Revisiting the unintentionality of the AMP effect: Experiment 3

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*Pre-registration*

**Author note**

JC, IH, and SH, Department of Experimental Clinical and Health Psychology, Ghent University. This research was conducted with the support of Grant BOF16/MET\_V/002 to Jan De Houwer and Ghent University postdoctoral fellowship 01P05517 to IH. Correspondence concerning this article should be sent to [jamie.cummins@UGent.be](mailto:jamie.cummins@UGent.be). The preregistration, materials, and data for the first experiment from this project are available at <https://osf.io/p6e3c/>. The preregistration, materials, and data for the second experiment from this project are available at https://osf.io/32cu7/.

**Background and rationale**

Our second experiment demonstrated that participants who reported being more influenced in a modified influence-assessment Affect Misattribution Procedure (IA-AMP) also showed larger effects in a previously-completed standard AMP. In order to infer that AMP effects *in general* are driven by the subset of participants who are more intentionally influenced by the primes, Experiment 3 seeks to replicate the design of Experiment 2, with one key manipulation: the use of a different domain in the standard AMP compared to the IA-AMP. The replication of Experiment 2’s findings across domains would give credence to an account of AMP effects as being the product of the subset of participants who *in general* tend to respond intentionally to the primes.

This experiment will attempt to replicate the first three hypotheses from Experiment 2. H1 asserts that, at the trial-level of analysis, the influence of prime stimuli on evaluations of the target stimuli in the IA-AMP will be moderated by whether participants report having been influenced or not. H2 asserts that, at the subject-level of analysis, the rate of influence reported in the IA-AMP will be predictive of the effect size in the IA-AMP. For H3, we will investigate whether the AMP effect of a participant in the standard AMP is predicted by rate of influence recorded by that participant in a subsequently-completed IA-AMP.

**Method**

**Sample**

Data will be collected online via the Prolific Academic website. Based on an expected mean duration of 20 minutes, participants will be paid £1.66.

**Planned sample size & stopping rules.** Power analyses for interactions in mixed-effects models are difficult to determine, therefore no power analysis was conducted for our first analysis. For our second analysis, we used the pwr package in R to compute the number of participants required to detect a medium f2 effect size (i.e., 0.15) in a regression analysis with a single IV, at the conventional alpha level (.05) and at 95% power. Given these criteria, 89 participants would be required. The aforementioned power analysis is also applicable for our third analysis. We will collect data from 150 participants based on the availability of resources.

**Inclusion criteria*.*** Age 18-65, fluent English, US citizen, self-reported Democratic Party supporter on the Prolific site, Prolific rating >= 90%, no participation in similar studies by our research group.

**Exclusion criteria.**Completion time on Prolific < 3 minutes, partial data on the demographics questionnaire or either AMP, identifying as either Republican or Moderate on the political alignment self-report measure.

**Design**

All manipulated factors in the design are within-subjects. The first factor is that of AMP type, and has two levels: either the standard political AMP, or the modified positive/negative IA-AMP. For both AMPs, the prime-type is manipulated within the procedure, each with two levels. For the standard political AMP, the levels of prime type are images of Obama and images of Trump (taken from the Presidents-IAT materials from the Project Implicit Demos; see <https://osf.io/f38ag/>). For the IA-AMP, the levels of prime type are the generally positive and negative images used in the previous 2 experiments of this project.

**IVs.**

1. Identity of the prime stimuli used in the AMP (positive vs. negative in the IA-AMP; Obama vs. Trump in the standard AMP).
2. The type of AMP (standard vs. intention-assessment).

3. In the IA-AMP, subjective ratings for each trial of whether evaluation of the target stimulus was influenced by the prime stimulus or not. A Go/No-Go response format is employed: press spacebar if influenced, do not press if not influenced.

**DV.** Evaluations of Chinese characters within each AMP as pleasant or unpleasant.

**Variables used for methodological counterbalancing (not analyzed).** Questions 3 and 4 in the self-report measures will be presented in a counterbalanced order.

**Self-report measures*.*** We will ask several exploratory questions after the IA-AMP, and specify that participants should answer them in relation to the IA-AMP only:

1. Influence awareness:

“Think back to the task you just completed. On how many trials was a valenced picture presented before the Chinese character? It is important that you are honest here.”

[1 = None, 2 = A few, 3 = less than half, 4 = About half, 5= More than half, 6 = Most, 7 = All]

1. General influence:

“To what extent were your ratings of the Chinese symbols influenced by the pictures that appeared immediately before those symbols?”

[1 = Never, 2 = Very rarely, 3 = Somewhat rarely, 4 = Sometimes, 5 = Somewhat often, 6 = Very often, 7 = Almost always]

1. Intentional influence:

“How often did you *intentionally* base your rating of the Chinese symbol on the image that immediately appeared before it?”

