



## FlashReport

Exploring the impact of social judgeability concerns on the interplay of associative and deliberative attitude processes<sup>☆</sup>Chris Loersch<sup>a</sup>, Michael J. McCaslin<sup>b</sup>, Richard E. Petty<sup>b,\*</sup><sup>a</sup> Department of Psychological Sciences, University of Missouri, MO, USA<sup>b</sup> Department of Psychology, Ohio State University, OH, USA

## ARTICLE INFO

## Article history:

Received 21 December 2010

Revised 22 March 2011

Available online 7 April 2011

## Keywords:

Attitudes  
Persuasion  
Dual-systems model  
Evaluation  
Judgment  
Social judgeability

## ABSTRACT

Some recent research applying dual-systems logic suggests that different attitude measures reflect independent modes of evaluation with explicit measures primarily affected by deliberative processes and implicit measures primarily affected by automatic processes. In the current work we hypothesized that explicit attitude measures often do not reflect the outcome of automatic or associative processing because social judgeability concerns prevent people from reporting consciously inexplicable “gut feelings” towards the attitude object. To explore this possibility, we simultaneously presented participants with associative and deliberative information about a target person and manipulated their sensitivity to social judgeability concerns with different sets of task instructions. Although an explicit attitude measure was unaffected by subliminally presented associative information following a standard instruction set, this content did impact explicit judgments when social judgeability concerns were assuaged with a “go with your gut” instruction set.

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Over the past decade, many psychologists have forwarded dual-systems models of cognition (e.g., Deutsch & Strack, 2006; Kahneman & Frederick, 2005; Lieberman, 2003; Slovic, 1996; Wilson, Lindsey, & Schooler, 2000). Building on prior dual-process logic (e.g., Petty & Cacioppo, 1986; see Chaiken & Trope, 1999), these theories propose two separate systems of reasoning—a low thought system relying on simple associative processes and a high thought system based on deliberative, logical thought. The simple system is generally conceptualized as slow-learning, automatically building up associations through basic learning principles of co-occurrence and similarity. The more complex, deliberative system, on the other hand, is relatively fast-learning and rule-based, relying on logic and effortful conscious thought to form a judgment.

Recently, a number of investigators have applied this perspective to the attitudes domain (e.g., Gawronski & Bodenhausen, 2006; Rydell & McConnell, 2006; Wilson et al., 2000). Perhaps the most intriguing aspect of this work has been the suggestion that different types of attitude measures (i.e., implicit/automatic vs. explicit/deliberative) may differentially tap the two systems of reasoning. That is, according to some researchers, implicit measures primarily tend to reflect attitudes formed by association-based processes, whereas explicit measures tend to reflect attitudes created by more deliberative processes.

Although there is now accumulating evidence in favor of this hypothesis (DeCoster, Banner, Smith, & Semin, 2006; Rydell & McConnell,

2006; Rydell, McConnell, Mackie, & Strain, 2006), the results of these experiments produce some questions when compared to past work. In particular, the finding that explicit attitude measures are uniquely sensitive to deliberative information seems to stand in contrast to a substantial body of research (for a review see Briñol, Petty, & McCaslin, 2009). That is, across paradigms, it has repeatedly been shown that associative processes such as those involved in mere exposure or evaluative conditioning can impact people's explicit evaluations (e.g., Bornstein, 1989; Jones, Fazio, & Olson, 2009; Murphy & Zajonc, 1993; Riketta & Dauenheimer, 2003).

Of course, this discrepancy in the impact of associative information on explicit judgments has not gone unnoticed, and investigators have attempted to account for these conflicting findings. One proposal is that associative information will affect explicit measures if that is the *only* information available, as was the case in prior research, but is less likely to impact explicit measures when both deliberative and associative information are acquired simultaneously (Rydell et al., 2006). According to this account, the consciously available explicit information occupies the deliberative system and prevents associative information from affecting explicit judgments.

