

# Memory for the Location of a Target in a Complex Scene

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**Abstract** Memory for the location of a target in a complex scene is a critical skill for many real-world situations. However, little is known about how memory for target location is affected by the complexity of the scene. In 3 experiments, we examined memory for target location in a complex scene. In Experiment 1, we examined memory for target location in a complex scene. In Experiment 2, we examined memory for target location in a complex scene. In Experiment 3, we examined memory for target location in a complex scene. Results showed that memory for target location was affected by the complexity of the scene. Specifically, memory for target location was higher in a simple scene than in a complex scene. This finding has important implications for understanding memory for target location in real-world situations.

## General Scientific Summary

Memory for the location of a target in a complex scene is a critical skill for many real-world situations. However, little is known about how memory for target location is affected by the complexity of the scene. In 3 experiments, we examined memory for target location in a complex scene. In Experiment 1, we examined memory for target location in a complex scene. In Experiment 2, we examined memory for target location in a complex scene. In Experiment 3, we examined memory for target location in a complex scene. Results showed that memory for target location was affected by the complexity of the scene. Specifically, memory for target location was higher in a simple scene than in a complex scene. This finding has important implications for understanding memory for target location in real-world situations.

**Keywords:** memory, location, target, scene, complexity

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Method

Participants

Participants were recruited from a local university and were assigned to one of two groups: A (N = 24) and D (N = 24). The A group consisted of 12 males and 12 females, with a mean age of 23.11 (SD = 6.64). The D group consisted of 12 males and 12 females, with a mean age of 23.11 (SD = 6.64). All participants were students at the university and were not compensated for their participation. The study was approved by the ethics committee of the university.

The study was conducted in a laboratory setting. Participants were seated at a computer workstation and viewed stimuli on a 24-inch monitor. The stimuli consisted of faces of varying attractiveness, which were presented in a 2x2 grid. The faces were categorized as 'very unattractive' and 'very attractive' based on a pre-test.

Materials

The materials used in the study were faces of varying attractiveness. The faces were categorized as 'very unattractive' (N = 5) and 'very attractive' (N = 5). The faces were presented in a 2x2 grid. The faces were categorized as 'very unattractive' and 'very attractive' based on a pre-test. The faces were presented in a 2x2 grid. The faces were categorized as 'very unattractive' and 'very attractive' based on a pre-test.

Procedure

The procedure involved presenting faces of varying attractiveness to participants. The faces were presented in a 2x2 grid. The faces were categorized as 'very unattractive' and 'very attractive' based on a pre-test. The faces were presented in a 2x2 grid. The faces were categorized as 'very unattractive' and 'very attractive' based on a pre-test.

Table 1  
Characteristics of the Participants

Variable	A D (N = 24)			D (N = 24)			t	p		
	M	SD	η <sup>2</sup>	M	SD	η <sup>2</sup>				
Age (M)	7.22	1.58	5.08	11.57	7.49	.66	6.50	8.65	-.769	.446
AD (M)	98.54	18.58	69	136	95.96	10.5	77	117	.592	.557
AD - A (M)	8.37	1.53	5	10						
AD - B (M)	8.46	1.47	5	10						
AD - C (M)	7.75	1.11	5	10						
AD - D (M)	21.88	5.57	10	30						
AD - E (M)	17.75	4.80	9	26						
AD - F (M)	8.67	2.08	5	12						
AD - G (M)	3.25	1.15	1	5						

Note. AD = ...; D = ...; C = ...; E = ...; F = ...; G = ...

... (m l r ... l ... l ... l).

E. ... (4 × 4).

... (10 × 10).

... (8 × 8).

... (10 × 10).

... (10 × 10).

... (10 × 10).

... (10 × 10).

... (10 × 10).

... (10 × 10).

... (10 × 10).

... (10 × 10).

... (10 × 10).

... (10 × 10).

**Eye Movement Data Analysis**

**Data preprocessing.**

... 75 m ... 75 m, ...

(1 ... 2012), ...

... 30% ...

... A D, ...

... (M = 0.02, SD = 0.03) ...

... (M = 0.15, SD = 0.11) ...

... (M = 0.08, SD = 0.08), ...

... (M = 0.74, SD = 0.16) ...

... (M = 0.81, SD = 0.15) ...

... (M = 8.49, SD = 1.09) ...

... (M = 9.21, SD = 0.83) ...

... (M = 0.74, SD = 0.16) ...

... (M = 0.81, SD = 0.15) ...

... (M = 8.49, SD = 1.09) ...

... (M = 9.21, SD = 0.83) ...

... (M = 0.74, SD = 0.16) ...

... (M = 0.81, SD = 0.15) ...

... (M = 8.49, SD = 1.09) ...

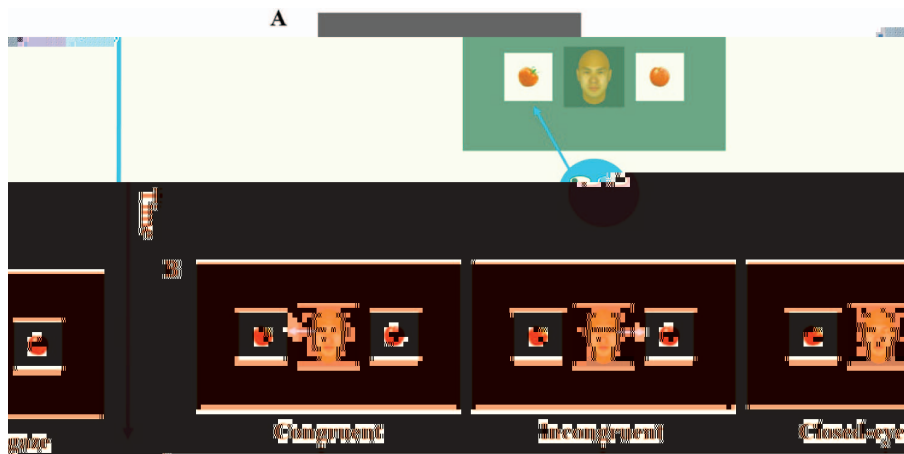


Figure 1. Eye movement data analysis. (A) Top panel shows a green box with three images: an orange, a face, and another orange. A blue arrow points to the face. Below it is a black box with a red circle. (B) Bottom panel shows a sequence of four frames from a video. Each frame shows a person's face and hands. The person is holding a red object. The frames are labeled 'Change' and 'Control'.



Figure 2. Heatmap of Pearson correlation between eye-tracking time and object viewing time. The heatmap is color-coded from red (0.0) to yellow (0.4). The x-axis is labeled 'Eye-tracking time (s)' and the y-axis is 'Object viewing time (s)'. A vertical label 'Pearson correlation' is on the right side of the heatmap. The inset shows two red dots on a dark background. The plot above the heatmap shows T(t=m) with multiple colored lines.





... 0.75 / 4.00 ,  $Z_m = -80.820, p = .046$ . ...

Discussion

... (1) ... (2) ... (3) ...

... D. ... (C ... 2012; ... 2015) ...

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