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FlashReport

Strategic modification of the evaluative priming effect does not reduce its sensitivity to uncontrolled evaluations

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ABSTRACT

In the evaluative priming procedure the processing of a target stimulus is facilitated when preceded by a prime of the same valence. This procedure is used to investigate and measure the unintentional and uncontrolled influence of attitudes. Consistent with previous findings, in this research, when participants knew that primes are more likely to precede targets of opposite valence the typical priming effect was reversed. This may suggest that non-evaluative processes can eliminate the effect of unintentional evaluation. However, in five studies, success in reversing the priming effect was still related to people's evaluation of the primes. This suggests that unintentional evaluation affects performance in the evaluative priming procedure even when people successfully counteract the priming effect. Although behaviors that are sensitive to evaluative processes may be altered by rival processes, the rival processes do not necessarily decrease the absolute influence of the evaluative processes on those behaviors.

In the evaluative priming (EP) procedure, the primary task of the participants requires the processing of target evaluative stimuli (e.g., classify word adjectives as pleasant or unpleasant). Each target is preceded by a prime stimulus (e.g., a smiling face) unrelated to the primary task. Numerous studies using this paradigm found an EP effect: people were faster and more accurate to process good words after positive primes, and bad words after negative primes, than to process good words after negative primes and bad words after positive primes (Fazio, 2001; Klauer & Musch, 2003). The EP effect is considered an unintentional and uncontrolled effect because it happens very quickly (the prime precedes the target by less than 300 ms; Hermans, De Houwer, & Eelen, 2001), and because the effect sometimes reflects an evaluation that participants are motivated to hide (Fazio, Jackson, Dunton, & Williams, 1995). Because of that, the EP effect is of the main sources of evidence that evaluation can influence behavior with no need for conscious decision to evaluate, and it is a main tool for measurement and investigation of unintentional evaluation (Bargh, 1994; Bargh, Chaiken, Raymond, & Hymes, 1996; Duckworth, Bargh, Garcia, & Chaiken, 2002; Fazio, 1986, 2007; Fazio, Sanbonmatsu, Powell, & Kardes, 1986).

However, recent studies found that instructions can decrease (or increase) the priming effect (Degner, 2008; Klauer & Teige-Mocigemba, 2007; Teige-Mocigemba & Klauer, 2008). For instance, German participants in a study conducted by Teige-Mocigemba and Klauer (2008, Study 1) completed an EP procedure in which some prime–target pairs (Arab primes before positive targets and celebrities primes before negative targets) were presented more often than the other pairs (*Arab-bad*, *celebrity-good*). Participants who were not informed about this imbalance showed the expected EP effect: faster responses in *celebrity-good* and *Arab-bad* trials than in *celebrity-bad* and *Arab-good* trials. Participants who were informed about the specific frequency—and therefore expected good words after Arab primes and bad words after celebrity primes—did not show the EP effect.

TMK's findings suggest that participants' knowledge about imbalanced prime–target frequencies can alter the priming effect. One account for this effect is that the knowledge eliminated the automatic effect of the primes' evaluation. This would entail that it is possible to directly turn off the evaluation effect. However, the alteration of the overall priming effect does not indicate that the *evaluative* priming effect was altered. Another possibility is that the knowledge about the imbalanced frequencies influenced the priming effect in one direction, while the evaluation still influenced the priming effect in the opposite direction. Put differently, perhaps people can decrease the relative influence of evaluations on the priming effect by activating processes that also influence the priming effect, but they cannot decrease the absolute influence of the evaluations on the priming. In that case, the sensitivity of the priming effect to variations in the evaluations of the primes should remain—only the overall priming effect would shift. The present research investigated that possibility.

Five studies tested whether the priming effect in a *stated imbalanced EP* (an imbalanced EP when participants are informed about the frequencies) was related to evaluations of the primes measured by other measures. The other measures were evaluative

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priming, self-report, and the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998). If the priming effect would be related to people's evaluations of the primes, then it will suggest that this form of control on the priming effect does not eliminate the sensitivity of the priming effect to evaluations.

Overview of the Studies

In all studies, participants completed a few measures of their racial (Studies 1, 3 and 5) or political (Studies 2 and 4) attitudes. Studies 1–2 started with an *unstated imbalanced EP* (i.e., participants were not informed about the imbalanced prime–target proportions). Next, participants were informed about the prime–target proportions before completing another imbalanced EP. Studies 3–4 were similar, but half of the participants first completed the standard EP (balanced evenly with equal prime–target proportions) instead of the unstated imbalanced EP. In Study 5, participants completed an EP procedure and an IAT. The EP was either the stated imbalanced EP or a standard EP. In all studies, participants also explicitly reported about their attitudes. The method of Study 1 is described first, followed by the modifications in the rest of the studies, and the rationale for each modification.