Here, we provide another possible explanation for this discrepancy, demonstrating that under certain conditions associative information can in fact affect explicit measures, even when deliberative information has been presented concurrently. Drawing on the social judgeability literature (e.g., Yzerbyt, Schadrin, Leyens, & Rocher, 1994), we propose that participants often have access to the evaluative implication of the associative information, but this information is not incorporated into explicit attitude reports because it is perceived as an invalid input, especially when conflicting deliberative information is

<sup>☆</sup> We thank the 2006–2010 Groups for Attitudes and Persuasion for their helpful comments.

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available. That is, when deliberative information that is easily attributable to the target conflicts with associative information of unknown origin, the latter may be discarded as an invalid or inappropriate source of information about the target. The notion that people consider the validity of accessible information when making deliberative judgments is consistent with several accounts describing the integration of deliberative and automatic inputs to explicit attitudes (e.g., the associative–propositional evaluation and meta-cognitive models; Gawronski & Bodenhausen, 2006; Petty, Briñol, & DeMarree, 2007, respectively). Although these validation processes typically require effortful reflection, they can also guide judgment without conscious attention if they become well practiced (Petty et al., 2007).

If this hypothesis is true, participants in previous studies might have refrained from using their reactions to associative information, not because these reactions were unavailable, but because they believed judging someone based on a vague sense of positivity or negativity was inappropriate. Due to the perceived need to be rational in Western cultures (Peng & Nisbett, 1999), participants may have dismissed their reaction to the associative information when considering the validity of various possible inputs because they could not explain why they felt that way—an outcome that is especially likely when individuals also have access to deliberative information that is clearly attributable to the same object. Freed from these social judgeability concerns, however, we predicted that explicit measures would reflect the evaluative implication of associative information. Correlational research looking at the correspondence between implicit and explicit attitude measures has provided some evidence for this proposal. In this work, participants induced to either “trust their intuition” (Jordan, Whitfield & Zeigler-Hill, 2007) or “go with their gut” before responding (Ranganath, Smith, & Nosek, 2008) modified their explicit attitude reports, bringing them more in line with the attitudes expressed on implicit measures.

To provide a first *experimental* test of this idea, we conducted an attitude formation experiment in which participants concurrently received deliberative and associative information about a novel individual. In this learning paradigm, participants read neutral deliberative information about the behavior of a target person while being subliminally primed with positive or negative stimuli. This type of procedure has been used previously in dual-systems research and has been found to eliminate any influence of associative information on explicit attitude measures (Rydell & McConnell, 2006). Critically, we crossed this basic design with a social judgeability manipulation. Although we expected to find no influence of the subliminal primes on an explicit measure under basic control instructions, we hypothesized that freeing participants from any judgeability concerns would allow the primes to have an impact. In this way, we attempted to bridge the gap between past and current work, replicating research on dual-systems models under control instructions and research on automatic processes in attitude formation in the reduced social judgeability condition.

## Method

### Participants and design

Thirty-nine introductory psychology students at Ohio State University completed the experiment in partial fulfillment of course requirements. Participants were randomly assigned to a 2 (Subliminal images: positive vs. negative) × 2 (Instruction set: control vs. go with gut) full-factorial, between-subjects design. All participants received neutral deliberative information about the target.

### Procedure

#### Learning task

Upon arrival at the experiment, participants read a 109-word paragraph on the computer about a series of relatively neutral behaviors performed by a target named Paul (e.g., “In the morning, Paul went to

the kitchen for some breakfast.”). This deliberative information was presented one word at a time with each new word of the paragraph appended to the preceding text every 500 ms. After the presentation of each word (except the final word), a positive or negative image was subliminally presented. Each image appeared onscreen for 13 ms and was followed by the 52 ms presentation of a brightly-colored pattern mask. The images were randomly drawn from a bank of either 75 positive or 75 negative pictures (Lang, Bradley, & Cuthbert, 1995) that have been successfully used to condition attitudes in previous work (Petty, Tormala, Briñol, & Jarvis, 2006). In this way the deliberative information implied a neutral evaluation, but the associative information implied either a positive or negative evaluation.

