Reducing Subjective Ambivalence by Creating Doubt: A Metacognitive Approach

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Abstract

Ambivalence, the presence of positive and negative reactions toward an object, typically involves the subjective experience of conflict. We investigate the role that the perceived validity of each side of an ambivalent attitude plays in producing subjective ambivalence (SA). Consistent with the metacognitive model of attitudes, we demonstrated that SA is reduced when people doubt either the positive or the negative reactions. Thus, inducing doubt (in one side) can reduce SA. We further explored whether viewing both sides as invalid would lead to relatively low or to relatively high levels of SA. Consistent with the idea that equivalent perceived validity increases the difficulty of ambivalence reduction, when both sides were doubted, conflict was as high as when both sides were validated.

Ambivalence refers to mixed evaluations of an object (Kaplan, 1972). Understanding ambivalence is important in a wide range of evaluative domains, including health-care decisions (Mac-Donald & Hynie, 2008), political decision making (Hmielowski, 2012), leadership (Fong & Tiedens, 2002), the self (Frost, Kyrios, McCarthy, & Matthews, 2007), relationships (Kachadourian, Fincham, & Davila, 2005), and prejudice (Hass, Katz, Rizzo, Bailey, & Moore, 1992). Ambivalence is important because compared with unambivalent attitudes, ambivalent attitudes tend to be less useful guides to action (Armitage & Conner, 2000), are more malleable (Haddock, 2003), and are uncomfortable (Hass et al., 1992), motivating ambivalence-reduction attempts (Clark, Wegener, & Fabrigar, 2008).

The present research continues the tradition of distinguishing between two conceptualizations of ambivalence—objective and subjective. Objective ambivalence (OA) refers to the explicit recognition of both positive and negative reactions to an object. OA assessments ask participants to separately report their endorsement of positive and negative reactions to an object (Kaplan, 1972; Refling et al., 2013). On the other hand, subjective ambivalence (SA) refers to the *experience* of evaluative conflict—feeling conflicted, confused, and so forth—assessed with direct self-reports of these experiences about an object (Priester & Petty, 1996).

However, these two ambivalence conceptualizations are not equivalent. Indeed, OA and SA can predict different effects and can independently predict some of the same effects (Holbrook & Krosnick, 2005). SA is often considered to be the construct that drives many of the effects of OA (Maio, Bell, & Esses, 1996), and there is evidence of SA mediating the link between

OA and relevant outcomes (DeMarree, Wheeler, Briñol, & Petty, 2014). In addition, SA can predict the cognitive and behavioral effects of ambivalence (e.g., moderation of attitude-behavior relationships; DeMarree et al., 2014; Haddock, 2003) as well as the information processing and information seeking consequences (e.g., attending to information with the greatest potential to reduce conflict; Clark et al., 2008; see also Sawicki et al., 2011, 2013). That is, the greater the feeling of conflict the less people tend to act in accord with their attitudes and the worse people tend to feel regarding the object of ambivalence, increasing the motivation to do something to reduce the discomfort.

Because of these consequences, research has sought to understand when someone with an objectively ambivalent attitude will experience the greatest SA. Initial research explored ways in which separate positive and negative reactions combine to produce SA, resulting in a number of different formulae, most of which are highly correlated with each other (e.g., Kaplan, 1972; Thompson, Zanna, & Griffin, 1995; for a review, see Priester & Petty, 1996).[1] In the present work, we

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examine the perceived validity of individual attitudinal components as predictors of SA. We base our predictions on metacognitive perspectives (Briñol & DeMarree, 2012) on attitudes.

Notably, we draw on two frameworks that consider the validity of mental contents. The first is the *self-validation hypothesis* (Briñol & Petty, 2009a; Petty, Briñol, & Tormala, 2002), which holds that activated mental contents (e.g., thoughts in response to a persuasive appeal) are used to the extent that they are perceived to be valid (e.g., held with confidence). The second, the *metacognitive model* of attitudes (MCM; Petty & Briñol, 2006; Petty, Briñol, & DeMarree, 2007), extends this basic principle to attitude representation but adds further complexity that is particularly relevant for understanding ambivalence.

