Affective Priming as an Indirect Measure of Sense of Warmth of Furniture Design

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ABSTRACT

“Warmth” is one of the key concepts of interior design involved in choosing living room furniture. Using an affective priming paradigm, the present study investigated whether participants truly feel the warmth of furniture when they view it. In the experiment, prime pictures of a dining table with warm, cold, or neutral impressions were briefly presented, followed by target words with happy or sad meanings. Participants reported whether the target word was happy or sad. Results showed that participants judged happy target words faster when the primes were tables with warm impressions than when they were neutral ones. This finding suggests that the mere existence of a warm table modulated the subsequent processing of valenced words, which implies that affective priming is applicable as an indirect measure of impressions of furniture design.

Keywords: Affective priming, Sense of warmth, Indirect measure, Furniture design, Impressions

1. Introduction

Although there are a number of studies that explore the impact of impression management on furniture design, most studies do not include implicit measures, and, in most cases, viewers’ impressions are evaluated by self-reports. This is problematic, as self-report measures are vulnerable to response biases. However, the possibility of response bias can be reduced by including indirect assessments of impression evaluation, of which affective priming is one well-known measure of stimulus valence (Fazio, 2001).

Using an affective priming paradigm, the present study aimed to confirm whether participants truly feel the impression of interest when they view it. In the experiment, pictures of a dining table with different emotional valences were used as prime stimuli, and valenced words were used as targets. Here we focused on warm impressions because “warmth” is often thought to be one of the key concepts of interior design for choosing living room furniture. We predicted that merely glancing at a dining table with a warm impression would facilitate subsequent processing of valenced words with a happy meaning versus other prime conditions.

2. Method

Design and Participants

This study used a 3 (Prime condition: warm, cold, or neutral) × 2 (Word type: happy and sad) repeated measures design. Fifty-one undergraduate students participated in the study for course credit.

Stimuli

The prime stimuli consisted of emotionally valenced pictures of a dining table. The table pictures were chosen from a pilot test in which 200 participants were asked to rate the warmth or coldness of their personal feelings associated with 30 pictures of a dining table on a 7-point scale, with responses ranging from 1 (very cold) to 7 (very warm). Based on these results, we chose 12 images of dining tables as prime stimuli: four warm tables, four cold tables, and four neutral tables (Figure 1).

![Figure 1. Twelve images of dining tables used as prime stimuli](image)

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The target words consisted of 64 Japanese kanji words related to happy and sad expressions taken from Isato and Mochizuki (2012).  

Procedure  

The sequence of events in each trial was as follows. First, a fixation point (a plus sign) was presented in the center of the computer screen. After an interval (randomly varied between 1000 and 1500 ms), the fixation point was replaced by the prime picture, which appeared for 500 ms. Next, a target word was presented (prime-target stimulus onset asynchrony = 500 ms). Participants indicated whether the word had a happy or sad expression by pressing assigned keys on the computer keyboard as quickly and accurately as possible while they were asked to ignore the prime stimulus. The target word remained on the screen until a response was made or until a maximum period of 2000 ms had elapsed. The task consisted of eight blocks, each containing 24 trials. Trials were presented in a random order within each block. Before the experiment, participants practiced 18 trials. Stimuli presentation and response collection was administered using E-prime 2.0.

3. Results and Discussion

We analyzed latency and accuracy using a mixed effects model. Prime condition, word type, and their interaction were included as fixed effects, whereas participant and target word were random effects. Although we began to analyze results from the models with a maximal random effect structure, here we report the results obtained from simpler models that fit, as well as any of the more complex models.

Reaction times (RTs; Table 1) for correct responses were included in analyses. RTs that exceeded an a priori threshold (1000 ms) were supposed to be discarded, but there were no cases corresponding to this criterion. There were also no significant differences in error rate, and they are thus not reported here. The overall error rate was nonetheless 6.2%.

We found a main effect of word type ($b = -24.48$, s.e. = 11.19, $t = -2.18$), suggesting an overall advantage of processing speed for positive words. We also found a significant interaction between prime condition and word type. Simple effect tests revealed that happy words that were presented following warm tables were recognized more quickly than those presented following neutral tables ($b = -22.95$, s.e. = 5.11, $t = -4.49$). However, responses to happy words following cold tables were not different from those following neutral tables ($b = -10.85$, s.e. = 5.24, $t = -2.07$). There was also no significant main effect of prime condition observed for responses to sad words.

In summary, the current findings show that merely glancing at a dining table with a warm impression facilitated subsequent processing of happy words. Furthermore, this priming effect did not emerge when cold tables were presented as prime stimuli, nor did it emerge for responses to sad words, indicating an effect of emotional valence that was dependent upon priming condition.

| Word type | Prime condition |
|-----------|-----------------|
|           | Warm  | Neutral | Cold  |
| Happy     | 693 (47) | 723 (62) | 708 (77) |
| Sad       | 742 (61) | 741 (56) | 746 (64) |

4. Conclusion

The present study demonstrated that participants felt a warm impression from the furniture when they viewed it, implying that affective priming may serve as useful tool to investigate individuals’ impression of furniture products.

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References

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