### Instruction sets

Prior to completing the learning task, participants read one of two instruction sets on the computer. Individuals reading the control instructions were told they would see flashes of color while reading the paragraph (i.e., from the pattern mask) and were asked to do their best to read the sentences despite this distracting influence. In the instructions designed to reduce social judgeability concerns, participants were told they would see images related to the target. Furthermore, although these images would be presented too quickly to be consciously identifiable, prior research had indicated that with sufficient concentration, one could still derive a “gut feeling” about Paul based on the images. Because of this, participants were informed that it was appropriate for them to base their impressions of Paul on both the textual description and any intuitions they might have in response to the images.

These instructions were selected for two reasons. First, participants were alerted to the presence of the subliminal images because previous research has found that simply knowing judgment-relevant information has been presented, even if it is unseen by the perceiver, can reduce social judgeability concerns (Leyens, Yzerbyt, & Corneille, 1996, Study 2). Second, telling participants to rely on their gut feelings when expressing their attitudes has increased the correlation between implicit and explicit attitude estimates in prior research (Jordan et al., 2007; Ranganath et al., 2008).

### Attitude measure

Using materials initially developed by Kaplan (1972; see also Cacioppo, Gardner, & Berntson, 1997; Priester & Petty, 1996), participants were asked to rate their attitude towards Paul on two unipolar scales. One question asked participants, “Ignoring any negative thoughts or feelings you might have and considering only the positives, how much positivity do you feel towards Paul?” The other question was simply the converse, assessing the amount of negativity felt while excluding any positive thoughts or feelings. Each item was answered on a 7-point scale ranging from 0 (*No Positivity/No Negativity*) to 6 (*Maximum Positivity/Maximum Negativity*). These two questions were presented sequentially in a random order. To provide an overall attitude index similar to the semantic differentials used in past work, participants’ responses to the negativity item were subtracted from their responses to the positivity item.

### Prime awareness

Upon conclusion of the experiment, participants completed a funnel debriefing to probe for awareness of the image primes (Bargh & Chartrand, 2000). During this procedure, participants were asked if they had seen any images during the learning task and were encouraged to describe either the picture or the general theme of the images. They were then explicitly asked to guess the theme of the presented images from four choices (*positive, neutral, negative, or none/mixed*).

## Results

### Prime awareness

As expected, participants were unaware of the subliminal primes. No participant who read the control instructions reported seeing an image during the learning task, and no participants were aware of the actual image themes. This was evident even when individuals were asked to select the theme from the four provided options. As expected, the percentage who selected the correct theme ( $M = 0.26$ ,  $SD = 0.44$ ) was not significantly different from chance,  $t < 1$ , and participants' responses on this measure were unaffected by the manipulations, all  $F_s < 1$ .

### Attitudes

To test our main hypotheses, participants' attitudes toward Paul were submitted to a 2 (Subliminal images: positive vs. negative)  $\times$  2 (Instruction set: control vs. go with gut) ANOVA. A significant main effect of Image emerged,  $F(1, 35) = 7.40$ ,  $p = .01$ . Individuals subliminally presented with positive images evaluated Paul more positively than those presented with negative images. Critically, this main effect was qualified by the predicted Image  $\times$  Instruction interaction,  $F(1, 35) = 4.10$ ,  $p = .05$  (see Fig. 1). Under control instructions, the attitude reports of participants shown positive ( $M = 1.70$ ,  $SD = 1.83$ ) and negative images ( $M = 1.33$ ,  $SD = 1.80$ ) did not differ,  $F(1, 35) = 0.24$ ,  $p = .63$ . This same associative information had a significant effect, however, when social judgeability concerns were reduced,  $F(1, 35) = 11.56$ ,  $p < .01$ . Under these instructions, individuals presented with positive images reported significantly more positive attitudes toward Paul ( $M = 3.00$ ,  $SD = 1.56$ ) than those shown negative images ( $M = 0.50$ ,  $SD = 1.35$ ). Finally, because our attitude measure was constructed from two unipolar scales, we were also able to examine whether the subliminal primes selectively influenced participants' positive and negative evaluations. To do this, we reverse coded our negative item and submitted responses on the two scales to a repeated measures ANOVA. There was no evidence that the primes uniquely affected responses to one type of measure. The only significant within subjects factor was scale type,  $F(1, 35) = 8.41$ ,  $p < .01$ , with responses on the positive item deviating further from zero (representing a general positivity bias). All other within subjects  $F_s < 1$ .