According to the MCM, attitudes consist of both positive and negative evaluations—a critical assumption of research on ambivalence (see Cacioppo, Gardner, & Berntson, 1997)—and these evaluations, in turn, are independently associated with validity "tags." The positive and negative associations are activated with varying degrees of accessibility (e.g., based on the strength of an evaluative association) whenever a person encounters the attitude object. These activated associations serve as initial, automatic inputs into behavior and thought. Once activated, people can further consider the validity of the activated associations in considering evaluative responding. In line with this metacognitive logic, when holding accessibility of evaluative association constant, the MCM assumes that these evaluations will correlate most highly with deliberative judgments when validity tags are also considered.

Although most theoretical attention has been paid to the MCM's predictions about implicit ambivalence (e.g., when explicit and implicit measures of attitudes are discrepant, such as when a recent change of a pre-existing attitude has occurred; Briñol, Petty, & Wheeler, 2006: Petty, Tormala, Briñol, & Jarvis, 2006), the MCM also provides a framework for understanding explicit ambivalence and the subjective discomfort that can result (SA; Petty & Briñol, 2009, 2014; Petty, Briñol, & Johnson, 2012). First, the MCM holds that the likelihood that a person will experience SA increases to the extent that *both* positive and negative associations are accessible. For example, Newby-Clark, McGregor, and Zanna (2002) found that people experienced the greatest SA for a given level of OA when conflicting positive and negative evaluations were *both* accessible. Stated differently, for people who were equivalently *objectively* ambivalent, if their positive reactions, negative reactions, or both were relatively low in accessibility, participants did not *feel* as ambivalent as when both were accessible.

A second SA prediction made by the MCM is that, holding accessibility constant, when either the positive or negative association is doubted while the other is seen as valid, people's conscious experience of ambivalence (i.e., SA) will be reduced (Petty et al., 2007, 2012). That is, given an equivalently ambivalent attitude at the level of the activated evaluative associations, someone who views both sides as valid will experience greater ambivalence than someone who doubts one side

or the other. This assumption of the MCM has not yet been tested and is one of the focal goals of the present research.

What about when people have some doubt in both their positive and negative associations? One possibility is that by doubting both sides, people would feel a low degree of ambivalence overall. Recall that for a given level of OA, when both positive and negative evaluations were low in accessibility relatively low levels of SA were experienced (Newby-Clark et al., 2002). Although certainty and accessibility are conceptually distinct, and play independent roles in the MCM, ample research has documented that accessibility is related to certainty (e.g., Bassili, 1996 finds that both load onto a common factor and independently predict similar outcomes). Further, Clarkson, Tormala, and Rucker (2008) found that when people doubted an overall ambivalent attitude, they acted *less* ambivalently. These findings suggest that when people doubt both sides, they might feel less SA than when they are confident in both sides. We refer to this as the *joint validity hypothesis* as it expects elevated SA only when both sides are jointly seen as valid.

Another possibility is that doubt in both sides could lead to relatively high levels of SA. This could occur because there is no differential level of validity to help people resolve their ambivalence. Although the impact of both sides in determining one's overall attitude would typically be reduced under doubt, this situation does not provide a clear internal basis for coherent evaluative responding, which may lead to SA. If supported, this result would be novel because the perceived validity of each evaluation would produce a different pattern in predicting SA than does accessibility (Newby-Clark et al., 2002). We refer to this as the *matching hypothesis* as it expects SA to increase as the confidence in the two sides becomes more similar. Therefore, in addition to testing the MCM prediction that doubt in one side will reduce SA, the present research also examines the relative SA experienced when *both* sides are doubted.

Present Research

Our studies used a paradigm adapted from Priester and Petty (1996). Participants received equal amounts of positive and negative information about a target. Thus, we sought to control the level of OA and ensure that both the positive and negative evaluations were currently accessible. Participants then received the validity induction—a manipulation of the credibility of the information. This process was repeated for the other valenced information. Finally, participants completed the dependent measures.

In short, we independently varied the perceived validity of positive and negative information about a target and examined the impact on SA. Both perspectives outlined above (i.e., joint validity vs. matching) predict an interaction between the validity of each side, such that when people are certain in both sides, they should experience relatively more SA than when people have some doubt in either side. However, they differ in the relative level of SA expected when people have doubt in both their positive and their negative evaluations.