[1 = Never, 2 = Very rarely, 3 = Somewhat rarely, 4 = Sometimes, 5 = Somewhat often, 6 = Very often, 7 = Almost always]

1. Unintentional influence:

“How often do you think that your rating of the Chinese symbol was *unintentionally* influenced by the pictures that appeared immediately before those symbols?”

[1 = Never, 2 = Very rarely, 3 = Somewhat rarely, 4 = Sometimes, 5 = Somewhat often, 6 = Very often, 7 = Almost always]

1. Demand compliance:

“Think back to the task with the Chinese characters. During the task, we asked you after each trial to indicate whether your response to the Chinese character was influenced by the image that appeared before it. Please choose the following option that is the most true for you:”

[1 = My responses were based on what I thought the researcher wanted me to say, 2 = My responses were genuinely based on whether I was influenced or not, 3 = I’m not sure or don’t know why I responses the way I did]

1. Political alignment:

“In terms of the two major political parties in the US, do you consider yourself more Democratic or Republican?”

[1 = Very Republican, 2 = Somewhat Republican, 3 = A little Republican, 4 = Neither/Moderate, 5 = A little Democratic, 6 = Somewhat Democratic, 7 = Very Democratic]

1. Self-exclusion:

“In your honest opinion, do you think should we use your data in our analysis?

There are many reasons why you might feel that we should exclude your data, such as a computer malfunction or a distraction at an important moment during the experiment.

Note, however, that being influenced by the pictures that came before the Chinese characters is NOT a reason to self-exclude from the study.

Your responses on this question will NOT affect your payment. However, if you choose 'No, exclude my data', please fill in the accompanying text box to let us know why.”

**Procedure**

Participants will complete the demographics questionnaire, the standard AMP, the IA-AMP, and then the self-report measures.

**Measures**

A standard Affect Misattribution Procedure (AMP; Payne et al., 2005) with the following parameters: 10 practice trials, 72 main trials, 6 images of Obama and 6 images of Trump, and 72 Chinese characters. As well as this, a modified version of the Affect Misattribution Procedure (from Experiment 1 of the current project; see <https://osf.io/uqs2d/>) with the same parameters except with 12 positive images and 12 negative images, and the following addition: at the end of each trial participants are given the opportunity to press the spacebar to indicate they were influenced by the prime when responding on that trial. This is achieved through the presentation of a cue to “press spacebar if you felt you were influenced by the picture” for a fixed 2000ms interval, presented after a 200 ms inter trial interval. The above sentence was removed from the screen following a response (although the response window was fixed regardless of whether a response was emitted or not).

**Hypotheses**

**M1 (manipulation check).** An AMP effect will be demonstrated for both the standard AMP and the IA-AMP. The target stimuli will be differentially evaluated based on the source stimuli that preceded them, such that targets preceded by negative primes/Trump primes will be rated more negatively than those preceded by positive primes/Obama primes.

**H1.** For the IA-AMP, the influence of prime identity on the valence rating of the Chinese characters will be moderated by that subset of trials in which participants report being influenced by the prime stimulus.

**H2.** For the IA-AMP, the magnitude of the AMP effect will be predicted by the proportion of influenced trials to non-influenced trials.

**H3.** The rate of online influence in the IA-AMP will predict the magnitude of AMP effect in the standard AMP.

**Results**

**Analytic strategy**

**Manipulation & hypothesis tests.** Using the R package *lme4*, we will construct two frequentist logistic mixed-effects models to assess the evidence for the main effect of prime identity in both the standard-AMP and the IA-AMP (M1). The model will include participant ID as a random intercept to acknowledge the non-independence of the multiple ratings provided by each participant. The Wilkinson notation for both models will be:

valence\_rating ~ prime\_identity + (1 | participant)

We will also construct a frequentist logistic mixed-effects model to quantify the interaction between prime identity and influence ratings in the IA-AMP (H1). The model will also include participant ID as a random intercept. In-line with best practices for such analyses, we will use effect coding for the IVs, rescaling each to -.5 and .5. The Wilkinson notation for the model is as follows:

valence\_rating ~ prime\_identity \* reported\_influence + (1 | participant)

If no interaction effect is found, Bayesian analyses may be used may be used to quantify the evidence for the null hypothesis using the R package *brms*. This would likely employ default priors that are designed to be uninformative (i.e., Students t distribution [students\_t(3, 0, 10)] placed on all parameters).

We will also construct a standard regression model to assess whether a greater number of influenced trials predicts a greater AMP effect size in the IA-AMP (H2). For this, we will compute an AMP effect size for each participant by subtracting the number of ‘pleasant’ responses when the target was preceded by a positive prime from the number of ‘pleasant’ responses when the target was preceded by a negative prime. We will also compute the proportion of influenced trials to uninfluenced trials for each participant. The Wilkinson notation for this model is:

AMP\_effect\_size ~ proportion\_influenced

In order to assess H3, we will construct a similar regression model to that of H2, with the exception being that AMP\_effect\_size will now refer to the AMP effect from the standard AMP (i.e., proportion of trials rated as positive that include Obama as a prime minus that which included Trump as a prime).