Introduction

The contents of our conscious mind can often seem unpredictable, whimsical and free from external control. Despite these intuitions, previous research utilizing the Reflexive Imagery Task (RIT) has shown that, under certain circumstances, an individual thought can be elicited reliably and unintentionally by external stimuli (Allen et al., 2013).

In the RIT, participants are instructed to not think of the name of an object image that is presented on-screen. However, participants invariably fail at the task and subvocalize the name of the object on the majority of trials.

In the current study, we examined whether the subvocalization effects found in the RIT can be diminished through continuous exposure of the same visually presented object. Participants were shown line drawings of well-known object images and were instructed to not think of the name of the object. Each object was shown in ten consecutive trials to ensure that the object images would be susceptible to habituation.

Method

Participants. San Francisco State University undergraduate students ($n = 44$, $32$ Females, $M_{age} = 22.33$, $SD_{age} = 5.60$) participated for course credit.

Stimuli. The stimuli were black-and-white line drawings of $40$ well-known objects that yield high name agreement. The stimuli had been used successfully in previous research (Allen et al., 2013; Morsella & Miozzo, 2002; Snodgrass & Vanderwart, 1980). The stimuli were presented in random order.

Procedures. All instructions were presented on the computer screen. Participants were informed that they would be presented with a series of object images and to not think the name of the object presented. If participants did experience subvocalization of the presented object, then they pressed a button to report when they subvocalized the object.

Each of the $40$ objects was presented over a series of ten consecutive trials. Before the presentation of each object, the instruction ‘Do Not Think of the Name of the Object’ was displayed in the center of the screen. Once participants indicated their readiness, a fixation cross (+) appeared in the center of the screen. Then, the object appeared (4 s). During the presentation of the object, participants indicated by button press when they subvocalized the name of the object.

Results

Proportion

Participants indicated experiencing mental imagery on .45 of the trials ($SE = .05$).

A paired samples $t$-test revealed that there was a significant difference between the proportion in the first five trials ($M = .52$, $SE = .05$) and the last five trials ($M = .39$, $SE = .05$), $t(43) = 8.79$, $p < .001$.

Latency

The mean latency for the subvocalizations experienced by the participants was $1,491.59$ ms ($SE = 78.63$).

A paired samples $t$-test revealed that there was no significant difference in latency between the first five trials ($M = 1,480.88$, $SE = 73.07$) and the last five trials ($M = 1,559.82$, $SE = 98.23$), $t(43) = -1.73$, $p = .092$.

Discussion

This study reveals that, in the RIT, habituation can be induced through continuous exposure of the same visual object. As the trials progressed, participants subvocalized the object name less frequently, indicating that the effect observed in the RIT can be diminished systematically.

This study has implications for further understanding cognitive control. More specifically, this study can be utilized to better understand the undesired and intrusive cognitions that arise under certain psychopathological conditions.