Working memory distortion influence by irrelevant features in a dual task

Yao Liu[1]
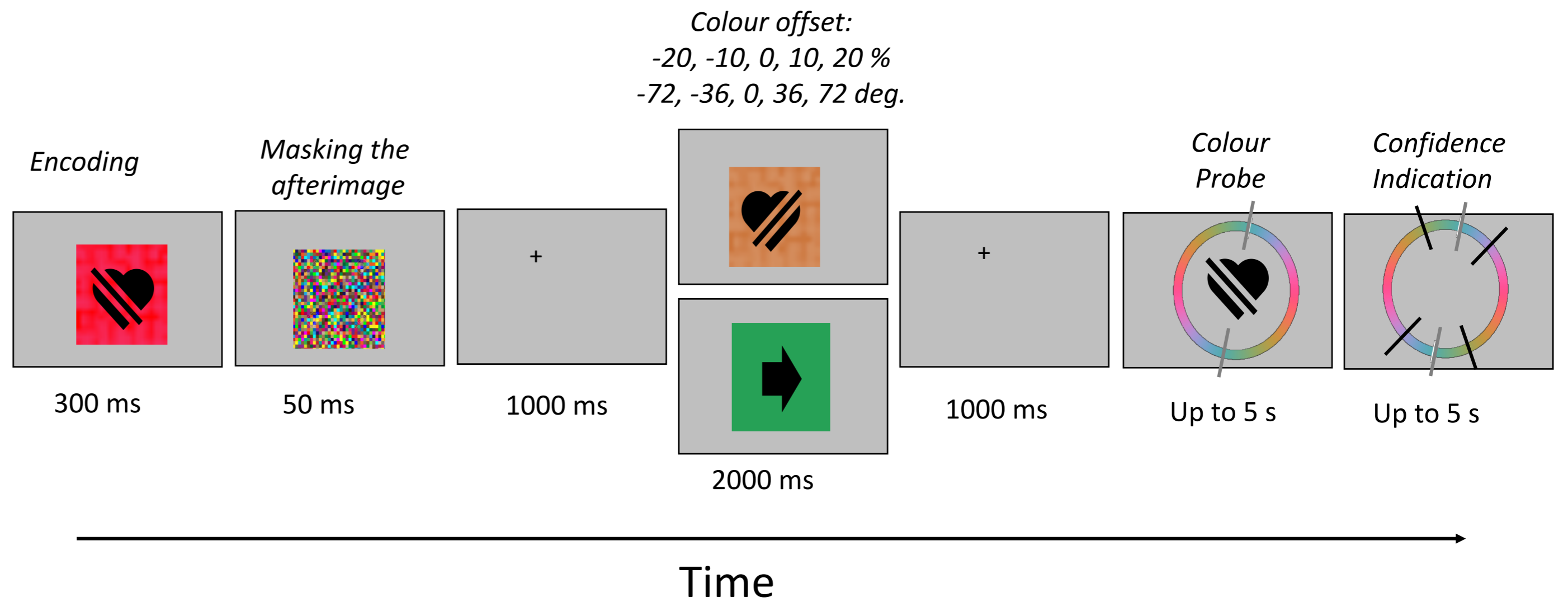
[1]*ViaX, Scientific Research and Education, Beijing, China*

Introduction

Visual working memory (vWM) recall errors can arise from a distractor combined with a shared irrelevant feature (Bay et al.,2011). Few studies concentrated on how different levels of dual task engagement during the delay period influence the memory distortion.

It was predicted that the participants' memory distortion would be larger with the distractors offset from the original memory item increasing. Furthermore, distractors inserted with an irrelevant feature dual task would have more influence than with an exogeneous task on memory distortion.

Methods

Colour offset:
-20, -10, 0, 10, 20 %
-72, -36, 0, 36, 72 deg.

Encoding — 300 ms | Masking the afterimage — 50 ms | 1000 ms | 2000 ms | 1000 ms | Colour Probe — Up to 5 s | Confidence Indication — Up to 5 s

Time

Dual task: memory or exogenous response

- The difference between memory retrieval task of exogenous task was not significant.