Study 1

Participants and Design

Participants were 115 (69 female, 45 male, and 1 unknown) undergraduates enrolled in a psychology course at Ohio State University. Participants received both positive and negative information about five ostensible targets. We independently manipulated the source credibility of the positive and negative information after participants read and briefly reflected on each type of information. Manipulating credibility following a message can affect perceptions of the validity of the information (Kaufman, Stasson, & Hart, 1999) as well as confidence in one's thoughts about the information (Briñol, Petty, & Tormala, 2004). The study design was therefore a 2 (order: positive vs. negative first) ×2 (validity of positive: high vs. low) × 2 (validity of negative: high vs. low) mixed design with order manipulated between and the second two factors manipulated within subjects. In addition, a no source information control group was included.

Material and Procedure

Participants read that we had followed college students around and interviewed the people with whom they interacted. Ostensibly, each interaction partner was asked to complete the prompt "I think this person is . . ." with up to four traits. Participants were then presented with five targets, in random order, one at a time. For each target, participants first read a brief biographical sketch (e.g., "The next person you will learn about is Will. Will is 20 years old and is a junior in college."). They then read the information ostensibly provided by an informant, without the source of the information specified at that time. This information was provided as a list of four positive or four negative traits.

After this initial information was presented, participants were asked, in an open-ended format, "Based on only this information, what do you think of Will?" This was done to help consolidate an evaluative association before receiving source information. If people consolidated their evaluation *after* they read the source information, they might not consolidate the intended positive or negative evaluation. Similar procedures are necessary to obtain the "sleeper effect" in persuasion (Pratkanis, Greenwald, Leippe, & Baumgardner, 1988). Participants then read the source information, "if it was available," which was credible (e.g., Will's best friend who has known him since childhood), low in credibility (e.g., someone who is in large lecture class with Will), or not provided. This procedure was repeated for the information provided by the other informant for this target, which was always of the opposite valence of the first information.

The order of the positive versus negative information was manipulated between participants, with some participants exposed to the positive information first, whereas others received the negative first. Across the target individuals, credibility of positive and negative informants was manipulated orthogonally, and one target was presented without source information. After reading both sets of information about a given target, participants reported their evaluation of each target as described below.

Trait Descriptions

The trait descriptors were taken from past research on impression formation and evaluation (Anderson, 1968; Priester & Petty, 1996) and consisted primarily of traits along the social/moral dimension of person judgments (cf. Fiske, Cuddy, & Glick, 2007; Skowronski & Carlston, 1989). We randomized the order of normatively positive (negative) traits and created four word sets, in sequence (we replaced synonyms so that each list provided four unique characteristics). This resulted in six lists of positive (negative) traits (e.g., courteous, reliable, trustworthy, sincere versus dishonest, mean, malicious, and quarrelsome). For each participant, the specific positive (negative) traits used to describe each target were randomly determined without replacement, ensuring that the specific traits used were not confounded with the validity information (see Supplement for stimuli and dependent measures for both studies).

Credibility Information

Credible sources used were individuals with high amounts of diagnostic knowledge about the person (e.g., target's roommate and academic advisor). Noncredible sources were people with relatively less amount or intimacy of knowledge about the person (e.g., grocery store cashier and someone in a coffee shop). The specific sources were assigned in a preset random pairing with each target. Manipulating the amount of knowledge and experience that the source has about a target is a classic variation in source credibility (Briñol & Petty, 2009b). Although the noncredible sources had considerably less information about the target, the source had still interacted with the target at least once, and, as such, the information they provided was possibly true but confidence in the information would be low. Consequently, we viewed this induction as creating doubt rather than completely invalidating the information (cf., Gregg, Seibt, & Banaji, 2006; Petty et al., 2006).[2]

Attitudes

Participants reported their evaluation of each target on a series of three 9-point attitude semantic differential scales anchored at *bad–good*, *unfavorable–favorable*, and *positive–negative* (αs = .94–.96).

Objective Ambivalence

To assess participants' OA toward each target, they separately reported their positive and negative evaluations. Questions were of the form: "Considering only the POSITIVE qualities of Will and ignoring the negative ones, how positive would you say your thoughts and feelings toward him are?" and asked participants to report their evaluations on a 1 (*No positive thoughts or feelings*) to 9 (*Maximum positive thoughts or feelings*) scale. OA was calculated for each target using the

Table 1. Cell Means (*SE*) and CI for Study 1.

