of being conflicted, confused, torn, and mixed with regard to the attitude object (Priester & Petty, 1996; Thompson et al., 1995; van Harreveld, Rutjens, et al., 2009; van Harreveld, van der Pligt, et al., 2009). Subjective ambivalence can have cognitive (mixed reactions), affective (feeling conflicted), or behavioral (indecision) manifestations (Priester & Petty, 1996).

Subjective ambivalence is hypothesized to be the psychological driver of many of the outcomes discussed above and is often seen as the "gold standard" measure in research on ambivalence (e.g., Thompson et al., 1995). Because of the psychological importance of subjective ambivalence, it is vital to understand its antecedents. Research on ambivalence often only measures objective ambivalence (for exceptions, see e.g., Haddock, 2003; Priester & Petty, 1996, 2001), but researchers typically assume that objective ambivalence leads to subjective ambivalence (e.g., Maio et al., 1996). As described next, however, objective ambivalence is an inadequate predictor of subjective ambivalence. The present research builds on prior studies by proposing a previously unidentified antecedent of subjective ambivalence — discrepancies between a person's actual evaluation and their desired evaluation of an attitude object. Furthermore, whereas past research often only *assumes* that ambivalence-related consequences are due to the experience of conflict (i.e., subjective ambivalence), we sought to empirically test this assumption with respect to actual–desired attitude discrepancies.

Predictors of subjective ambivalence

Many attitude objects are best characterized as linked to separable positive and negative reactions (e.g., Cacioppo, Gardner, & Berntson, 1997; Petty, Briñol, & DeMarree, 2007), and this idea is central to many perspectives on ambivalence. Kaplan (1972) was the first to recommend what has become the most popular objective assessment of ambivalence, which involves separating a traditional bipolar scale into two unipolar scales (e.g., not at all favorable to extremely favorable and not at all unfavorable to extremely unfavorable; for an alternate strategy see Larsen, Norris, McGraw, Hawkley, & Cacioppo, 2009; see also Refling et al., 2013). In early research on ambivalence, researchers assumed that objective ambivalence invariably led to feelings of conflict regarding the attitude. They soon discovered that this was not always the case.

Several researchers developed mathematical formulae to predict how conflicted a person would feel based on their positive and negative unipolar attitude reports. To facilitate comparison among the various ambivalence theories that had developed over the years, Priester and Petty (1996) redefined the prevailing ambivalence formulae in terms of "dominant" reactions (D; the greater of the separate positive and negative evaluations) and "conflicting" reactions (C; the lesser of the two evaluations regardless of valence; cf., Scott, 1969). In this framework, Kaplan's formula reduces to expressing ambivalence simply as the magnitude of the conflicting reactions (C). Subsequent formulae became more complex (e.g., C × D; Katz & Hass, 1988; see also Thompson et al., 1995). Initial efforts to relate objective to subjective ambivalence showed that regardless of the specific ambivalence formula used, dominant and conflicting reactions consistently predicted subjective ambivalence only to a moderate degree (e.g., $rs = .36$ to .52 in Priester & Petty, 1996). That is, even the *best* formulae for objective ambivalence only predict about 27% of the variance in subjective ambivalence. This finding suggests that unless measurement error is the sole culprit, there are likely other determinants of subjective ambivalence besides the extent of dominant and conflicting reactions personally endorsed.

Individual and situational factors account for some variation in the strength of the relationship between objective and subjective ambivalence. For example, people high in preference for consistency (Cialdini, Trost, & Newsom, 1995) show a stronger objective–subjective ambivalence relationship (Newby-Clark et al., 2002). In addition, this relationship becomes stronger as both dominant and conflicting reactions become more accessible (Newby-Clark et al., 2002) or are held with an equal degree of certainty (Briñol, Petty, & DeMarree, 2008), as well as when a decision regarding the attitude object is imminent (van Harreveld, Rutjens, et al., 2009; van Harreveld, van der Pligt, et al., 2009). Again, however, the modest relationship under even the most favorable conditions suggests that researchers have not yet accounted for all of the determinants of subjective ambivalence.

Psychologists have also begun to identify additional antecedents of subjective ambivalence other than objective conflict between the individual's positive and negative reactions. Most notably, *interpersonal* ambivalence, the possession of attitudes that differ from those that close others are perceived to have, predicts subjective ambivalence over and above objective ambivalence, as least so long as the close others are liked (Priester & Petty, 2001). Similarly, anticipating the potential existence of unknown, attitude incongruent information can also lead to feelings of conflict (Priester, Petty, & Park, 2007) as can incongruence in meaning rather than valence (i.e., semantic oncongruence; Gebauer, Maio, & Pakizeh, 2013). The current research sought to extend the bases of subjective ambivalence to include another form of intrapsychic conflict — between individuals' actual current attitudes and the attitudes they would like to possess. We describe the relevant concepts and rationale for this prediction next.

Desired attitudes

Just as one's perceptions of one's own characteristics and accomplishments (actual self) can differ from the perceptions one wants to have (i.e., desired self; see Higgins, 1987, 1989; Markus & Nurius, 1986), the attitudes one holds towards a wide variety of objects, issues, or other people can be different from the attitudes one would like to possess. For example, a shopper might want to like an unavailable option less and an available option more, whereas an environmentalist might want to like gas-guzzling SUVs less and bicycling more. In a recent, relevant review, Maio and Thomas (2007) suggested that people sometimes have discrepancies between actual and desired opinions. Citing research on relationships (i.e., attitudes towards one's romantic partner) and the self (i.e., self-esteem regulation), Maio and Thomas argue that these discrepancies are important in the regulation of attitudes, and that people engage in a great deal of mental gymnastics to bring about their desired attitudes (e.g., self-persuasion).

The key goal of the current research is to examine the possibility that discrepancies between actual and desired attitudes could be a previously unidentified source of evaluative conflict, and therefore might account for some of the unexplained variance repeatedly observed in

[1] In several ways, ambivalence is related to dissonance (see e.g., Festinger, 1957; Rydell et al., 2008). That is, both involve inconsistent mental representations, which can create aversive feelings that people are motivated to reduce. However, attitude researchers typically have distinguished between these two constructs (see e.g., van Harreveld, van der Pligt, et al., 2009). For example, whereas the feeling of dissonance typically arises after one has committed to a specific choice, the feeling of ambivalence occurs to the greatest extent *prior* to making a choice (van Harreveld, Rutjens, Rotteveel, Nordgren, & van der Pligt, 2009). As such, ambivalence is likely to impact judgments that are inputs into choices. Of course, in some cases, such as in a spreading of alternatives paradigm (see e.g., Brehm, 1956), ambivalence towards either object before making a choice can serve as the fodder for dissonance creation once the choice is made (e.g., the negative component of one's attitude towards the chosen alternative creates dissonance — "I chose the Celine Dion CD, even though the third and fourth tracks annoy me").

subjective ambivalence research. Actual and desired attitudes, if discrepant, can have differing implications for a person's behavior and thought (e.g., if one's actual attitude pushes one towards eating a piece of cake whereas one's desired attitude, pushes one towards rejecting the cake), leading this person to experience the indecision and conflict characteristic of subjective ambivalence. Critically, no prior research has explicitly examined whether discrepancies between actual and desired attitudes produce feelings of evaluative conflict (i.e., subjective ambivalence).

The present research

In sum, the primary goals of the present research are to (a) examine whether actual–desired attitude discrepancies exist across a diversity of topics and (b) if so, will lead people to experience evaluative conflict (i.e., subjective ambivalence) not accounted for by other known antecedents, and (c) investigate whether that conflict is consequential. To address the latter, we examined downstream consequences that one would expect if actual–desired attitude discrepancies produce evaluative conflict (i.e., reduced attitude–behavior intention correspondence Study 5; increased information interest, Study 6). Our studies examined a wide variety of attitude objects and used different assessment strategies and procedural variations to demonstrate the robustness of these findings. In all studies, we tested actual–desired attitude discrepancies against objective ambivalence (as well as interpersonal ambivalence, Study 4), to see if these discrepancies predicted unique variance in subjective ambivalence and ambivalence consequences. In addition, whenever we examined mediation by subjective ambivalence, we also explored the opposite causal path (i.e., that subjective ambivalence can lead to attitudinal discrepancies), as past theory has suggested that the experience of conflict may sometimes lead people to desire different (unambivalent) attitudes (van Harreveld, van der Pligt, et al., 2009).

Study 1

Study 1 tested the hypothesis that actual–desired attitude discrepancies contribute to subjective ambivalence beyond objective ambivalence. In this study, participants completed standard measures of attitudes, objective ambivalence, and subjective ambivalence with respect to the topic of exercising, as well as additional questions designed to assess actual–desired attitude discrepancies.

Method

Participants. One hundred-thirty-three Stanford University students (55 males, 75 females, 3 unidentified; $M_{age} = 20.0$, $SD = 1.7$) participated in this study as part of a mass testing session. The materials were included as part of a packet containing other unrelated studies.

Procedure. Participants were informed that they would be responding to an opinion survey. Participants first reported their global attitude towards exercising and then indicated whether they desired to possess a different attitude. Finally, participants reported their objective and subjective ambivalence towards exercising. Participants completed materials in the order presented below.