Absolute error
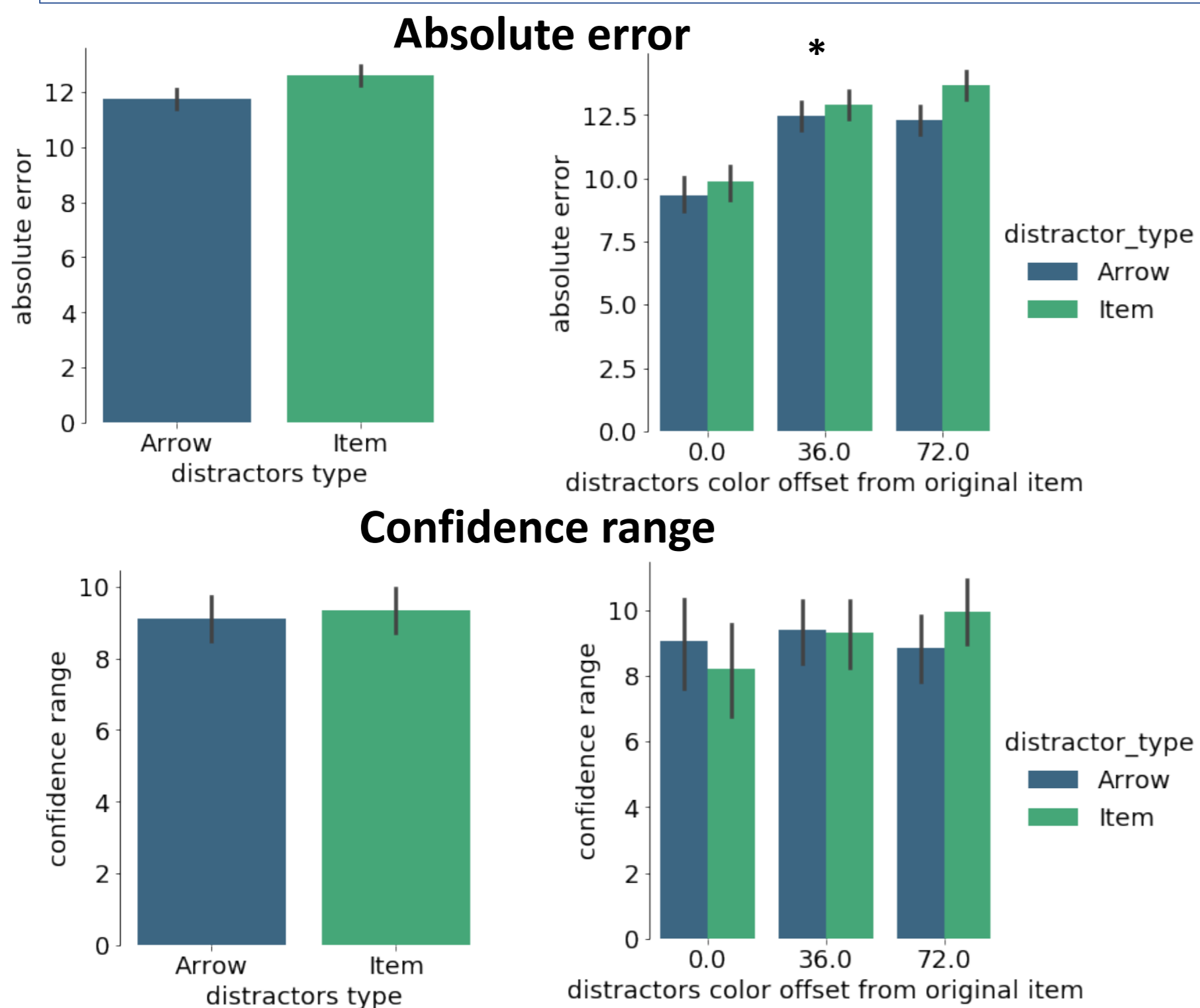
Confidence range

Dual task performance affects memory

- Participants' memory was distorted towards the distractor.
- No influence on participants' confidence range.

