Go with your gut! Effects in the Affect Misattribution Procedure become stronger when participants are encouraged to rely on their gut feelings

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Abstract

The Affective Misattribution Procedure (AMP) is one of the leading examples of a class of tasks that have been used to measure attitudes implicitly. Based on the idea that AMP effects occur because participants misattribute affective responses, we hypothesized that asking participants to focus on their affective, gut-level responses would increase the magnitude of AMP effects. In line with this prediction, results showed that participants who completed the AMP while "going with their gut" revealed AMP effects that were much larger than for participants who completed the AMP with standard instructions. This result supports the prevailing model of the AMP as being related to affective misattribution, and reveals a straightforward way to increase effect sizes in the AMP.

Keywords: implicit measures, attitudes, intuition

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Attitudes are thought to have a profound impact on behavior (e.g., Allport, 1935; Eagly & Chaiken, 1993). In an attempt to understand and predict behavior, many social psychologists have therefore engaged in the development of attitude measures. One of the major innovations in the development of attitude measures in recent decades has been the introduction of implicit measures. Implicit attitude measures can be defined as those outcomes of a measurement procedure that are caused by attitudes in an automatic manner (see De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009, for an in-depth discussion). Such measures complement traditional, explicit measures in that they reflect automatic aspects of attitudes in a way that is less susceptible to intentional control and applicable also for attitudes that people are either unwilling or unable to verbalize (De Houwer et al., 2009). Importantly, evidence shows that both implicit and explicit measures of attitudes uniquely contribute to predicting behavior (Greenwald, Poehlman, Uhlmann, & Banaji, 2009).

The most cited and widely-used implicit attitude measure is the Implicit Association Test (IAT) measure developed by Greenwald, McGhee, and Schwartz (1998). Although the IAT measure has strengths, it also has known limitations (see De Houwer et al., 2009, and Nosek, Greenwald, & Banaji, 2007, for reviews). Therefore, researchers have continued to look for alternative implicit measures (see De Houwer & Moors, 2010, and Nosek, Hawkins, & Frazier, 2011, for reviews). One of these alternative measures is the Affect Misattribution Procedure (AMP) measure first proposed by Payne, Cheng, Govorun, and Stewart (2005). In the AMP task, participants are asked to indicate whether they like or dislike Chinese ideographs that are presented one-by-one on a computer screen. Importantly, before each ideograph, a prime stimulus (most often a picture) is presented very briefly. Although participants are asked to ignore the

prime, results show that ideographs preceded by a positive prime are liked more often than ideographs preceded by a negative prime. The effect of the prime on the response to the target can be considered as automatic in that it occurs even when participants are warned to resist any impact of the distractors on their judgments of the ideographs (e.g., Payne et al., 2005). Several studies confirm that AMP effects can provide a valid index of a variety of attitudes (e.g., Payne et al., 2005; Payne, Govorun, & Arbuckle, 2008).

It is generally assumed that AMP effects arise because participants misattribute feelings evoked by the prime stimulus to the presentation of the ideograph. That is, the presentation of the prime leads to a feeling in line with the valence of the prime, but participants erroneously believe the feeling they experience is caused by the ideograph and thus judge the ideograph in line with the valence of the prime (see Payne, Hall, Cameron, & Bishara, 2010 for a formal model). We reasoned that if this is correct, AMP effects should become stronger when participants are encouraged to base their judgments on their gut feelings, that is, their spontaneous, initial feelings (for evidence supporting the merits of this concept, see Loersch, McCaslin, & Petty, 2011; Ranganath, Smith, & Nosek, 2008). When a prime in an AMP causes an affective reaction but a participant fails to recognize that the feeling is caused by the prime, the participant may label it as a gut feeling. Therefore, encouraging participants to rely on these feelings during the AMP should increase the probability that they judge ideographs on the basis of feelings that, unbeknownst to the participants, are evoked by primes.

To test this prediction, we conducted an experiment in which two groups of participants received different instructions before the start of the AMP. One group was given standard instructions asking participants to express their liking of the ideographs while ignoring the primes. Participants in the second group received the same instructions but were also encouraged to rely on

their spontaneous, initial responses (i.e., gut feelings) while judging the ideographs. Both groups then received the same AMP. We predicted that the AMP effect would be stronger in the group that was encouraged to rely on their gut feelings.