Materials

Attitudes. Participants first indicated their attitudes towards exercise on a single 9-point semantic differential scale anchored by 1 (*negative*) and 9 (*positive*) ($M = 7.55$, $SD = 1.61$).

Actual–desired discrepancy. Immediately after reporting their attitudes, participants indicated whether they wanted to possess an attitude that differed from the one they reported. Specifically, instructions stated:

> You just indicated your attitude toward exercising. Sometimes the attitudes we report are different from the attitudes we would like to hold. For example, someone might want to be slightly more positive toward an issue that they are already positive about, while someone else might want to have a negative opinion when they currently have a positive one. Other people do not have discrepancies such as these. For the topic of exercising, is the attitude you indicated the same or different from the attitude you would like to have? Even small differences are important.

Participants then indicated whether the attitude they reported was the same or different from their desired attitude. If they reported wanting a different attitude ($n = 67$, 50%), they were then asked whether they wanted to be more positive ($n = 65$) or more negative ($n = 2$) towards exercising. Finally, these participants were asked how much more [positive or negative] they wanted to be on a scale ranging from 1 (*slightly*) to 9 (*extremely*). This final item served as our measure of actual–desired discrepancy magnitude (participants reporting no discrepancy were coded as 0 on this variable; $M = 1.35$, $SD = 1.59$).

Objective ambivalence. To assess objective ambivalence, we asked participants two questions separately assessing their positive and negative reactions towards exercising. For the positive reactions, participants were asked "Considering only the positive qualities of exercise and ignoring the negative ones, how positive would you say your thoughts and feelings toward exercise are?" Participants reported their answers on a scale ranging from 0 (*No positive thoughts or feelings*) to 8 (*Maximum positive thoughts or feelings*). A comparable question was employed to assess negative reactions. We computed ambivalence using the most commonly employed ambivalence formula, initially recommended by Thompson et al. (1995). Specifically, we calculated ambivalence by subtracting the absolute value of the difference between the positive (P) and negative (N) responses from the average of the two responses (i.e., $(P + N) / 2 - |P - N|$). This index is maximized when people have equally and highly intense positive and negative reactions to an object. In terms of conflicting (C) and dominant (D) reactions, this formula translates into $1/2(3C - D)$ (Priester & Petty, 1996). Higher scores on this measure indicated higher levels of objective-ambivalence ($M = .20$; $SD = 3.01$).[2]

Subjective ambivalence. Following previous research (e.g., Priester & Petty, 1996), we assessed subjective ambivalence by directly asking participants to report, using 9-point scales anchored at *not at all* and *very much*, the degree to which they felt indecision, confusion, or conflict in their opinion of exercising. These three items were strongly related (alpha = .85) and thus were averaged to form an index of subjective ambivalence ($M = 3.53$; $SD = 2.06$).

Results

Attitudes were correlated with both actual–desired attitude discrepancies ($r = -.60$, $p < .001$) and objective ambivalence ($r = -.42$, $p < .001$).[3] Actual–desired attitude discrepancies and objective ambivalence were also correlated with one another ($r = .24$, $p = .005$).

[2] In this and all other studies, parallel results were obtained when other ambivalence formulae were used. This is not surprising, as the various formulae tend to be very highly correlated with each other (e.g., Priester & Petty, 1996).

[3] Given the strong correlation between actual attitudes and discrepancies in this study, we conducted an additional set of analyses where actual attitudes were added to the other predictors of subjective ambivalence. Although actual attitudes emerged as a significant predictor of subjective ambivalence ($b = -.53$, $se = .12$), $t(129) = 4.56$, $p < .001$, actual-desired attitude discrepancies continued to be significant predictors ($b = .24$, $se = .11$), $t(129) = 2.21$, $p < .03$. We should note that whenever there is a normative desired attitude (e.g., to be more positive in the case of exercising), the magnitude of discrepancies will be predicted most strongly by actual attitudes, simply because there is more meaningful variability on this measure (and vice versa with normative actual attitudes).

In the remaining correlational studies, entering actual attitudes does not eliminate the effect of discrepancies on subjective ambivalence. Specifically, *p*s for discrepancies on subjective ambivalence in these analyses for Studies 2, 3, 5, 6 are <.001, .07, .60, and <.001, respectively. For actual attitudes, the regression slopes were all negative (except Study 6) and *p*s were, .34, .001, <.001, and >.9.

These latter two factors were tested as predictors of subjective ambivalence in a regression. This analysis revealed two main effects, with both objective ambivalence ($b = .17$, $SE = .051$), $t(130) = 3.26$, $p = .001$, and the magnitude of actual–desired discrepancies ($b = .58$, $SE = .097$), $t(130) = 6.01$, $p < .001$, strongly predicting subjective ambivalence in the expected direction (i.e., more objective ambivalence and larger discrepancies associated with more subjective ambivalence). Because discrepancies were primarily unidirectional (i.e., participants wanted to be more positive than they actually were), we did not examine direction as a potential moderator of these effects.

Discussion

Study 1 provided the first evidence that discrepancies between one's current attitude and a desired attitude can contribute to feelings of ambivalence. As the magnitude of actual–desired attitude discrepancies towards exercising increased, so too did participants' reports of subjective ambivalence. Notably, this effect was significant after controlling for objective ambivalence. Thus, actual–desired attitude discrepancies add to our ability to predict subjective ambivalence, at least for the topic of exercising. One goal of Study 2 is to generalize our findings across a wider range of attitude objects. As such, each participant responded to measures on ten different attitude objects. One advantage of having participants respond to so many attitude objects is that it provides for increased power to explore the nature of the relationships between actual–desired attitude discrepancies and subjective ambivalence.

In Study 2, we also shifted our assessment strategy. Self-discrepancy theory (e.g., Higgins, 1987, 1989) holds that people can conceptualize their self-views in different ways. Specifically, Higgins distinguishes between a person's actual self-views and two different types of desired selves — their ideal and ought self-views. A person's ideal self is the self one aspires to be, and represents one's hopes and dreams. A person's ought self is the self one feels obligated to be, and represents one's duties and things one "should" be. Either of these are possible ways to frame one's desired attitudes, so we chose to measure both ideal and ought forms of desired attitudes in order to more fully capture the ways in which participants might think about them and to see if one type of desired attitude was more impactful than the other.

Study 2

The goals of Study 2 were to provide a replication and extension of Study 1. As noted above, in this study, we broadened our measurement of desired attitudes, and measured our variables with respect to multiple (ten) attitude objects within the same sample, which dramatically increased our statistical power as well as the generalizability of our findings.

Method

Participants. One hundred and five Ohio State University undergraduates (51 males, 54 females) participated for course credit.

Procedure. Participants were informed that they would be completing an opinion survey. The survey included assessments of actual, ideal, and ought attitudes, objective ambivalence, and subjective ambivalence towards 10 different attitude objects. The order of attitude objects was randomized for each participant, but within each attitude object, the measures appeared in the order described below. The attitude objects used in this study were African Americans, Hillary Clinton, John McCain, abortion, exercising, gay marriage, the war in Iraq, the self, using condoms, and Wal-Mart.

Materials

Objective and subjective ambivalence. Objective and subjective ambivalence measures mirrored those described in Study 1.

Actual and desired attitudes. For the current set of studies, we modified questions used to assess self-guides for the purpose of assessing actual and desired attitudes. We began with this prompt:

> Sometimes the attitudes we have are different from the attitudes we ideally would like to have or the attitudes we feel we should hold, and sometimes these attitudes are the same. For your opinion of <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 separate scales provided.

The prompt made it explicit that not everyone would have discrepancies. Participants were then given separate scales assessing each of these attitudes (actual followed by ought and then ideal attitudes). Participants reported these responses on 9-point scales ranging from −4 (*negative*) to +4 (*positive*).

From these measures, we computed first averaged ideal and ought attitudes to form a "desired attitude" index and then computed actual–desired attitude discrepancies by taking the absolute value of the discrepancy between the actual and desired attitudes.[4] From these measures, we also coded for the direction of discrepancies which refers to whether participants wanted to be more positive or negative than they currently were. Although we only report analyses for "desired" attitudes (i.e., the mean of ought and ideal attitude reports), separate analysis of these constructs produced the same results in this and in all other studies which employed this assessment strategy.

Results

For descriptive information and interrelationships between variables, see Tables 1–3. To test our hypotheses, we utilized a series of multilevel models. Multilevel modeling is ideal for our data structure because we had ten attitude objects nested in each of our 105 participants. Multilevel modeling accounts for the non-independence of the multiple responses from a given participant (Hayes, 2006; Kenny, Mannetti, Pierro, Livi, & Kashy, 2002). Taking into account the nesting of observations within individuals also allows us to compute accurate degrees of freedom (which can vary from test to test) and to partition out between-participant error variance. We used measures of objective ambivalence and actual–desired attitude discrepancy to predict subjective ambivalence. Multilevel modeling generates coefficients for each predictor, which are comparable to unstandardized betas in regression. We allowed intercepts to vary between participants but we fixed the slopes across participants. Allowing slopes to vary across participants did not alter the results, and because the fixed slope models were more parsimonious, we report them below. In each of our analyses,

[4] An alternative way to compute this term would be to average actual–ideal and actual ought discrepancies. Such an approach would not allow us to examine direction of discrepancies, as not all actual–ideal and actual–ought discrepancies are in the same direction. Averaging the two discrepancies of people with oppositely valenced ideal and ought attitudes would make people appear less conflicted in the metric we used than in this alternate metric. In the current samples, the two approaches to creating a general discrepancy measure (actual–desired discrepancies and average of actual–ideal and actual–ought discrepancies) were very strongly correlated (i.e., $rs > .92$) and therefore produced identical effects (this is not surprising, as actual–ideal and actual–ought discrepancies were highly correlated as well, $rs = .45$–$.96$, median $r = .73$). Thus, we report the actual–desired discrepancies, so that we can follow-up with analyses examining direction of discrepancy, but we caution against doing so when ideal and ought attitudes exert conflicting influences on a person's attitude.