Absolute error

Confidence range
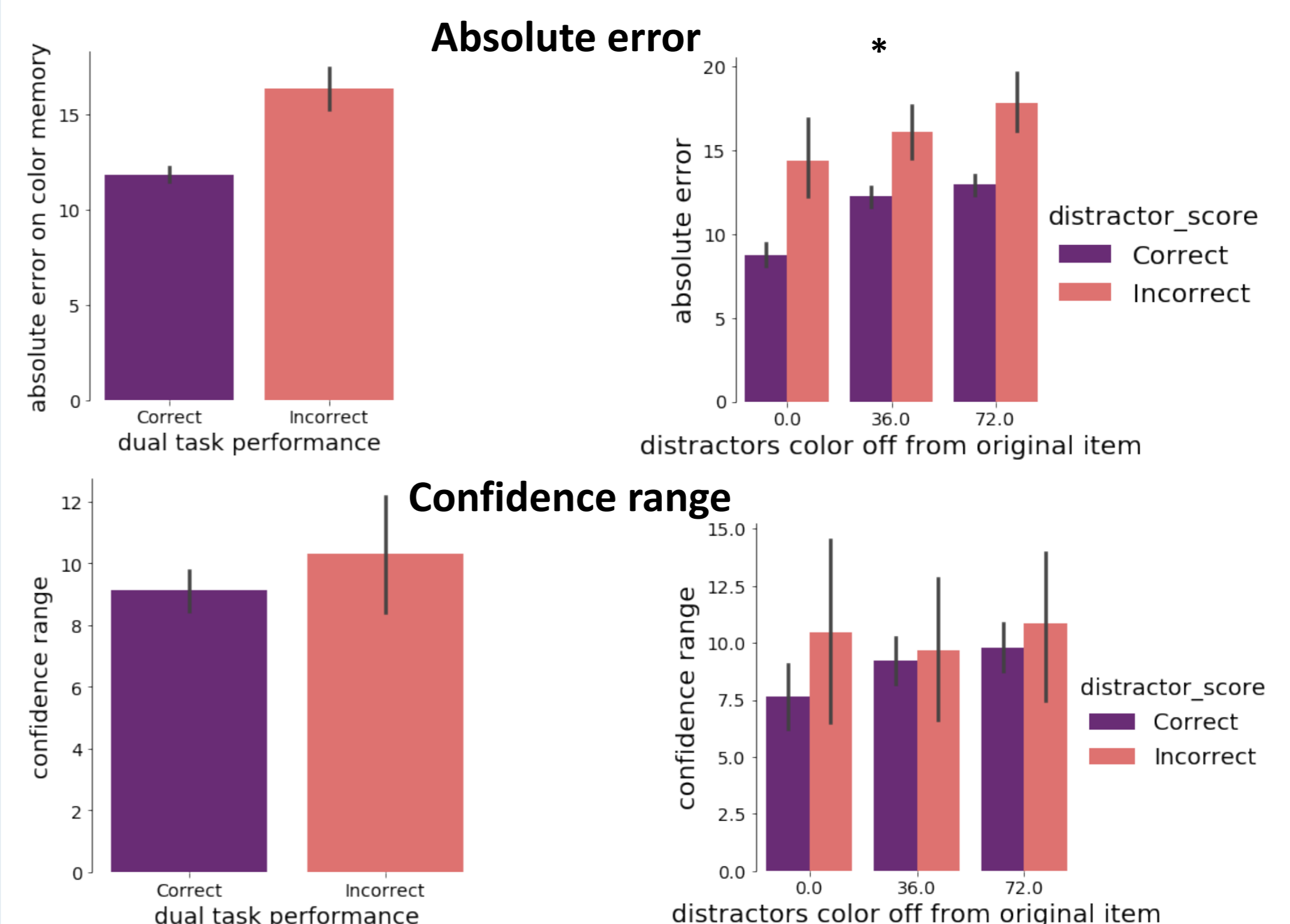
Conclusions

Whether distractors combined with retrieval task or exogenous item have no significant difference on memory distortion, in accordance with previous studies (Rademaker et al, 2015).

In general, the dual task performance did not influence participants' absolute error and confidence range in final task.

Participants' original color memory was distorted towards the distractor. Such effect had an interaction with the dual-task performance and distractors' deviation instead of distractor type statistically.

Memory distorted towards distractor

Participants' color memory was distorted towards the direction of the distractor. Besides, there was also an interaction effect between the dual-task performance and distractors' deviation on the color memory distortion.

Correct or incorrect dual-task response

Email :kanwen0613@126.com