Influence awareness in the AMP: A replication of Experiment 3 of Payne et al. (2013)

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*Pre-registration*

**Author note**

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**Background and rationale**

The Affect Misattribution Procedure (AMP: Payne et al., 2005) is a popular indirect measure of implicit attitudes (Nosek, Hawkins, & Frazier, 2012). It is often discussed as having the particular benefits of demonstrating large effect sizes, a relatively simple procedure, and high internal consistency relative to reaction time-based measures (Gawronski & Ye, 2015). In brief, the procedure presents prime stimuli (positive/negative images) followed by a target stimulus (an image of a Chinese character) in quick succession. Participants are required to evaluate the valence of the Chinese character (i.e., whether they find it pleasant or unpleasant) and to ignore the prime. In spite of instructions to ignore the prime, participants tend to respond consistent with prime valences.

The AMP’s popularity is due in large part to the fact that it is purportedly capable of capturing responses which occur without the awareness of participants, and without their intention to emit such responses. While a number of studies have investigated the intentionality of AMP effects with mixed findings (e.g., Bar-Anan & Nosek, 2012; Payne et al., 2013; Gawronski & Ye, 2015), comparably little attention has been paid to the unawareness of AMP effects. To date, the only direct empirical investigation into this has been in the form of Payne et al.’s third experiment. In this study, Payne et al. administered one of two AMPs to participants: either a standard AMP, or a so-called skip-AMP. In the skip-AMP, participants were provided the option to skip evaluations on trials where they felt that their evaluation of the target stimulus would be influenced by the prime stimulus. The authors demonstrated that, between groups, participants’ AMP effects did not differ significantly in magnitude.

Although this represented a good initial step towards exploring awareness in the AMP, Payne et al.’s approach was not without issue. In particular, the sample size in the author’s original study was relatively small (N = 36 per cell). Although Payne et al. argued that this sample would provide “greater than .85 to detect an interaction between the repeated measures and between-subjects factors, even assuming a small effect size” (p. 383), the authors did not specify what effect size they qualified as “small”, nor what they specified as the correlation between the different within-subject measurements (i.e., the correlation between evaluations of the positive and negative primes). This unspecified correlation can make such a power analysis vary widely.

In the current experiment, we aim to replicate Payne et al’s third experiment with an increased sample size and taking within-subject measurements to increase statistical power. Specifically, we will administer both the standard AMP and the skip-AMP to all participants and compare effect sizes within (rather than between) subjects. Additionally, we preregister a better-fitting statistical methodology, by using a partially-overlapping t-test to account for participants who skip either all trials or no trials.

**Method**

**Sample**

Data will be collected online via the Prolific Academic website. Based on an expected mean duration of 10 minutes, participants will be paid £.85.

***Planned sample size & stopping rules***

For our first hypothesis test, we firstly used the pwr package in R to compute the number of subjects required to detect a small Cohen’s d effect size (i.e., 0.3) in a paired-samples t-test at the conventional alpha level (.05) with 95% power. On the basis of this, 147 subjects would be required. We then calculated how many participants would be required to detect such an effect size in a two-sample t-test with otherwise identical parameters; in this case, 289 participants would be required. Given that a partially-overlapping t-test’s power typically falls somewhere between a paired-samples t-test and a two-sample t-test (Derrick et al., 2017), 289 participants would provide us with at least 95% power to detect a small effect size in a partially-overlapping t-test. 289 participants would also provide us with power to detect a very small Cohen’s f effect size (i.e., 0.045) in a linear regression with one dependent variable and one independent variable (i.e., the analysis for our second hypothesis test). We will therefore collect data from 290 participants based on the availability of resources. For our sampling strategy, 290 initial participants will be collected, and exclusion criteria will be applied. Then participants will be added in batches of 10 until at there are at least 290 participants who meet both inclusion and exclusion criteria. Thereafter data collection will stop.

**Inclusion criteria*.*** Age 18-65, fluent English, Prolific rating >= 90%, no participation in similar studies by our research group.

**Exclusion criteria.**Completion time on Prolific < 3 minutes, and partial data on the demographics questionnaire or either AMP.

**Design**

**IVs.**

1. AMP type (standard AMP vs. skip AMP).

2. Valence of the prime stimuli used in the AMP (positive vs. negative).

**DV.** Evaluations within each AMP (pleasant or unpleasant; skipped trials in the skip AMP are discarded).

**Procedure**

Participants will complete the demographics questionnaire, then the standard AMP, and then the skip AMP.

**Measures**

A standard Affect Misattribution Procedure (AMP; Payne et al., 2005) with the following parameters: 10 practice trials, 72 main trials, 12 positive and 12 negative valence images, and 72 Chinese characters. Participants must respond to each Chinese character as either pleasant or unpleasant using the E and I computer keys. The skip AMP will be identical to the standard AMP, with the exception that participants can skip trials where they feel they will be influenced by the prime by pressing the spacebar, rather than the E or I key.

**Hypotheses**

**H1.** The AMP effect in the skip AMP will be smaller than in the standard AMP.

**H2.** The rate of skipping in the skip AMP will predict effect sizes in the standard AMP.

**Results**

**Analytic strategy**

**Hypothesis tests.** We will compare AMP effects for both the standard AMP and the skip AMP using a partially-overlapping t-test (Derrick et al., 2017). Specifically, the partially-overlapping t-test will be used due to the fact that participants who exhibit a very high degree of awareness in the skip-AMP (i.e., skip most or all trials) may not demonstrate an AMP effect at all, and their exclude would distort our results (given that those participants who are most highly influence-aware may also be those who would demonstrate the largest AMP effects. We expect that AMP effects should be larger in the standard AMP than in the skip AMP.

For our second hypothesis, we will conduct a linear regression analysis with rate of skipping in the skip AMP as an independent variable, and AMP effect in the standard AMP as a dependent variable. We expect that higher rates of skipping in the skip AMP should predict larger AMP effects in the standard AMP.