	Validity of Positive	Validity of Negative	Mean	SE	95% CI
Attitude	Control	Control	5.04$_a$	0.12	[4.80, 5.27]
	Credible	Credible	5.15$_a$	0.14	[4.86, 5.43]
		Noncredible	6.45$_b$	0.15	[6.16, 6.74]
	Noncredible	Credible	4.08$_c$	0.13	[3.82, 4.34]
		Noncredible	5.53$_d$	0.11	[5.31, 5.74]
Objective ambivalence	Control	Control	3.99$_a$	0.25	[3.48, 4.49]
	Credible	Credible	3.63$_a$	0.26	[3.11, 4.14]
		Noncredible	2.68$_b$	0.28	[2.13, 3.24]
	Noncredible	Credible	3.54$_a$	0.26	[3.03, 4.06]
		Noncredible	3.88$_a$	0.24	[3.41, 4.34]
Subjective ambivalence	Control	Control	5.91$_a$	0.15	[5.61, 6.20]
	Credible	Credible	5.38$_b$	0.15	[5.08, 5.67]
		Noncredible	4.27$_c$	0.17	[3.93, 4.61]
	Noncredible	Credible	4.80$_d$	0.15	[4.50, 5.10]
		Noncredible	5.70$_{ab}$	0.17	[5.36, 6.03]

Note. ANOVA = analysis of variance; SE = standard error; CI = confidence interval. For a given dependent measure, if the subscript letter associated with two means differs, they are significantly different using pairwise comparisons from a 5 (condition) × 2 (order) ANOVA ($p = .05$).

Similarity Intensity Model of ambivalence (Thompson et al., 1995), ½(pos + neg) − |pos − neg|.

Subjective Ambivalence

To assess participants' SA toward each target, they responded to a series of three 9-point scales adapted from previous research (indecision, conflict, and mixed feelings, αs = .73–.86; Priester & Petty, 1996).

Results

Attitudes

We submitted the target evaluation to a 2 × 2 × 2 mixed analysis of variance (ANOVA). Two main effects of validity of positive, $F(1,113) = 54.98$, $p < .001$, and negative, $F(1,113) = 104.40$, $p < .001$, information emerged, such that people were more positive toward the target when the positive information came from a credible source ($M_{credible} = 5.80$, $SE = .11$; $M_{noncredible} = 4.81$, $SE = .093$) and the negative came from a noncredible source ($M_{credible} = 4.62$, $SE = .11$; $M_{noncredible} = 5.99$, $SE = .092$). These main effects support the validity of our credibility induction, as each type of valenced information had greater impact on participants' attitudes when associated with a credible than with a noncredible source. In addition, a Validity of Negative × Order interaction also emerged, $F(1,113) = 3.91$, $p = .05$, such that the validity of negative manipulation tended to be more effective when negative traits came last ($M_{credible} = 4.45$, $SE = .16$; $M_{noncredible} = 6.09$, $SE = .13$) than when they came first ($M_{credible} = 4.78$, $SE = .16$; $M_{noncredible} = 5.89$, $SE = .13$). We conducted comparisons across conditions, including the control condition, using the marginal means from a 5 (condition) × 2 (order) ANOVA (see Table 1). Consistent with research showing that the "default" is to view a mental association as valid (Gilbert, 1991), attitudes in the control

condition were equal to attitudes in the condition in which both sets of traits were from high credibility sources.

Objective Ambivalence

We submitted OA scores to the 2 × 2 × 2 ANOVA. A main effect of validity of positive emerged, $F(1,113) = 5.56$, $p = .02$, such that people reported more OA in the low validity of positive conditions ($M_{credible} = 3.15$, $SE = .21$; $M_{noncredible} = 3.71$, $SE = .19$). This was qualified by two interactions. The first was a Validity of Negative × Order interaction, $F(1,113) = 4.06$, $p = .046$, such that validity of negatives decreased OA when negative traits were presented last ($M_{credible} = 3.65$, $SE = .27$; $M_{noncredible} = 2.86$, $SE = .29$) more than when they came first ($M_{credible} = 3.52$, $SE = .28$; $M_{noncredible} = 3.70$, $SE = .29$). The second was an unexpected validity of Positive × Validity of Negative interaction, $F(1113) = 7.41$, $p = .008$.