In support of our current approach, we ran an additional study, with 107 Stanford University students (31 males, 76 females) as participants, to examine the relationship between generic "desired" attitudes (as assessed in Study 4) and ideal and ought attitudes. In this study, we separately assessed actual, ideal, and ought attitudes towards capital punishment using the same approach as in Study 2, with the addition of a generic "desired" attitude item as in Studies 1 and 4. We then predicted this desired attitude item from ideal and ought attitudes in a regression. Both ideal ($b = .63$), $t(104) = 9.33$, $p < .001$, and ought ($b = .28$), $t(104) = 4.05$, $p < .001$, attitudes predicted desired attitudes, Adj. $R^2 = .72$, indicating that both ideal and ought attitudes contribute to desired attitudes. Because of this, it is no surprise that in all studies that operationalized desired attitudes as the average of ideal and ought attitudes parallel results were obtained across measures.

Table 1
Descriptive statistics for Study 2 measured variables.

Object	SA (*SD*)	OA (*SD*)	Attitude (*SD*)			
			Actual	Ideal	Ought	Desired
African Americans	3.29 (2.29)	1.01 (3.62)	2.26 (1.89)	3.19 (1.29)	3.37 (1.20)	3.28 (1.19)
Hillary Clinton	4.06 (2.35)	1.18 (2.90)	−.54 (2.28)	−.19 (2.44)	−.29 (2.20)	−.24 (2.15)
John McCain	4.34 (2.45)	.73 (2.63)	.03 (2.31)	.29 (2.43)	.47 (2.34)	.38 (2.28)
Abortion	3.91 (2.55)	.18 (3.29)	.18 (2.97)	.22 (2.89)	−.48 (2.95)	−.13 (2.80)
Exercising	2.48 (2.05)	−1.41 (2.88)	2.97 (1.59)	3.74 (.73)	3.75 (.76)	3.75 (.72)
Gay marriage	3.49 (2.49)	−.48 (3.00)	.51 (2.95)	1.03 (2.91)	.87 (3.00)	.95 (2.82)
Iraq war	4.57 (2.66)	.20 (3.23)	−1.47 (2.53)	−.63 (2.89)	−.34 (2.89)	−.49 (2.78)
Self	4.11 (2.49)	.96 (3.26)	2.58 (1.46)	3.75 (.74)	3.80 (.64)	3.78 (.66)
Using condoms	2.50 (2.04)	.01 (3.99)	2.63 (1.86)	3.24 (1.48)	3.10 (1.61)	3.17 (1.44)
Walmart	3.45 (2.26)	1.62 (3.25)	.83 (2.28)	.48 (2.39)	.23 (2.49)	.35 (2.33)
Across all objects	3.62 (2.46)	.40 (3.32)	1.00 (2.68)	1.51 (2.74)	1.45 (2.78)	1.48 (2.68)

we predicted the dependent variables from grand mean-centered predictors (Hayes, 2006).

Between-participant variability. We first predicted a null model with only an intercept term to calculate the interclass correlation (ICC), an index of the extent of variability in the dependent variable (subjective ambivalence) that is due to between-participant variability. With an ICC of .126, 12.6% of the variability in subjective ambivalence is due to variation in overall levels of subjective ambivalence across people. This is consistent with research suggesting that some people are generally more ambivalent than others (e.g., Thompson & Zanna, 1995).

Discrepancy analyses. For our primary analyses, we predicted subjective ambivalence from attitude object, objective ambivalence, and actual–desired attitude discrepancies. There were main effects of attitude object, $F(9, 936) = 11.46$, $p < .001$ (e.g., people tended to be least ambivalent about Wal-Mart and the most about the war in Iraq), objective ambivalence (b = .32, $SE = .020$), $t(1037) = 15.99$, $p < .001$, and actual–desired attitude discrepancies (b = .37, $SE = .048$), $t(1035) = 7.82$, $p < .001$. Replicating Study 1, the main effects of objective ambivalence and actual–desired attitude discrepancies were in the expected direction.

We also conducted a follow-up analysis in which we coded for the direction of actual–desired attitude discrepancies (i.e., whether desired attitudes were more positive or more negative than actual attitudes) and entered it, along with the interaction of discrepancy magnitude and discrepancy direction into the above analysis. This analysis replicated the above effects, and did not produce any effects involving discrepancy direction ($ts < 1$), indicating that the magnitude, but not the direction of discrepancies appears to be most critical in predicting subjective ambivalence.

Actual and desired analyses. A number of methodologists have noted problems with an overreliance on difference scores to represent psychological (in)congruence (e.g., Edwards, 1994). To address potential concerns with our reliance on this approach, in this large data set, we also conducted analyses treating actual and desired attitudes as separate, interacting predictors. For these analyses, we predicted subjective ambivalence from attitude object, objective ambivalence, actual attitudes, desired attitudes, and the interaction of actual and desired attitudes. Replicating the above analyses, there were main effects of attitude object, $F(9, 940) = 9.93$, $p < .001$, and objective ambivalence ($b = .22$, $SE = .022$), $t(1035) = 9.92$, $p < .001$. There were also main effects of actual attitudes ($b = -.18$, $SE = .038$), $t(1010) = 4.63$, $p < .001$, and desired attitudes ($b = -.15$, $SE = .048$), $t(1022) = 3.14$, $p < .01$. Critically, the Actual × Desired interaction also emerged ($b = -.13$, $SE = .011$), $t(1028) = 11.70$, $p < .001$ (see Fig. 1). Decomposing this interaction at +/−1 standard deviation from the sample mean of actual attitude reveals a significant *positive* effect of desired attitude among people with negative actual attitudes ($b = .20$, $SE = .043$), $t(1017) = 4.79$, $p < .001$, but a significant *negative* effect of desired attitude among people with positive actual attitudes ($b = -.51$, $SE = .068$), $t(1026) = 7.49$, $p < .001$. Consistent with predictions, subjective ambivalence is greatest with the combinations of actual and desired attitudes most associated with discrepancies (i.e., high/low, low/high).

Discussion

Study 2 replicated the effects of Study 1 with a wide range of attitude objects, including political issues, behaviors, social groups, companies, and the self. In addition to replicating Study 1, this study presents a number of advances. First, we expanded our operationalization of desired attitudes to include both ideal and ought attitudes. Research on self-discrepancy theory (Higgins, 1987) argues that people can conceptualize their goals (i.e., self-standards) either in terms of ideals or oughts. By measuring both, this study may more fully capture the ways in which people frame their attitudes. Interestingly, these two desired attitudes, and their average, revealed nearly identical effects.

Table 2
Descriptive statistics for Study 2 calculated variables.

Object	Discrepancy presence			Discrepancy magnitude			Discrepancy direction			Same valence		
	Ide	Oug	Des	Ide	Oug	Des	Ide	Oug	Des	Ide	Oug	Des
African Americans	50.1	54.3	52.4	0.99 (1.37)	1.19 (1.59)	1.07 (1.45)	96.2	94.7	96.4	79.2	78.9	80.0
Hillary Clinton	48.6	59.0	62.9	0.92 (1.19)	1.21 (1.36)	0.96 (1.04)	64.7	59.7	62.1	39.2	33.9	56.1
John McCain	46.7	50.5	54.3	0.85 (1.16)	1.05 (1.38)	0.90 (1.11)	59.2	64.2	63.2	46.9	39.6	47.4
Abortion	39.0	45.7	48.6	0.72 (1.29)	1.11 (1.56)	0.86 (1.18)	41.5	25.0	29.4	51.2	45.8	52.9
Exercising	36.2	38.1	39.0	0.81 (1.36)	0.84 (1.34)	0.82 (1.34)	94.7	95.0	92.7	84.2	85.0	85.4
Gay marriage	35.2	43.8	45.7	0.80 (1.29)	1.19 (1.77)	0.94 (1.31)	78.4	69.6	77.1	43.2	34.8	50.0
Iraq war	52.4	58.1	59.0	1.23 (1.58)	1.56 (1.91)	1.34 (1.62)	76.4	73.8	74.2	36.4	39.3	48.4
Self	65.7	62.9	66.7	1.23 (1.34)	1.24 (1.38)	1.23 (1.34)	97.1	98.5	97.1	89.9	90.9	91.4
Using condoms	41.0	39.0	43.8	0.91 (1.47)	0.96 (1.60)	0.89 (1.46)	79.1	75.6	76.1	58.1	56.1	63.0
Walmart	53.5	57.1	54.3	1.02 (1.29)	1.50 (1.75)	1.18 (1.44)	28.6	33.3	29.8	50.0	33.3	45.6
Across all objects	46.9	50.9	52.7	0.95 (1.34)	1.18 (1.58)	1.02 (1.35)	72.0	68.9	69.8	58.7	53.6	62.0

Discrepancy direction = percentage of people who have a discrepancy who want to be more positive.
Same valence = percentage of people who have a discrepancy whose desired attitude is of the same valence as their actual attitude.