Method

Participants

Participants were 89 Dutch speaking students at Ghent University who participated in partial fulfillment of a course requirement or in exchange for 5 euros.

Materials and Procedure

The AMP was modeled after Payne et al. (2005, Experiment 1) and used the same stimuli: 36 different Chinese ideographs, 12 different positive primes, 12 different negative primes, and a grey square as the neutral prime. The only difference was that instructions and labels were presented in Dutch rather than English. At the start of the experiment, all participants received instructions on the computer screen asking them to judge their liking of Chinese ideographs by pressing one of two keys ("E" for negative and "I" for positive). As reminders, the Dutch words "NEGATIEF" (negative) and "POSITIEF" (positive) were printed in green in the top left and right corner of the computer screen, respectively. Participants were informed that each ideograph would be preceded by a picture, but were told the picture was presented only to announce the presentation of the ideograph. Participants were also warned that they should avoid being influenced by the picture that preceded the ideograph. Instead, they should give their honest judgment of the Chinese ideographs, regardless of the preceding picture. In addition to these standard instructions, participants in the gut-feeling condition were given the following instructions (see instructions in bold in the Appendix): First, after being asked to judge the ideographs, they were told that it might seem strange to judge their liking of the ideograph but that prior research had shown that these

judgments can be meaningful provided that participants really rely on their intuition or gut feeling. Participants were therefore asked to judge as often as possible in a spontaneous manner, based on their first impression. Second, when asked to avoid an influence of the pictures and to give their honest opinion about the ideographs, participants were reminded to give their spontaneous impression. Finally, at the very end of the instructions and immediately before the start of test trials, participants were reminded that it is important to base their judgments on their first, spontaneous impression of the Chinese ideograph. The design thus involved prime (positive, neutral, negative) as within-participants variable and instructions (standard, gut-feelings) as between-participants variable.

Participants first completed three practice trials in a random order (one with a positive prime, one with a negative prime, and one with a neutral prime). After a brief summary of the instructions, they then completed 36 test trials presented in a random order (12 with a positive prime, 12 with a negative prime, and 12 with a neutral prime). Trials with the neutral grey square were included only in order to adhere to the original AMP introduced by Payne et al. (2005, Experiment 1). Our manipulation of instructions can have an effect only on trials with positive or negative primes because only those primes can evoke feelings that can be misattributed in a systematic manner. We therefore calculated and analyzed AMP effects by subtracting the proportion of positive responses on trials with a negative prime from the proportion of positive responses on trials with a positive prime (also see Payne et al., 2005, Experiment 6). A positive AMP score thus indicates a preference for ideographs preceded by positive primes. Reliability of the measure was calculated in the same way as Payne et al., 2005 and reached $\alpha = .47$.

Results

The mean proportion of positive responses for each type of primes and resulting mean

AMP effects can be found in Table 1. A between-subjects ANOVA with condition as independent variable and the AMP effect as dependent variable revealed a main effect of condition, $F(1, 87) = 6.04$, $p = .016$, $\eta^2 = .07$[1]. Specifically, while an AMP effect was observed when using standard instructions, $M = .08$, $SD = .25$, $t(43) = 2.13$, $p = .039$, $d = 0.32$, the AMP effect was larger in the gut-feeling condition, $M = .22$, $SD = .28$, $t(44) = 5.30$, $p < .0001$, $d = 0.79$. Reliability of the measure did not differ between the two conditions, $z(87) = 0.81$, $p = .416$.

Discussion

The AMP measure is a leading example of the class of implicit measures and has the potential to provide a useful tool in the study of attitudes and their effects on behavior. Based on the idea that AMP effects result from misattributing the feeling evoked by the prime to the ideograph (Payne et al., 2005), we reasoned that AMP effects should increase in magnitude when participants are asked to judge the ideographs based on their gut feeling. In line with this prediction, the AMP effect was much larger when participants were encouraged to follow their gut feeling than when they did not receive these additional instructions. At the theoretical level, our results confirm a prediction derived from the misattribution model of AMP effects and therefore provide further evidence that AMP effects are based on misattribution processes.