As above, we conducted comparisons across conditions, including the control condition, using the marginal means from a 5 (condition) × 2 (order) ANOVA (see Table 1). When the positive traits were associated with a credible source but the negative traits were not, participants reported less OA than any other condition. However, all other conditions, including the no-source control condition, reported equivalent OA. Although not predicted, the observed pattern is more consistent with the matching than the joint validity prediction, as conditions with equally low or equally high validity reported equivalent levels of ambivalence.

We should note that because of the consolidation procedure in which participants wrote their reactions to the traits listed before reading the source information, we did not expect an effect of the credibility information on OA. This expectation was clearly not met in this study—at least in the one condition that differed from the others. Because of the within-subjects design, however, participants may have made unnatural comparisons across conditions, and once they were

familiar with the procedure, may have suspended judgment until the validity information was provided. In Study 2, we used a between-subject design to more adequately test this.

Subjective Ambivalence

We submitted SA scores to the $2 \times 2 \times 2$ ANOVA. A main effect of validity of positive emerged, $F(1,113) = 6.60$, $p = .01$, such that people reported more SA in the low validity of positive conditions ($M_{\text{credible}} = 4.82$, $SE = .13$; $M_{\text{noncredible}} = 5.25$, $SE = .12$). This was qualified by a Validity of Positive $\times$ Validity of Negative interaction, $F(1,113) = 40.93$, $p < .001$.[3]

We again conducted comparisons across conditions, including the control condition, using the marginal means from a 5 (condition) $\times$ 2 (order) ANOVA (see Table 1). The conditions in which people were induced to doubt one side or the other demonstrated the least SA, whereas both conditions in which the validity information was equal for both sides were equally *high* in SA. This supports the matching hypothesis idea that an equivalent amount of confidence or doubt in each side does not allow people to resolve their ambivalence. The control target was viewed more ambivalently than the target for whom both sources were credible but not more ambivalently than the target for whom both sources lacked credibility. Because source information was absent for this target whereas it was present for the other four, perhaps participants were highly skeptical of the missing information.

Discussion

We found that doubting either the positive or the negative information reduced people's SA. In addition, this study supported the matching over the joint validity hypothesis in finding that when conditions fostered the same degree of validity in each side, regardless of the level, SA tended to be relatively high. This is novel because validity of each evaluation produces a different pattern in predicting SA than does accessibility, for which both evaluations need to be similarly *high* in accessibility to produce high amounts of SA (Newby-Clark et al., 2002).

Study 1 offered support for the notion that creating differential perceived validity in separate attitudinal components allows people to reduce SA. However, it is possible that the within-subject design lead to unnatural comparisons or demand effects (producing the effects observed on SA and/or OA). That is, by viewing multiple targets with systematically varied source information, participants may have weighted this information differently than they naturally would. To address this limitation, we replicated Study 1 using a between-subject design.

Study 2

Participants and Design

Participants were 142 (87 female, 54 male, and 1 unknown) undergraduates enrolled in a psychology course at Ohio State University. The study design was switched to a *between-subject* Validity of Positive $\times$ Validity of Negative design. The order of positive or negative information was randomly determined for each participant. Order of presentation was not recorded.

Material and Procedure

Procedures and materials paralleled Study 1, except that the target person's (James) age and student status were not described.

Trait Descriptions

In parallel to Study 1, trait descriptors used were loud-mouthed, obnoxious, phony, and self-centered on the negative side, and courteous, reliable, trustworthy, and sincere on the positive side.

Credibility Information

We used two versions of credible and noncredible sources, and which source a particular participant saw was determined randomly. Credible sources used were James' graduate school mentor and his colleague of 5 years. Noncredible sources were the target's new insurance agent and the FedEx person who delivers to James' workplace.

Dependent Measures

Participants' attitudes ($\alpha = .95$), OA, and SA ($\alpha = .75$) toward James were assessed as in Study 1.