Table 3
Mean (*SD*) correlations between Study 2 variables.

	SA	OA	Actual	Ideal	Ought	Desired	Act–ideal	Act–ought
SA								
OA	**0.50 (0.11)**							
Actual	**−0.18 (0.38)**	−0.07 (0.34)						
Ideal	−0.06 (0.30)	−0.01 (0.31)	**0.70 (0.18)**					
Ought	*−0.10 (0.28)*	−0.05 (0.29)	**0.60 (0.16)**	**0.81 (0.05)**				
Desired	−0.08 (0.31)	−0.03 (0.31)	**0.68 (0.17)**	**0.95 (0.01)**	**0.95 (0.01)**			
Act–ideal	**0.36 (0.18)**	**0.31 (0.09)**	**−0.39 (0.39)**	0.05 (0.20)	−0.02 (0.23)	0.01 (0.23)		
Act–ought	**0.30 (0.19)**	**0.23 (0.11)**	**−0.37 (0.40)**	−0.06 (0.17)	−0.02 (0.28)	−0.04 (0.22)	**0.70 (0.21)**	
Act–desired	**0.33 (0.20)**	**0.27 (0.08)**	**−0.40 (0.39)**	−0.01 (0.18)	−0.02 (0.26)	−0.02 (0.22)	**0.89 (0.08)**	**0.91 (0.07)**

Note: To control for the non-independence of the 10 observations nested within each participant, the correlations were computed within each object, this table contains the mean values across attitude objects with the associated standard deviation. Significance was determined based on a *t*-test against 0, with 9 degrees of freedom. Values in **bold** differ from 0 at $p < .05$, values in *italics* differ from 0 at $p < .10$.

Furthermore, with the additional power afforded by this study, we examined the effects using different analytic approaches, including computing an actual–desired discrepancy index and treating actual and desired attitudes as separate, interacting constructs. Both approaches were consistent with our predictions.

Thus far we have not examined whether actual–desired attitude discrepancies predict subjective ambivalence over another known antecedent to which it is plausibly related: interpersonal ambivalence (Priester & Petty, 2001). Interpersonal ambivalence is important to rule out, because the attitudes of other people can be important guides to the "right" attitudes (e.g., Festinger, 1954), and as such, the attitudes of important others might be meaningful guides to our own desired attitudes. However, our assumption is that people have their own reasons for wanting different attitudes (e.g., ideological consistency, self-improvement) which can be independent of what others want their attitudes to be. If feedback from other people were the only source of actual–desired attitude discrepancies, they would not be a novel, unique predictor of subjective ambivalence. Thus, it is important to empirically establish the independence of interpersonal ambivalence and actual–desired attitude discrepancies.

Study 3

Study 3 was designed primarily to rule out interpersonal ambivalence as fully accounting for the effects of actual–desired attitude discrepancies. We conducted a conceptual replication of Study 2 using a target issue on which we expected a reliable effect of interpersonal ambivalence as a strong test of the independence of actual–desired discrepancies.

Method

Participants. Participants were 122 undergraduate students (77 females, 45 males) from Ohio State University who participated for partial course credit. The materials for the current study were included as a filler questionnaire for an unrelated study.

Procedure. The procedure was identical to Study 2, but featured a single attitude object (practicing safe sex) and the addition of the interpersonal ambivalence measure described below.

Materials. Materials were nearly identical to those used in Study 2 with the exception of a change in the attitude response scale (from anchors at +/−4 to a 1–9 scale; $M_{actual} = 7.66$, $SD = 1.89$; $M_{desired} = 8.07$, $SD = 1.73$; $M_{SA} = 2.70$, $SD = 1.83$; $M_{OA} = 1.06$, $SD = 3.42$) and the addition of the interpersonal ambivalence measure. We assessed interpersonal ambivalence towards the topic of practicing safe sex by asking participants to report the attitude of their current or most recent romantic partner $M_{Partner} = 7.37$, $SD = 2.04$. In a pilot test, participants indicated that disagreements with a romantic partner on the topic of practicing safe sex would bother them the most ($M = 4.59$ on a 7-point scale) compared with all other targets tested (e.g., parents, all $Ms < 3.8$, $ps < .01$). As such, we selected this target person to provide maximum impact for the interpersonal ambivalence variable. Interpersonal ambivalence was computed by taking the absolute value of the difference between a participant's actual attitude and the perceived attitude of the relevant close other (Priester & Petty, 2001).

Results and discussion

In addition to replicating Study 2, with both objective ambivalence ($b = .10$, $SE = .045$), $t(118) = 2.20$, $p < .05$, and actual–desired discrepancies ($b = .46$, $SE = .15$), $t(118) = 3.07$, $p < .01$, predicting subjective ambivalence, interpersonal ambivalence was also a significant predictor of subjective ambivalence ($b = .24$, $SE = .12$), $t(118) = 2.05$, $p < .05$. That is, both objective ambivalence and actual–desired attitude discrepancies continued to significantly predict subjective ambivalence after controlling for interpersonal ambivalence. Thus, it appears that actual–desired attitudes are not redundant with interpersonal ambivalence. Indeed, in this study, actual–desired attitude discrepancies predicted subjective ambivalence at least as well as the other predictors. Further, direction of discrepancies did not produce a main effect or interact with discrepancy magnitude ($ps > .35$).[5]

We also treated actual, desired, and partner attitudes as separate predictors, as in Study 2, and included the Actual Attitude × Desired Attitude and Actual Attitude × Partner Attitude interactions. In these analyses, the interaction involving desired attitude was significant ($b = -.166$, $SE = .036$), $t(115) = 4.55$, $p < .001$, whereas the interaction involving partner was not, $t < 1$. The pattern of this interaction was the same as in Study 2, although as in Study 2, because the majority of people reported positive actual attitudes towards practicing safe sex, the effects of desired attitudes were most apparent among people whose actual attitudes were positive (because "low" values represented a relatively neutral evaluation rather than a negative evaluation).

We should note that conflict with others is a plausible source of desired attitudes (see General discussion for more information), and in our sample, interpersonal ambivalence was positively related to actual–desired attitude discrepancies ($r = .38$, $p < .001$). Critically, however, these constructs are far from redundant, at least with respect to the issue of practicing safe sex, as both independently predicted subjective ambivalence in this study.

Study 4

So far, all of the data provided have been correlational. Study 4 was designed to experimentally manipulate actual–desired attitude

[5] There was a marginal ($p = .08$) effect using ideal attitudes as the form of desired attitudes, such that people who ideally wanted a more positive attitude tended to experience greater ambivalence as actual–ideal discrepancy magnitude increased.

discrepancies. After people reported their attitudes they received feedback indicating that people who possess their current evaluation or people who possess a different evaluation of a target issue tended to possess a number of desirable qualities. Following the false feedback, participants completed measures of subjective and objective ambivalence as well as measures of their actual and desired attitudes.

Method

Participants. Participants were 90 people living in the United States (39 males, 50 females, 1 unidentified; $M_{age} = 34.5$, $SD = 14.4$) recruited using Mechanical Turk who were paid $.12 for participating (see Buhrmester, Kwang, & Gosling, 2011).

Procedure. Participants first completed a series of personality questions (Gosling, Rentfrow, & Swann, 2003) and received personality feedback that was in part based on their previous responses (e.g., regarding their extraversion & open-mindedness) and was in part ambiguous (e.g., Forer, 1949). This sort of feedback is typically viewed as very self-diagnostic (e.g., Petty & Brock, 1979) and was used to boost the credibility of our manipulated feedback. All participants then read the same information about the potential benefits of taxing junk food (adapted from Clark et al., 2008) and indicated their attitude towards taxing junk food. We then gave them customized feedback that indicated that people who possessed their attitude or a dissimilar attitude possessed a number of positive characteristics. Participants then completed measures of objective and subjective ambivalence and actual and desired attitudes. Finally, participants completed demographic measures and were debriefed.

Materials

Discrepancy manipulation. After reading information about the possible benefits of a junk food tax (e.g., increased revenue, shift towards healthier food options; see Clark et al., 2008) participants indicated their attitude towards taxing junk food. They were then randomly assigned to receive feedback suggesting that their current attitude was desirable or that a different attitude was desirable. This feedback was customized based on their responses to the earlier attitude questions (i.e., whether they reported support ($n = 50$), opposition ($n = 32$), or neutrality ($n = 8$)). For example, the feedback that people in favor of a junk food tax received in the "desire a different attitude" condition stated:

> Based on the questions you completed, you *support* taxing junk food. In general, people who *oppose* (versus support) taxing junk food tend to be independent thinkers who do not blindly accept what others say without satisfactory proof. Furthermore, they tend to be good managers of their own lives, and can master skills that they are sufficiently interested in.

Participants in the discrepancy condition who had a neutral attitude received feedback indicating that people who had a strong opinion on the topic possessed these positive qualities.

Dependent measure. Immediately after this feedback, participants completed subjective ambivalence questions parallel to Study 1.

Manipulation checks. To ensure that the manipulation was effective, after the dependent measure, we included measures of actual and desired attitudes and objective ambivalence. The objective ambivalence measure paralleled the one used in Study 1.