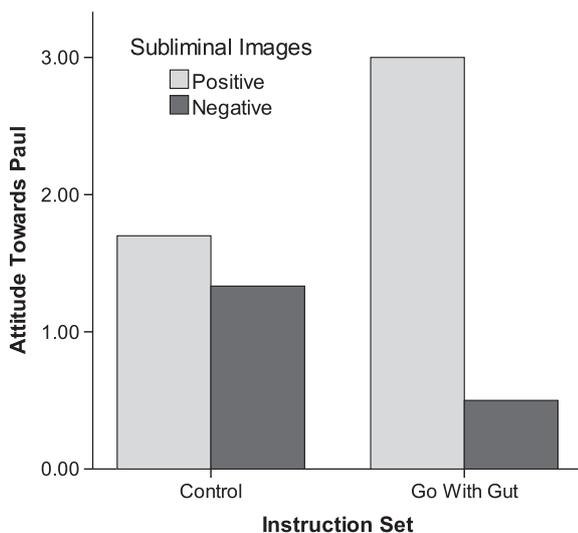


Fig. 1. Attitudes towards Paul as a function of Image type and Instruction set.

## Discussion

These results replicate previous dual-systems research in finding no impact of associative information on explicit attitudes when participants also learned deliberative information and were given standard attitude instructions (DeCoster et al., 2006; Rydell & McConnell, 2006; Rydell et al., 2006). When reading modified instructions that reduced social judgeability concerns, however, participants showed an effect not seen in these other studies—a significant effect of subliminally-presented associative information on explicit attitude reports. Changing our instructions to encourage individuals to rely on their intuitions allowed them to directly report the evaluative implication of the associative information, just as has been shown in other work on attitude formation using mere exposure and evaluative conditioning procedures. Importantly, we obtained these results even though participants: 1) were not consciously aware of the associative primes, and 2) were provided with a concrete source of deliberative information about the judgmental target—two design features past dual-systems research and theory suggest should eliminate any effects of associative information on explicit measures.

These results are important for several reasons. First, they stand in conflict with a strict dual-systems perspective, which suggests that explicit attitude measures are insensitive to associative information when salient deliberative information is also present. In contrast, we show that deliberative content need not overwhelm simultaneously available associative information about the attitude object, as long as people can be freed from social judgeability concerns. In providing this evidence, the research also helps us make sense of the pronounced discrepancy between prior work on the dual-systems perspective and other research that has successfully used explicit attitude measures to examine the influence of exposure to associative information. By replicating the standard effects from both literatures, we bridge the two and provide a plausible account for the previously observed discordance between them.

These findings also provide an important caveat regarding the meaning of the dissociations observed between implicit and explicit attitude measures in prior literature (DeCoster et al., 2006; Rydell & McConnell, 2006; Rydell et al., 2006). That is, researchers may not find an impact of associative information on explicit measures because participants do not feel justified in using associative information as the basis for their judgments when deliberative information is also readily available. In cultures emphasizing rationality, individuals are taught to avoid basing their opinions on vague, unjustifiable feelings whenever possible (Peng & Nisbett, 1999). Because of this, participants might even attempt to correct for the influence of seemingly irrelevant associative information (Wegner & Petty, 1997), thereby contributing to the perception that implicit and explicit attitude measures are dissociated and uniquely tap separate systems of reasoning.

Finally, it is important to note that although we believe that the social judgeability account provides the most direct explanation for the findings, other possibilities exist. For instance, presenting our specialized instructions prior to the learning task may have created a processing bias, shifting participants' attention and improving their ability to derive meaning from the subliminal primes. Although it is a possible alternative, this explanation seems less well-equipped to account for the previous research we replicate under the two instruction sets. In addition, although our findings seem inconsistent with some strict dual-systems accounts (DeCoster et al., 2006; Rydell & McConnell, 2006; Rydell et al., 2006), they in no way invalidate other dual-systems perspectives and could be accounted for by any model that allows communication between the deliberative and associative systems (e.g., Gawronski & Bodenhausen, 2006). We look forward to future work that examines these issues and further investigates the extent to which the social judgeability perspective relates to various dual-systems models.

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