Methods

Participants

Volunteers at the Project Implicit research website (https://implicit.harvard.edu; see Nosek, 2005 for more information) were randomly assigned to the study from a large pool of available studies. The details about the number of participants are presented in Table 1. The analyses did not include participants who did not have above-chance success rate (51%) in all tasks, or did not have at least one trial in each of the conditions of the relevant task (e.g., the four prime–target conditions in EP).

Procedure and Materials

Stimuli

The attitude-object stimuli were face images of 12 of Black and 12 White men (the young men stimuli from Gawronski, Cunningham, LeBel, & Deutsch, in press). The target words in the EP were 14 positive and 14 negative nouns and adjectives.

EP

In each trial, the prime stimulus was presented for 275 ms, followed immediately by a target word which remained on the screen until 800 ms had passed or a response was given by pressing one of two keyboard keys (these durations were used in TMK's procedure). After an incorrect response, a red X appeared for 275 ms. The intertrial interval was 250 ms. Each EP procedure consisted of three 60-trial blocks.

Prime–target pairs that were inconsistent with the common preference in Project Implicit's participant pool (*Black men-good* and *White men-bad*) appeared more often. Each of the two inconsistent pairs appeared 20, 19 and 18 times in blocks 1–3, respectively; and each consistent pair appeared 10, 11, and 12 times in blocks 1–3.

Participants first completed three blocks of this task with the following instructions: "Images and words will appear one after another. Ignore the images and categorize the words as good or bad." Before completing another three blocks, participants were informed about the imbalanced prime–target frequencies: "When you see an image of a **Black man**, it is more likely that a **positive** word will appear next. When you see an image of a **White man**, it is more likely that a **negative** word will appear next." [Bold in original].

Self-report

A thermometer rating probed feelings toward Black and White men on a scale from 0, *the coldest* to 10, *the warmest*. The explicit attitude was the difference score.

Design

The presentation of the self-report questionnaire (before or after the EPs) was counterbalanced between participants.

Modifications in Study 2

The prime stimuli were American politicians: six Democrats and six Republicans. Because self-reported political attitudes are strongly related to indirectly measured political attitudes (Nosek, 2005) explicit attitude in this study should be more helpful in detecting evaluative influence in the stated imbalanced EP. Because most participants in the pool identify as Liberals, the more frequent prime–target pairs were *Republican-good* and *Democrats-bad*.

Modifications in Study 3

The primes were 7 Black men and 7 White women. For half of the participants, the first EP was the standard EP with 15 trials for each prime–target pair in each block. The other half started with the unstated imbalanced EP, like in Studies 1–2. The objective was to examine whether the stated imbalanced EP would be related to a standard EP.

Modifications in Study 4

This was a combination of Studies 2 and 3: politicians were the primes, and half of the participants completed a standard EP before the stated imbalanced EP.

Modifications in Study 5

The study compared the relationship between an IAT and the standard EP to the relationship between the IAT and the stated imbalanced EP. The stimuli were the same as in Study 3. The IAT used the same face stimuli and the categories *Black people*, *White people*, *Good* and *Bad*. The IAT was the standard 7-block IAT (Greenwald et al., 1998), and was scored as the standardized difference between the average latencies in the two pairing conditions, after removing latencies slower than 10000 ms or faster than 400 ms, and including error latencies (Greenwald, Nosek, & Banaji, 2003). The proportions in the imbalanced EP were 22–8, 20–10, 20–10 in blocks 1–3, respectively. Participants were randomly assigned to one of four conditions in a 2 (EP: standard, unbalanced) × 2 (Measures-order: IAT, self-report, EP or EP, IAT, self-report) design. The IAT was used to add evidence that the relationship between the different EPs in

Table 1
Number of participants, demographics, and dropout rates.

Group	Started (% women, mean age, SD age)	Completed (% of started)	Removed from analyses (% of completed)
Study 1	281 (65%, 28, 12)	223 (79%)	30 (13%)
Study 2	243 (65%, 27, 12)	194 (80%)	25 (13%)
Study 3: Standard EP	163 (75%, 25, 11)	137 (84%)	22 (16%)
Study 3: Imbalanced EP	166 (76%, 27, 12)	127 (77%)	13 (10%)
Study 4: Standard EP	149 (70%, 29, 14)	119 (80%)	10 (8%)
Study 4: Imbalanced EP	156 (69%, 26, 11)	128 (82%)	16 (13%)
Study 5: Standard EP	156 (65%, 27, 12)	125 (80%)	3 (2%)
Study 5: Imbalanced EP	210 (61%, 27, 12)	152 (72%)	9 (6%)

Notes: (a) In Studies 3–4, in the imbalanced EP condition, the first EP had imbalanced prime–target frequencies (the same as the second EP); whereas in the standard EP, the first EP had equal frequencies. In the imbalanced EP condition in Study 5, participants performed the imbalanced EP and were informed about the frequencies beforehand. (b) Participants were removed from the analyses if their success-rate in one of the EPs was not above chance (less the 51%) or if they did not respond with at least one correct response for each of the four prime–target conditions. (c) The difference in dropout rate between the conditions in each study (including the measures-order conditions) was never significant.