At the practical level, our findings suggest that AMP measures can be improved by asking participants to base their judgments on gut feelings. One should note, however, that an increase in the overall effect size of a measure does not necessarily imply that individual differences captured by the measure become a more valid index of individual differences in attitudes (Perugini & Banse, 2007). This needs to be confirmed in studies testing the validity of individual differences in AMP effects, for instance, by relating them to criterion variables such as attitude-relevant behavior. Nevertheless, based on the misattribution theory of AMP effects, one would expect that

any manipulation that increases the likelihood of misattributions should increase the validity of the measure because it maximizes the impact of the attitudes towards the primes on the reported feelings towards the ideographs.

Do our results provide additional support for the implicit nature of AMP effects? One could argue that, if anything, instructions to rely on gut feelings when judging ideographs should discourage participants to take into account the primes. Indeed, they offer participants reassurance that it is permissible - or even recommended - to simply go with whatever impression they have after seeing an ideograph. On the other hand, as a reviewer pointed out, the instruction to go with their gut feelings might make participants less concerned about avoiding an impact of the primes on their judgments, thus making the effect less automatic (i.e., less unintentional). Which conclusion is most appropriate should be addressed in future research.

Footnote

[1] Although there are a priori reasons not to include trials with neutral primes in our analyses (see Method), including those trials did not alter the conclusions. A 3 (prime) x 2 (instructions) mixed ANOVA revealed a main effect of valence, $F(2, 174) = 19.33$, $p < .001$. On trials with neutral primes, more positive responses were given than on trials with negative primes, $t(88) = 4.97$, $p < .0001$, $d = 0.53$. The number of positive responses on trials with neutral and positive primes did not differ significantly, $t(88) = 1.11$, $p = .27$, $d = -0.12$. Of primary importance, instructions moderated the effect of valence, $F(2, 174) = 3.65$, $p = .028$. Inspection of the means (see Table 1) shows that, as expected on a priori grounds, instructions did not influence responses to neutral primes, $t < 1$.

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.Table 1. Mean proportion of positive responses on trials with positive, negative, and neutral primes and mean AMP effects (positive prime minus negative prime) as a function of instruction condition. standard deviations in parentheses.

Condition	Prime			AMP effect
	Positive	Neutral	Negative	
Standard	.57 (.17)	.59 (.17)	.49 (.16)	.08 (.25)
Gut Feeling	.66 (.18)	.59 (.15)	.44 (.19)	.22 (.28)

Appendix

Instructions (translated from Dutch). Instructions in bold were presented only in the gut-feeling condition.

FIRST SCREEN: This task deals with how people make quick judgments. You will first see a photograph and afterwards a Chinese character. The photograph is only an announcement of the Chinese character and can otherwise be ignored. Your task is to judge the valence of the Chinese characters: negative or positive. **At first sight, it might seem strange to judge your feeling for those Chinese characters, but prior research has shown that such judgments do lead to meaningful results, provided that the judges rely on their intuition or first feeling. Hence, try to judge as much as possible in a spontaneous manner, based on your first impression.**

SECOND SCREEN: Place your fingers on the E and I keys of the keyboard. If you judge the Chinese character to be more negative than average, press the E key with your left finger. If you like the Chinese character more than average, press the I key with your right finger. Sometimes, the preceding pictures might distort your judgments. Because we are interested in how strongly people can resist this, you should do your utmost best to not let your judgment of the Chinese character be influenced by the preceding photographs. Give an honest**, spontaneous** judgment of the Chinese characters, independent of the preceding pictures.

THIRD SCREEN: We start with a few practice trials to get to know the task. If you judge the Chinese character to be more negative than average, press the E key with your left finger. If you like the Chinese character more than average, press the I key with your right finger.

FOURTH SCREEN (after practice): This was the practice phase, now we will start with the actual experiment. If you judge the Chinese character to be more negative than average, press the E key with your left finger. If you like the Chinese character more than average, press the I key with your right finger. **We would like to again emphasize that it is important to base your judgment on your first, spontaneous impression of the Chinese character.**