The measure of discrepancies was similar to that used in Study 2. However, rather than reporting separate ideal and ought attitudes, participants were instead asked to report the attitude towards taxing junk food that they WANT TO have on a 9-point scale ranging from *Extremely Negative* to *Extremely Positive*. The actual attitude measure always appeared first. Discrepancy scores were computed in the same manner as in the prior studies.

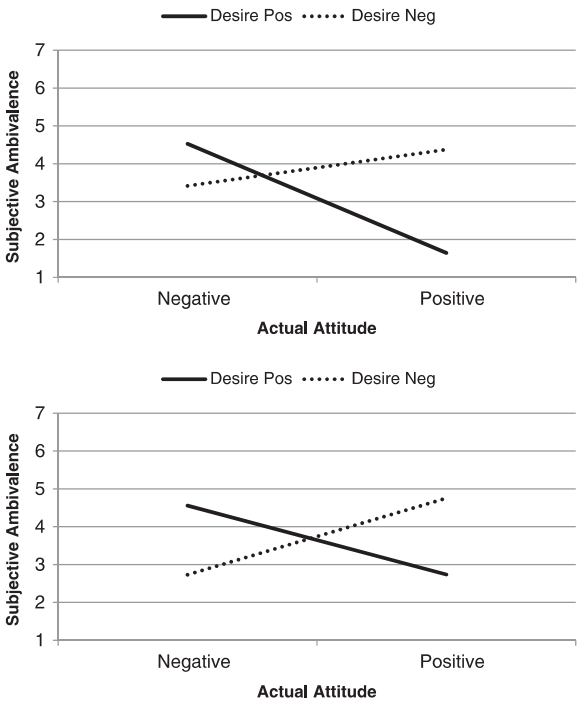

Fig. 1. Subjective ambivalence as a function of actual and desired attitude, controlling for objective ambivalence (Study 2). Top panel is +/− 1SD from sample means, whereas bottom panel is +/− 1SD from scale midpoints.

Results and discussion

Manipulation checks. Actual–desired attitude discrepancies and objective ambivalence were submitted to a 2 (Feedback type: desire same vs. desire different) × 3 (Feedback customization: initial report of support, opposition, or neutrality) ANOVAs. The only effect to emerge was the predicted effect of the feedback type on actual–desired attitude discrepancies, $F(1, 84) = 5.58$, $p = .02$, such that larger discrepancies were observed in the desire different condition ($M = 1.61$, $SE = .28$) than in the desire same condition ($M = .59$, $SE = .33$). No effects emerged on objective ambivalence ($Fs < 1.42$, $ps > .24$).

Subjective ambivalence. Subjective ambivalence was also submitted to the above ANOVA. The predicted effect of the feedback type on subjective ambivalence emerged, $F(1, 84) = 6.51$, $p = .01$, such greater subjective ambivalence was observed in the desire different condition ($M = 3.60$, $SE = .36$) than in the desire same condition ($M = 2.18$, $SE = .42$). There was also a marginal effect of feedback customization $F(1, 84) = 2.74$, $p = .07$, such that people whose attitudes were initially negative ($M = 2.21$, $SE = .36$) tended to experience less ambivalence than people with initial positive ($M = 3.22$, $SE = .18$) or neutral attitudes ($M = 3.23$, $SE = .71$).

Mediation. To determine whether the effect of our manipulation on subjective ambivalence was mediated by the change in actual–desired attitude discrepancies, we used the Preacher and Hayes (2008) bootstrapping macro for estimating indirect effects (see also Shrout & Bolger, 2002). We ran this model with objective ambivalence as a covariate, though the same effects were observed when the covariate was not included. The INDIRECT macro for SPSS (Preacher & Hayes, 2008) revealed a significant total effect of condition on subjective ambivalence ($b = 1.04$), $t = 2.64$, $p < .01$. The main effect of condition remained significant when accounting for the effect of actual–desired discrepancies

($b = .83$), $t = 2.11$, $p < .05$. Critically, however, the indirect effect through subjective ambivalence was present (.21) and the bias corrected confidence interval did not contain 0, indicating a significant indirect effect of condition through actual–desired discrepancies (.021, .61), consistent with partial mediation. In addition, objective ambivalence was a significant covariate ($b = .14$), $t = 3.81$, $p < .001$.

Discussion

In Study 4, we manipulated actual–desired attitude discrepancies by giving feedback that participants' current attitudes were desirable or undesirable to establish the causal role that these discrepancies have in predicting subjective ambivalence. Consistent with the correlational data already presented, when people learned that another attitude was more desirable than their current attitude they reported larger actual–desired attitude discrepancies and evidenced increased feelings of conflict, relative to people who were not told that their existing attitude was desirable.

Furthermore, the mediational data are consistent with the notion that the impact of our induction was driven at least in part by shifts in actual–desired attitude discrepancies. However, the reverse mediational pathway — that subjective ambivalence could lead people to desire different attitudes (see e.g., van Harreveld, Rutjens, et al., 2009; van Harreveld, van der Pligt, et al., 2009) — is also plausible. When we tested this reverse indirect effect, it was also different from 0 (.21, CI: .031, .59) and was of similar magnitude to the predicted mediational pathway. Thus, the true causal path is unclear in the present study. We should note, however, that Studies 5 and 6 did not find this reverse pattern of mediation, so we do not think that the reverse causal path is wholly responsible for the relationships observed in this paper.

To this point, we have demonstrated that actual–desired attitude discrepancies predict feelings of ambivalence, and do so across a wide range of attitude objects and over other documented predictors of subjective ambivalence. We have not, however, demonstrated that the ambivalence that stems from actual–desired attitude discrepancies is meaningful in any way. This is the goal of Studies 5 and 6.

Study 5

In Study 5, we examined an important potential consequence of actual–desired attitude discrepancies—moderation of attitude prediction of behavioral intentions. This consequence was chosen because the prediction of behavior is one of the central goals of attitude research (e.g., Fazio & Olson, in press; Fishbein & Ajzen, 1975), and because unambivalent attitudes in particular are better predictors of behavior than are ambivalent attitudes (e.g., Armitage & Conner, 2000). We assessed actual and desired attitudes, objective and subjective ambivalence, and intentions to exercise. We predicted that those with larger actual–desired attitude discrepancies would have lower prediction of behavioral intentions from their attitudes, controlling for objective ambivalence, and that this effect would be mediated by subjective ambivalence.

Method

Participants. One hundred forty Stanford University students and staff (57 males, 79 females, 4 declined to state) participated as part of a paid mass testing session.

Procedure. Participants completed an opinion survey about exercise. Participants reported their actual and desired attitudes, objective and subjective ambivalence, and their intentions to exercise during the next week. Materials below are presented in the order completed by participants, with the exception that some participants reported their behavioral intentions prior to completing the other measures and other participants reported their behavioral intentions after completing the other measures. This order manipulation did not moderate any of the analyses reported below and hence is not discussed further. Three participants declined to report their exercise attitudes, and two additional participants declined to report their behavioral intentions. All of the analyses reported below exclude these participants, leaving 135 participants in the sample, although the patterns of significance do not differ when these participants are included in the analyses that do not require these variables.

Materials

Attitudes. Participants reported their attitudes on a single semantic differential scale anchored by 1 (*negative*) and 9 (*positive*) ($M = 7.59$, $SD = 1.52$).

Actual–desired discrepancy. Actual–desired attitude discrepancies were measured and computed in the same manner as in Study 1 (i.e., discrepancy is the extent participants wanted their attitudes to be more positive or negative than their actual attitudes). Thirty-nine participants (29%) reported wanting a different attitude, and all but two of them wished for their attitude to be more positive (discrepancy magnitude $M = .95$, $SD = 1.35$).

Objective and subjective ambivalence. Objective ($M = 1.20$, $SD = 2.69$) and subjective ($M = 3.43$, $SD = 1.85$) ambivalence measures were the same as those described in Study 1.

Behavioral intentions. Participants reported how many days they intended to exercise in the next week ($M = 3.47$, $SD = 1.91$).

Results

Subjective ambivalence. Paralleling our previous studies, both objective ambivalence ($b = .20$), $t(133) = 3.50$, $p = .001$, and the magnitude of actual–desired discrepancies ($b = .29$), $t(133) = 2.58$, $p = .01$, predicted subjective ambivalence in the expected direction (i.e., more objective ambivalence and larger discrepancies associated with more subjective ambivalence). Because only two people wanted more negative attitudes, we did not test for moderation of these effects by discrepancy direction.

Behavioral intentions. Recall our key prediction that actual–desired attitude discrepancies would reduce the extent to which attitudes predicted behavioral intentions. To test this prediction, we regressed behavioral intentions on actual attitudes, attitude discrepancy magnitude, objective ambivalence, and the Actual Attitude × Discrepancy Magnitude and Actual Attitude × Objective Ambivalence interactions. Following Cohen and Cohen (1983), main effects were interpreted on the first step of the regression, and interactions were interpreted on the second step of the regression. Actual exercise attitudes predicted intentions to exercise ($b = .54$), $t(130) = 4.96$, $p < .001$, as did objective ambivalence ($b = -.11$), $t(130) = -1.98$, $p = .049$. More important, the Actual Attitude × Discrepancy, ($b = -.16$), $t(128) = -2.36$, $p = .02$ and Actual Attitude × Objective Ambivalence interactions ($b = -.07$), $t(128) = -2.29$, $p = .02$, were both significant in the expected direction (see Fig. 2). Both larger discrepancies and greater objective ambivalence decreased the prediction of behavioral intentions by actual attitudes.

