Interaction between value and perceptual salience in value-driven attentional capture

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Previous research demonstrated that associating a stimulus with value (e.g., monetary reward) can increase its salience and induce a value-driven attentional capture when it becomes a distractor in visual search. Here we investigate to what extent this value-driven attentional capture is affected by the perceptual salience of the stimulus and the type of value attached to the stimulus. We showed that a color previously associated with monetary gain or loss impaired subsequent search for a unique shape target (Experiment 1), but a shape that was previously associated with gain or loss did not affect search for a

perceptual salience

Experiment 1

Method

Participants

Stimuli and design

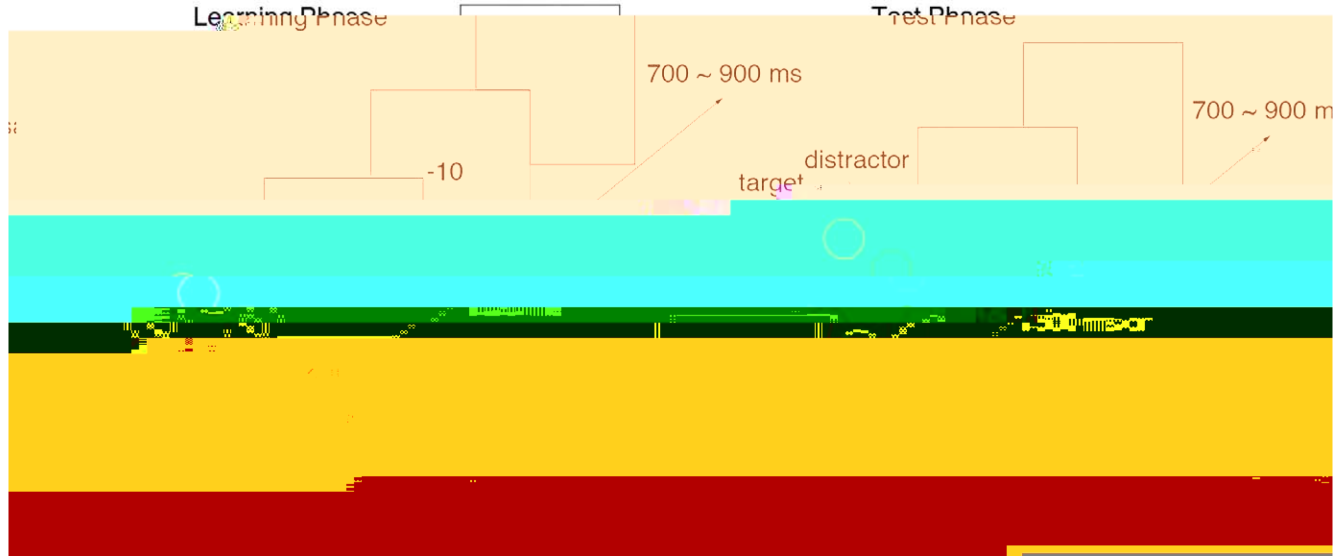

Figure 1. Sequence of trial events in Experiment 1. Left panel: In the learning phase, one of the two specific colors (red) was