Results

Attitudes

We submitted attitudes to a 2×2 ANOVA. Two main effects of validity of positive, $F(1,138) = 34.02$, $p < .001$ ($M_{\text{credible}} = 5.87$, $SE = .15$; $M_{\text{noncredible}} = 4.68$, $SE = .14$), and negative, $F(1,138) = 22.46$, $p < .001$ ($M_{\text{credible}} = 4.79$, $SE = .14$; $M_{\text{noncredible}} = 5.76$, $SE = .15$), emerged (see Table 2). People were more positive toward the target when the positive traits came from a credible source and the negative traits did not. Again, this result suggests that the validity manipulation was successful.

OA

We next submitted OA scores to the same analysis. No effects approached significance (all $F(1,138) < .55$, ps > .45 (see Table 2). Thus, it appears that the between-subject design helped to create equal amounts of OA across validity conditions.

SA

We next submitted SA scores to the same analysis. The only significant effect to emerge was the predicted Validity of

Table 2. Cell Means (*SE*) and CI for Study 2

Dependent Measure	Validity of Positive	Validity of Negative	Mean	SE	95% CI
Attitude	Credible	Credible	5.52	0.20	[5.12, 5.92]
		Noncredible	6.22	0.22	[5.80, 6.64]
	Noncredible	Credible	4.06	0.19	[3.68, 4.44]
		Noncredible	5.30	0.21	[4.89, 5.70]
Objective ambivalence	Credible	Credible	3.44	0.52	[2.43, 4.46]
		Noncredible	4.11	0.55	[3.03, 5.19]
	Noncredible	Credible	4.06	0.50	[3.08, 5.04]
		Noncredible	4.17	0.52	[3.14, 5.21]
Subjective ambivalence	Credible	Credible	5.83	0.27	[5.30, 6.37]
		Noncredible	5.27	0.29	[4.70, 5.84]
	Noncredible	Credible	5.28	0.26	[4.77, 5.80]
		Noncredible	6.04	0.28	[5.50, 6.58]

Note. SE = standard error; CI = confidence interval.

Positive × Validity of Negative interaction, $F(1,138) = 5.81$, $p = .02$ (see Table 2). Replicating Study 1, the pattern was such that participants in conditions with equivalent (matching) validity reported higher levels of SA than participants with nonmatched validity. See Note 3 for the match versus nonmatch decomposition.

Discussion

Study 2 replicated Study 1 using a between-subject design. Thus, the results of Study 1 do not appear to be exclusively due to comparisons across targets or demand effects that might have resulted from the original within-subject design. In the present study, no differences in OA were observed. Yet, congruent with the MCM, conditions likely to reduce the validity of only one side undermined SA. Conditions likely to reduce the perceived validity of both sides produced the same amount of SA as conditions that should foster validity in both sides, again supporting the confidence matching prediction.

General Discussion

In two experiments, we investigated perceptions of validity of separate positive and negative evaluations. We found consistent results—causing doubt in one side or the other of an ambivalent attitude reduced people's experience of ambivalence (SA). The fact that inducing doubt can reduce ambivalence might be surprising, as doubt and ambivalence tend to co-occur. However, consistent with the self-validation hypothesis and the MCM, when participants doubted only one side of an attitude, they felt less conflicted.

We also included an exploratory test of two possible outcomes that could occur when people hold both sides of an ambivalent evaluation with doubt. Based on the notion that doubted evaluations have relatively low impact, one possible outcome was that people who doubt both sides would feel relatively unambivalent. Alternatively, based on the notion that doubting both sides does not allow a person to resolve the conflict, another possible outcome was that people who doubted both sides would feel relatively ambivalent. Both studies provided support for the matching perspective—when conditions fostered doubt in both sides, people reported feeling as ambivalent as when conditions fostered validity perceptions in both sides.

Ambivalence

Our matching finding lends some insight into the reasons that OA leads people to *feel* conflicted—the difficulty of resolution. First, it is consistent with the MCM, which holds that people will experience less ambivalence when the validity of conflicting associations allows them to discount one of the associations. It is also consistent with functional perspectives on attitudes (Maio & Olson, 2000), which suggest that attitudes held with ambivalence can be less *useful* guides to behavior. Thus, factors that undermine a person's ability to resolve the ambivalence—thus undermining the attitude's utility—lead people to feel conflicted (see also van Harreveld, van der Pligt, & de Liver, 2009).