Mediation. Both objective ambivalence and actual–desired attitude discrepancies significantly predicted subjective ambivalence and moderated the attitude–behavioral intention relationship. We next examined whether subjective ambivalence mediated the impact of these variables on the attitude–behavior relationship. This is a case of mediated moderation. To examine this relationship, we conducted a path analysis using Mplus (Muthén & Muthén, 1998–2011). In this model, we predicted the mediator, subjective ambivalence, from objective ambivalence and actual–desired attitude discrepancies. We then predicted behavioral intentions from attitude, objective ambivalence, actual–desired attitude

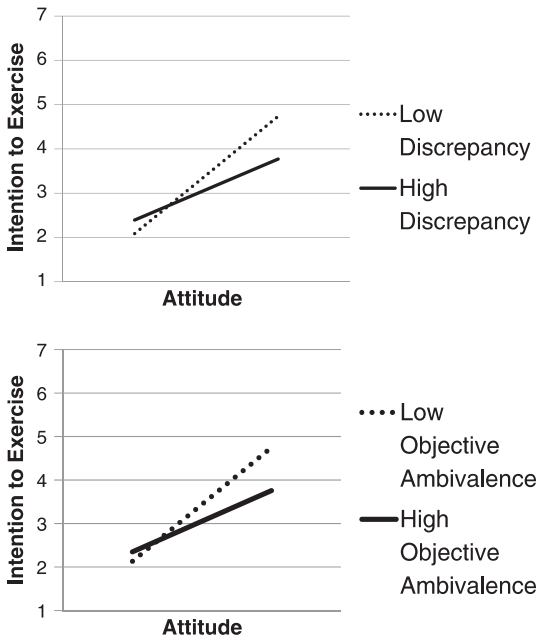

Fig. 2. Intentions to exercise as a function of exercise attitudes, actual–desired attitude discrepancies, and objective ambivalence (Study 5).

discrepancies, subjective ambivalence, and the interactions of the latter three variables with attitude (see Fig. 3).

In this model, both antecedents of subjective ambivalence were significant (*ps* < .05). Behavioral intentions were only significantly predicted by attitude ($b = .60$, boot-$SE = .111$, $p < .001$), subjective ambivalence ($b = -.16$, boot-$SE = .074$, $p < .05$), and Attitude × Subjective Ambivalence ($b = -.10$, boot-$SE = .043$, $p < .05$). Critically, bootstrap confidence intervals for the indirect effect of objective ambivalence (estimate = −.020, 95% CI: −.049, −.004) and actual–desired attitude discrepancies (estimate = −.029, 95% CI: −.076, −.004) through subjective ambivalence (interacting with attitude) did not contain 0, consistent with full mediation on both paths. Furthermore, the confidence interval for the reverse indirect effect, with subjective ambivalence leading to actual–desired discrepancies, which then moderate the attitude–BI relationship, did contain 0, reducing the plausibility of this pathway driving the effects in the current study (estimate = −.005, 95% CI: −.041, .007). We also tried a similar reverse mediational pathway with objective ambivalence as the mediator, and again found no support for the reversed path (estimate = −.010, 95% CI: −.074, .007).

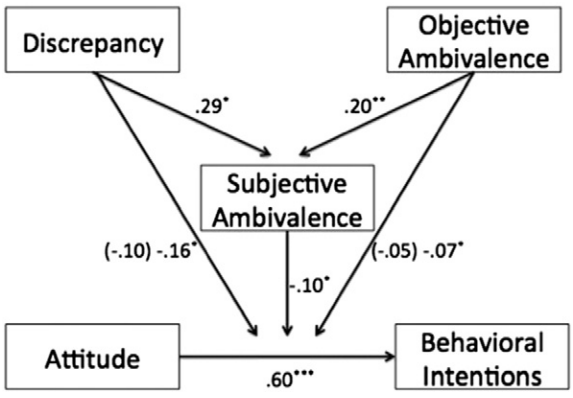

Fig. 3. Mediated moderation model predicting intentions to exercise as a function of exercise attitudes, actual–desired attitude discrepancies, and objective ambivalence, with subjective ambivalence as the mediating variable (Study 5). Values in parentheses represent remaining direct effect (an interaction in this context) when controlling for the Attitude × Subjective Ambivalence interaction. Confidence intervals for both indirect effects did not include 0, indicating significant indirect effects. Values in figure are unstandardized coefficients.

Discussion

Study 5 extends our earlier investigations by showing that the subjective ambivalence associated with actual–desired attitude discrepancies is consequential. Specifically, attitudes towards exercise were less predictive of intentions to exercise among those with larger actual–desired attitude discrepancies. As with our earlier studies, this effect held after controlling for objective ambivalence. Further, the moderation of the attitude–behavior relationship by desired attitude discrepancies was mediated by subjective ambivalence.

In this data set, objective ambivalence also moderated the attitude–behavior intention relationship, and this relationship was also mediated by subjective ambivalence. Although past research has shown such moderation by objective ambivalence (e.g., Armitage & Conner, 2000), and subjective ambivalence is *hypothesized* to be the mediating variable, to our knowledge, this is the first empirical demonstration of this mediation.

In this study, we found that attitudes associated with actual–desired discrepancies are less functional in directing behavior than are attitudes with greater congruence. However, ambivalent attitudes are not only less useful in guiding behavior, they are also aversive (Hass et al., 1992).[6] As such, people are motivated to reduce feelings of ambivalence, and will often do so by informational means (e.g., Bell & Esses, 2002). Because actual–desired attitude discrepancies are relatively novel antecedents of ambivalence, in Study 6 we sought to examine the extent to which the subjective ambivalence that emerges from these discrepancies is something participants are motivated to reduce.

Study 6

In Study 6, we sought to demonstrate that participants are motivated to reduce the conflict actual–desired attitude discrepancies create. We did this by assessing participants' desire to seek out additional information about the attitude object and to resolve their ambivalence (Jonas, Diehl, & Bromer, 1997). Measures of information seeking are important because they have been found to predict actual information exposure and processing (Hart et al., 2009), and because they are informative about the extent to which participants want to do something about their conflicted feelings (Zhao & Cai, 2008).

Method

Participants. Two hundred eighty-eight Texas Tech University undergraduates (83 males, 205 females) participated for course credit.

Procedure. As filler measures for unrelated studies, participants were asked to complete an opinion survey in which they were asked a series of questions about abortion. Participants reported their actual, ideal, and ought attitudes, objective and subjective ambivalence, and their interest in information that could reduce ambivalence. Materials below are presented in the order completed by participants.

Materials

Objective and subjective ambivalence. Objective ($M = .42$, $SD = 3.10$) and subjective ($M = 3.74$, $SD = 2.35$) ambivalence measures were the same as those described in Study 1.

[6] Ambivalent attitudes can be more or less functional depending on how functional is defined. As noted, compared to univalent attitudes, ambivalent attitudes tend to be less useful in guiding behavior. However, ambivalent attitudes can be useful in socially demanding settings by allowing for a more diverse range of potential responses (Pillaud, Cavazza, & Butera, 2013). Also, as noted, ambivalent attitudes can be more or less aversive depending on individual, situational and cultural differences (see Cowley & Czellar, 2012, for an additional example).

Actual–desired discrepancy. Actual–desired attitude discrepancies were measured and computed in the same manner as in Study 2 (i.e., desired attitude was the average of ideal and ought attitudes; discrepancy magnitude $M = 1.27$, $SD = 1.57$).

Information interest. Participants' interest in attitude-relevant information and their desire to reduce their ambivalence were assessed with four items. Specifically, participants were asked "To what extent are you curious about legalized abortion?" "Would you like to know more about legalized abortion?" "How interested would you say you are in finding out more about legalized abortion?" and "To what extent would you like to do something to help resolve any potential mixed feelings towards legalized abortion?" Participants responded to these questions using 9-point scales anchored at *not at all* and *very much*. Responses were averaged (alpha = .89) to form an index of information interest ($M = 3.94$, $SD = 2.12$).

Interest and curiosity in learning more about the attitude object for which the discrepancy exists has been used as a subjective indicator of desire to reduce ambivalence (Zhao & Cai, 2008). The perceptions that people have with regard to their need for further information have been shown to play an important role in decision making, information processing, and attitude change (e.g., Briñol & Petty, 2012; Clark\ et al., 2008). Another benefit of this measure is it allows us to see to what extent participants explicitly recognize that they want to do something about their ambivalence (see also Maio & Thomas, 2007). Awareness of the need to receive further discrepancy-relevant information is likely a first step in many attempts to reduce feelings of conflict. Also, although people might deal with their discrepancies in many other ways (e.g., ignoring, trivializing, changing attributions; Maio & Thomas, 2007), seeking relevant information might lead people to a more stable resolution of their discrepancies.

