J Is attention to pictures required R for later recognition?

Do different attentional demands have different effects?

### CONDITIONS

Single Task Search (N=14) Single Task Picture Memory (N=14) Dual Task Search & Picture Memory (N=14) Dual Task Tone & Picture Memory Control (N=10)

# **TRAINING/SEARCH TRIALS (32)**

Present stimulus (scene or texture) with search display (and tones if Tone Task) --500ms--

Search: 0, 1, or 2 Fives among Twos? Tone: 0, 1, or 2 High among Low Tones? Memory: Press Key to Continue --Unlimited Response Time--

## PICTURE MEMORY TRIALS (32)



Present stimulus (scene or texture) Memory Task: Old or New Image? --Unlimited Response Time--







SHUFFLED SCENES



TEXTURES



REAL TEXTURES



reduced recognition memory for scenes.



was ~90%

The visual search task imposes a cost above and beyond the dual task cost in scenes. Both search and tone tasks reduce texture memory to chance.

Recognition of scrambled scenes is the same as with textures. But again, the search task interfered.

What is the nature of the costs to texture recognition? Would search and tone costs be distinguishable if they did not reduce  $\mathbf{\tilde{R}}$ memory performance to chance?

What would happen if the textures were even more basic (e.g., single features like "red" or "vertical")?

What if we used a dynamic attention

task and manipulated the attentional load by varying the number of target tracking items?



When scenes are fixated but not attended, memory is reduced to the level of recognition for attended meaningless textures.

While this performance is poor, it is still better than chance, suggesting that some preattentive information is encoded.

For robust picture recognition, both preattentive visual properties and meaningful information are required.

This research was supported by a grant from NIMH. contact: jennifer.dimase@yale.edu

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