Procedures

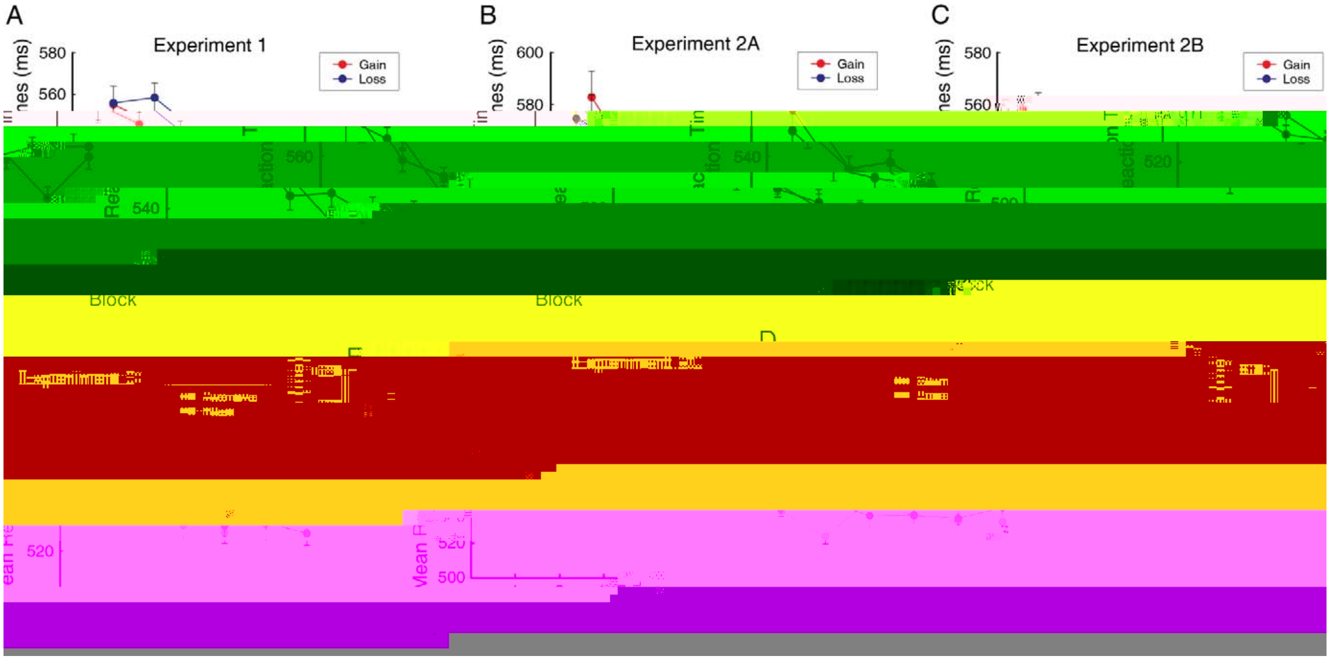

Figure 2. Results from the training phases of the three experiments. Mean reaction times with standard errors (ms) shown as a function of the block order for the experimental group in Experiment 1 (A), Experiment 2A (B), Experiment 2B (C), Experiment 2C (D), and Experiment 3 (E). The between-subject variability has been excluded from the standard errors (Cousineau, 2005).

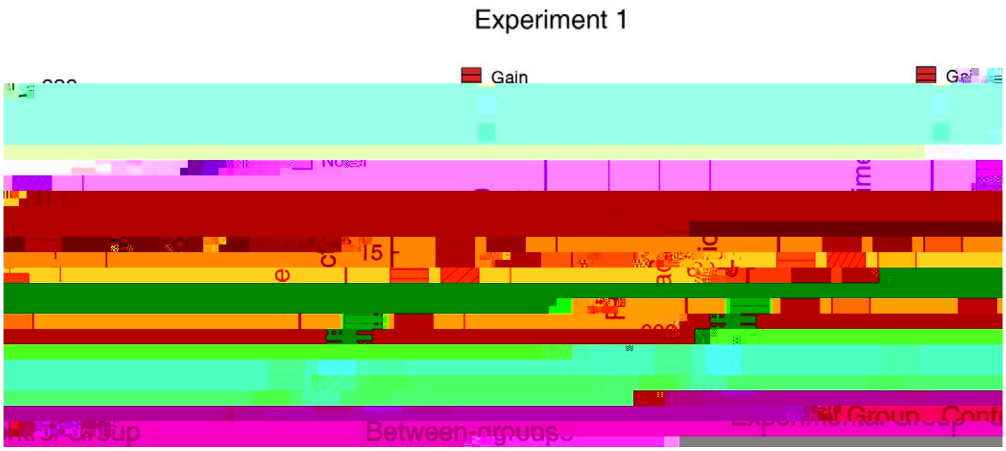

Figure 3. Results from the test phase of Experiment 1. Left panel: Mean reaction times with standard errors (ms) for the experimental group and control group. Right panel: The amount of the interference effect induced by the gain- or loss-associated distractors, as measured by subtracting RTs in the novel condition from RTs in the gain or loss conditions; RTs in the novel condition was also subtracted from RTs in the neutral condition to reveal the interference effect in the control group. An asterisk indicates that there is a significant difference between the two conditions (*$p < 0.05$, **$p < 0.01$).

Experiment 2

Methods

Participants

Stimuli and design

Procedures

$F <$

t = p =

Experiment 3

Method

Participants

Procedures

% %

SCR recording

Results and discussion

t = - p = -
t = - $p <$ -

$p <$

- $p <$ - - -

$p =$ - --

$t <$

t

Conclusion

Keywords: attentional capture, fear conditioning, pain stimulation, perceptual salience, visual search

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