Results

Subjective ambivalence. Paralleling our previous studies, both objective ambivalence ($b = .34$), $t(285) = 9.41$, $p < .001$ and the magnitude of actual–desired discrepancies ($b = .50$), $t(285) = 7.02$, $p < .001$, strongly predicted subjective ambivalence in the expected direction (i.e., more objective ambivalence and larger discrepancies associated with more subjective ambivalence).

In addition to the above analysis, we also conducted a supplemental analysis that included the direction of actual–desired attitudinal discrepancies (coded +1 for wanting to be more positive, −1 for wanting to be more negative, 0 for no discrepancy) as well as the Discrepancy Magnitude × Direction interaction. This analysis reproduced the above effects, and also revealed a marginal trend for the effect of discrepancy magnitude to be stronger among people wanting to be more negative ($b = .24$), $t(283) = 1.74$, $p = .083$. Because this effect was only marginal, and because this effect was not consistently obtained across data sets, we do not attempt to interpret it.

Desire to reduce ambivalence. We predicted participants' desire to reduce their ambivalence from objective ambivalence and the magnitude of actual–desired attitude discrepancy. This analysis revealed two main effects, with both objective ambivalence ($b = .20$), $t(285) = 5.13$, $p < .001$ and the magnitude of actual–desired discrepancies ($b = .17$), $t(285) = 2.17$, $p < .05$ predicting desire to reduce ambivalence in the expected direction (i.e., more objective ambivalence and larger discrepancies associated with more desire to reduce ambivalence). Supplemental analyses including discrepancy direction and its interaction with discrepancy magnitude did not alter the above results, nor did it qualify them.

Mediation. To determine whether the impact of actual–desired discrepancies and objective ambivalence on the desire to reduce ambivalence was mediated by subjective ambivalence, we tested a dual-predictor, single-mediator model using the INDIRECT macro for SPSS (Preacher & Hayes, 2008; see Fig. 4). This model revealed a significant effect of subjective ambivalence on desire to reduce ambivalence ($b = .23$), $t = 3.67$, $p < .001$, when controlling for actual–desired attitude discrepancies and objective ambivalence.

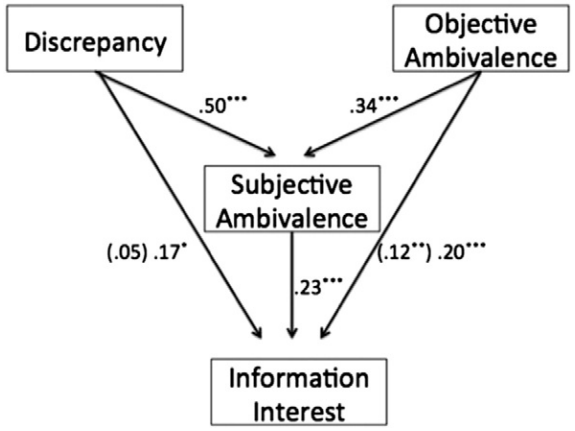

Fig. 4. Mediation model predicting interest in additional information about abortion as a function of actual–desired attitude discrepancies and objective ambivalence, with subjective ambivalence as the mediating variable (Study 6). Values in parentheses represent remaining direct effect when controlling for Subjective Ambivalence. Confidence intervals for both indirect effects did not include 0, indicating significant indirect effects. Values in figure are unstandardized coefficients.

The main effect of objective ambivalence remained significant when accounting for the effect of subjective ambivalence ($b = .12$), $t = 2.79$, $p < .01$. However, the indirect effect through subjective ambivalence was also present (.079) and the bias corrected confidence interval did not contain 0, indicating a significant indirect effect of objective ambivalence through subjective ambivalence (.033, .13). However, when subjective ambivalence and objective ambivalence were switched in this analysis, the indirect effect remained significant (indirect effect = .086, boot-*SE* = .035, *95%CI*: .019, .158).

The main effect of actual–desired attitude discrepancies was no longer significant when accounting for the effect of subjective ambivalence ($b = .05$), $t = .64$, $p = .53$. Critically, however, the indirect effect through subjective ambivalence was present (.12), and the bias corrected confidence interval did not contain 0, indicating a significant indirect effect of actual–desired attitude discrepancies through subjective ambivalence (.053, .19). When subjective ambivalence and actual–desired attitude discrepancies were switched in this analysis, the reverse pattern of mediation was not obtained (indirect effect = .015, *95%CI*: −.032, .066). Thus, the indirect effects of both objective ambivalence and actual–desired attitude discrepancies through subjective ambivalence were significant, even when controlling for each other.

Discussion

Study 6 extends our earlier investigations by showing that the subjective ambivalence associated with actual–desired attitude discrepancies is consequential. Specifically, people reported a greater desire to reduce conflict and to find out more about the attitude object as actual–desired attitude discrepancies increased. As with our earlier studies, this effect held after controlling for objective ambivalence. Further, the effect of actual–desired attitude discrepancies on the desire to reduce conflict was mediated by subjective ambivalence.

General discussion

Ambivalence is a central construct in the literature on attitudes, and it has been the focus of a recent resurgence in research interest (e.g., Cavazza & Butera, 2008; Clark et al., 2008; Clarkson, Tormala, & Rucker, 2008; Cowley & Czellar, 2012; DeMarree, Morrison, Wheeler, & Petty, 2011; Gebauer et al., 2013; Hormes & Rozin, 2011; Petty,

Tormala, Briñol, & Jarvis, 2006; Priester et al., 2007; Refling et al., 2013; Sawicki et al., 2013; Schneider et al., 2013; van Harreveld, Rutjens, et al., 2009; van Harreveld, van der Pligt, et al., 2009; Ziegler, Schlett, Casel, & Diehl, 2012). Although the subjective experience of conflict is important because it often drives ambivalence outcomes (e.g., attitude–behavior correspondence, information seeking), there is a current gap in our understanding of the factors that contribute to this sense of conflict about one's attitudes. A key goal of the present research was to offer insight into a novel antecedent of subjective ambivalence: actual–desired attitude discrepancies. We examined this antecedent across six studies and a wide range of attitude issues. In the context of doing this, we also provided evidence for an interesting phenomenon — people often have attitudes that they wish were different.

Although past theorists have speculated that people might desire different attitudes than the ones they hold towards a diversity of topics (Maio & Thomas, 2007), the current research is the first to provide direct evidence that, across a wide range of issues, they actually do. Furthermore, we showed that such discrepancies consistently predict subjective ambivalence and predict ambivalence-related outcomes. We demonstrated prediction of subjective ambivalence across different attitude objects, operationalizations of desired attitudes, and after controlling for other documented antecedents of subjective ambivalence. With respect to the latter point, in all studies our effects obtained after controlling for objective ambivalence, and in the one study in which it was tested (Study 3), they held after controlling for interpersonal ambivalence.

Critically, the subjective ambivalence arising from actual–desired attitude discrepancies is consequential, in that people with larger discrepancies have less impactful (Study 5) attitudes and indicate a desire to find out more about the attitude object, presumably in an effort to reduce the conflict (Study 6). These results are important in documenting a new antecedent of subjective ambivalence and of ambivalence-related consequences, but also have many other implications for the literature on attitudes, attitude change, attitude strength, and attitude regulation. We outline some of these theoretical and practical implications below.

Subjective ambivalence

As noted in the Introduction, despite the hypothesized importance of subjective ambivalence in understanding a wide variety of attitude-related phenomenology, its antecedents are not fully understood. A consistent gap in researchers' ability to predict subjective ambivalence is present, and the current research helps to narrow this gap. We now know that actual–desired attitude discrepancies can predict subjective ambivalence over previously known predictors. For example, across the objects examined in Study 2, adding actual–desired discrepancies to regression models predicting subjective ambivalence accounted for more than 6% more variance than models including objective ambivalence alone (average adjusted $R^2 = .26$ versus .32). Furthermore, the ambivalence stemming from these discrepancies is consequential, as larger actual–desired attitude discrepancies reduced the predictive utility of attitudes and increased interest in attitude-relevant information. The current research builds on other recent work (e.g., van Harreveld, van der Pligt, et al., 2009) predicting that subjective ambivalence emerges when there are conflicting behavioral or cognitive implications of one's attitude. This can come from conflicting positive and negative associations, as in past research, or from conflicting actual and desired evaluations, as in the present research.

Interestingly, the current findings go beyond the contribution of understanding the origins of subjective ambivalence. Although a great deal of research on ambivalence postulates that the effects of objective ambivalence are due to the subjective experience of conflict (e.g., Maio et al., 1996), researchers have not tested this meditational pathway by including measures of both objective and subjective ambivalence. However, in Studies 5 and 6, we found significant indirect effects of objective ambivalence through subjective ambivalence on ambivalence-related outcomes. We should note that not all effects of ambivalence are likely to be driven by the subjective experience of ambivalence, such as when a subtle situational induction might capitalize on a structural inconsistency (e.g., DeMarree et al., 2011). But, for many effects of ambivalence, and in particular those that involve more thoughtful processes, subjective ambivalence is likely to be a proximal causal variable.

Interestingly, and as noted earlier, van Harreveld, van der Pligt, et al. (2009) have noted that the experience of ambivalence might sometimes lead people to desire different, unambivalent attitudes, and it is this motive that drives many ambivalence outcomes, such as information exposure and processing. Although we did not find support for this phenomenon in our Study 5 or Study 6, these studies were correlational in nature, and as such, cannot completely rule out this effect. We should note that we believe that both directions of causality can operate, and contextual features might also make one more likely than another. For example, when an immediate decision relevant to an objectively ambivalent attitude is required and *no strong initial preference* is present, subjective ambivalence might drive the desire for a new, less ambivalent attitude. Further exploration of these ideas is warranted to explore these possibilities.