Our findings support the idea that the *relative* credibility of the positive and negative evaluations can be a bigger factor in determining feelings of ambivalence (Petty et al., 2007, 2012) than the *absolute* credibility of these associations. This is relatively unique among ambivalence findings. For example, the most popular formula for computing OA takes into account both the similarity and the intensity of conflicting reactions (Thompson et al., 1995). Specifically, the similarity of positive and negative evaluations predicts SA, but that SA continues to increase as these evaluations become more intense (e.g., holding ±7 evaluations produces greater feelings of conflict that holding ±5 evaluations). Furthermore, as noted in the introduction, the accessibility of ambivalent evaluations has similar properties, with the greatest ambivalence experienced by those for whom there is a similarly *high* level of accessibility of each evaluation (Newby-Clark et al., 2002). Yet in the present studies, the similarity, but not the intensity, of confidence in each evaluation was influential in predicting SA.

Metacognitive Model

The present studies offer support for a previously untested prediction of the MCM (Petty et al., 2007, 2012) that reducing the validity of one side or the other of an ambivalent attitude would reduce the experience of ambivalence (i.e., SA). We should note, however, that the MCM predicts that structural ambivalence, even when it can be consciously resolved, can be consequential in some circumstances (e.g., Petty et al., 2006, 2012). A broader goal for research on the MCM is to examine when the effects of ambivalence will require the conscious experience of conflict (e.g., Clark et al., 2008; DeMarree et al., 2014) or when structural ambivalence is sufficient to produce effects of ambivalence (e.g., Briñol et al., 2006; Petty et al., 2006).

This research also presents methodological advances for research on the MCM. First, whereas past work has invalidated one association while simultaneously validating the other (e.g., Petty et al., 2006), this is the first work to *independently* manipulate the confidence in positive and negative associations. Relatedly, whereas past work has completely invalidated initial evaluations and created the opposing evaluation (e.g., by telling participants that a "mistake" was made and that the actual information was the reverse of what was initially provided; Petty et al., 2006; see also Gregg et al., 2006), the present research *reduced* the validity of the evaluation(s). With the low credibility information we provided, it was still plausible that the information was valid (in an objective sense). However, we expected that people would perceive the validity of this information to be unclear, and consequently, would rely on it less. Although past research has examined extremes of validity, the MCM argues that perceived validity can vary along a continuum.

Declaration of Conflicting Interests

Funding

Notes

1. Other research has examined additional antecedents of SA beyond OA, including perceived disagreement with close others (Priester & Petty, 2001), anticipated conflicting reactions (Priester, Petty, & Park, 2007), semantically incongruent (even if evaluatively congruent) responses (Gebauer, Maio, & Pakizeh, 2013), and desiring different evaluations (DeMarree et al., 2014).
2. Note that confidence versus doubt exists on a continuum. At the levels of doubt we are describing, the information that is doubted could still be true, but the validity is uncertain. At extreme levels of doubt, a person may come to believe that the information is completely false or even that the opposite is true. Extreme doubt in both sides could also lead to ambivalence because people doubt the positives (negatives) so much that they believe that negatives (positives) are more likely present. Applied to both sides, this may create high amounts of ambivalence.
3. Another analysis strategy is to create a variable representing the "matching" of perceived validity. The matched (e.g., credible/credible) conditions were collapsed, as were the nonmatched conditions. To test the equivalence of the conditions with (dis)similar validity, we included validity of positive as a factor, creating a Validity Matching (match vs. nonmatch) × Validity of Positive (high vs. low) × Order design. This design revealed two main effects that replicated the primary analyses—a main effect of validity of positive, $F(1,113) = 6.60$, $p = .01$, and the main effect of matching ($M_{match} = 5.54$, $SE = .12$; $M_{nonmatch} = 4.54$, $SE = .11$), $F(1,113) = 40.93$, $p < .001$, that was not further moderated, $Fs < 1.1$, $ps > .31$. This provides evidence that it is *differential* validity (which provides an opportunity for ambivalence reduction), not the absolute level of validity in both sides that predicts SA. When parallel analyses were conducted in Study 2, we also observed the main effect of matching, $F(1,138) = 5.81$, $p = .02$ ($M_{match} = 5.94$, $SE = .19$; $M_{nonmatch} = 5.28$, $SE = .19$), that was not further qualified by the validity of positive, $F < .13$, $p > .72$.

Supplemental Material

The online data supplements are available at http://spps.sagepub.com/supplemental.

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