Actual–desired attitude discrepancies

One might wonder about the prevalence and nature of actual–desired attitude discrepancies. The current data suggest that the prevalence of actual–desired attitude discrepancies varies across attitude objects. In our samples, for some attitude objects, such as the self, discrepancies were relatively common, whereas for other attitude objects (e.g., practicing safe sex, gay marriage), they were less common. Among our samples, actual–desired attitude discrepancies were relatively uniform in their direction for some attitude objects (e.g., our participants wanted to be more positive about the self, exercising, and African Americans, but more negative about Walmart) but more evenly distributed for others (e.g., John McCain, abortion). Most dramatically, perhaps, as shown in Table 2, approximately half of the time, people wished they had a different attitude, which points to the widespread prevalence of actual–desired attitude discrepancies and their potential importance in many situations.

Because of conversational norms, by asking separate questions for actual and desired attitudes, it is possible that participants felt we wanted them to report different answers for each question (see e.g., Schwarz, 1999). We tried to avoid this by being explicit in our instructions that for some people actual, ideal, and ought attitudes would be different whereas for other people they would be the same, but it is still possible that this method of asking separate questions falsely increased the prevalence of discrepancies. However, the reported discrepancies were not just "noise" — the magnitude of discrepancies strongly predicted subjective ambivalence regardless of how the discrepancies were assessed. Further, for some objects (e.g., practicing safe sex in Study 3), the rates of participants reporting discrepancies was relatively low, providing some evidence against inflation in the number of participants reporting discrepancies solely due to factors such as conversational norms or demand characteristics. Interestingly, low rates of discrepancies in studies like this one create a restriction of range, which can decrease the ability to detect an effect. Yet, the presence of discrepancies still allowed for prediction of subjective ambivalence over previously identified antecedents.

Origin of discrepancies

Another question concerns the origin of actual–desired attitude discrepancies. One possible origin is the higher order goals a person is pursuing. For example, individuals who have a goal to lose weight might want to like exercising and vegetables more, but video games and chocolate cake less. Evidence indicates that the pursuit of goals can affect current evaluations (e.g., Ferguson & Bargh, 2004), so it seems plausible

that they can also affect desired attitudes. That is, it is beneficial to goal pursuit if we like things that will facilitate goal attainment and dislike things that will impede goal attainment (for a related discussion, see Wheeler, Briñol, & Hermann, 2007). Immediate shifts in our evaluations in response to our current goals (Ferguson & Bargh, 2004) might not always be possible, and such shifts might not occur as readily for long-term goals. As such, goals could promote the formation of desired attitudes, and changing attitudes to make them less discrepant from one's desired attitudes can presumably help people attain their goals.

However, goals are not the only source of actual–desired attitude discrepancies. Desired attitudes could also originate from consistency motives. People generally like to maintain consistency both within and between their evaluations (Eagly & Chaiken, 1995). A person could want different attitudes in order to maintain consistency with a higher order ideological or evaluative structure. For example, a Catholic might want to like birth control less, whereas a political liberal might want to like gay marriage more. In addition, because interpersonal inconsistency is aversive (Priester & Petty, 2001), discrepancies between a person's own opinion and the opinions of people they are close to or respect might motivate people to want different attitudes. This might, in part, account for the opinion shifts that people experience when introduced to new social environments (e.g., Newcomb, 1961; see also Visser & Krosnick, 1998). Importantly, however, such interpersonal discrepancies are not likely the sole cause of actual–desired discrepancies, at least based on the results of Study 3.

Attitude regulation

The current research showed that actual–desired attitude discrepancies increase subjective ambivalence and suggests that people chronically hold such discrepancies towards a variety of objects and issues. This is notable in light of research showing that subjective ambivalence is aversive (Nordgren, van Harreveld, & van der Pligt, 2006) and that people are motivated to reduce it (Bell & Esses, 2002; Clark et al., 2008; Maio et al., 1996; Nordgren et al., 2006). This raises the possibility that people might want to regulate their attitudes in much the same way that they regulate other self-aspects. However, unlike most research on ambivalence, this motivation should be directional (i.e., to move the actual attitude in the direction of the desired attitude; see Maio & Thomas, 2007).

Although most research on attitudinal ambivalence has not examined directional effects of ambivalence, a recent paper by Clark et al. (2008) is a notable exception. In their research, people tended to think more carefully about information that would help resolve their ambivalence in the direction of their existing attitude (i.e., the direction of their dominant reactions towards the object). This directionality was due to the perception that it would be easier to resolve the ambivalence in the direction of the dominant reactions than in the direction of the conflicting reactions (because more information would be needed to overcome the dominant reactions). Thus, this directional push is due to the ease of ambivalence reduction (potentially consistent with van Harreveld, van der Pligt, et al., 2009), not necessarily to a person desiring one attitude over the other. Our research suggests that an examination of multiple motives underlying ambivalence reduction might be warranted. When a person's desired attitude is of the same valence but is more extreme than their actual attitude, ease of ambivalence reduction and attainment of desired attitudes both might "push" participants in the same direction. However, when a person desires an attitude of a different valence, these factors will exert opposing influences. It is also possible that conflicts such as these might shift individuals' desired attitudes.

Maio and Thomas (2007) proposed a number of strategies that individuals might use to obtain their desired opinion. For example, people might generate arguments in favor of the desired position, reinterpret information that is inconsistent with the desired attitude, reduce the importance of this information, or even try to suppress it. The strategies proposed by Maio and Thomas, however, are primarily intrapsychic strategies. That is, they are strategies that occur entirely within the individual and involve manipulating pre-existing attitude-relevant knowledge and potentially motivated searches of arguments in the direction of desired attitudes (Briñol, McCaslin, & Petty, 2012). Consistent with Maio and Thomas, we believe that desired attitudes can motivate these processes to occur.

However, we further believe that actual–desired attitude discrepancies could motivate interactions with the external world that would help obtain desired attitudes. There are a variety of ways in which a person's behavior might facilitate the attainment of desired attitudes. For example, actual–desired attitude discrepancies could motivate people to behave in accord with their desired attitudes (e.g., *fake it until you make it*, see also Willard & Gramzow, 2009) and against their current attitude (e.g., resulting in dissonance, Festinger, 1957). Such behaviors could then facilitate attitude change via self-perception or dissonance processes.

Rather than changing their overall behaviors, people might also modify the way in which they engage in a behavior in order to facilitate desired attitudes. For example, people who want to like exercising more might choose to attend a yoga class with a friend or run to a mix of upbeat music, thereby increasing their enjoyment of exercising. In contrast, someone who enjoys smoking, but would prefer to dislike it, might institute a policy whereby they are only allowed to smoke outside, which could dramatically decrease this person's enjoyment of smoking if they live in a colder climate. Such approaches could influence people's evaluations via associative processes (e.g., conditioning).

As with the work on ambivalence discussed earlier (Clark et al., 2008), people might seek out or attend to information that might facilitate attainment of their desired attitudes. For example, a person who wants to oppose abortion might seek out information that would support this desired attitude by visiting socially conservative websites. People might also process new information in a desired attitudes, such as by paying more attention to desired-attitude-supporting (versus opposing) information, interpreting ambiguous information in a desired-attitude-supporting manner, by viewing desired-attitude-supporting information as more credible than desired-attitude-opposing information, or by liking and perceiving the validity of their thoughts more when they are desired-attitude-consistent. Exploring the strategies by which people regulate their opinions would represent an important and interesting direction for future research.

Attitude strength

Ambivalence is often negatively associated with the consequences of attitude strength (Petty & Krosnick, 1995). Strong attitudes are those that resist change, are stable over time, and are predictive of behavior and information processing (Krosnick & Petty, 1995). Attitudes that are low in ambivalence tend to exhibit strength consequences more than attitudes that are high in ambivalence (Conner & Armitage, 2008). For example, as already noted, ambivalent attitudes are less predictive of behavior (e.g., Conner et al., 2002; Lavine, 2001) and more susceptible to change (e.g., Armitage & Conner, 2000; Bell & Esses, 2002; DeMarree et al., 2011). A new question raised by the current research concerns the extent to which actual–desired attitude discrepancies are associated with strength consequences. Study 5 demonstrated that the attitudes of people without actual–desired attitude discrepancies are better predictors of behavior than the attitudes of people with such discrepancies. Would attitudes with larger discrepancies also be less stable over time and more resistant to change? These questions deserve further investigation.

Final thoughts

The prevalence of actual–desired attitude discrepancies and the robustness of their association with subjective ambivalence might be

surprising. After all, people are free to change their evaluations at any moment (but see Frankfurt, 1971). That such discrepancies persist suggests limitations on people's ability to control their evaluations (see also Wheeler et al., 2007). Social constraints, reality constraints, consistency pressures, goal pursuit, and the like all induce potential conflict between one's current evaluations and the ones that are most desired. It might not be possible to ever eliminate such conflict entirely. Instead, individuals might hold evaluations that tradeoff between these various intrapersonal and interpersonal pressures as best they can, resulting in continual evaluative tension that never fully dissipates.

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