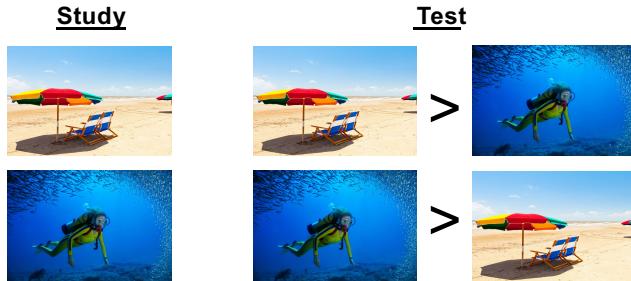




What Is That Smell?

Dustin Finch & Dr. Deborah K Eakin

INTRODUCTION



Godden & Baddeley, 1975

Context Reinstatement Effects:

Memory is better when environmental context at study and test matches:

- Associations between context and studied info
- Same context at test cues those associations

Typically environmental contexts are complex:

- Many potential associations
- Potential for multiple cue associations

RESEARCH QUESTION

Will context reinstatement effects be obtained when only one aspect of the environment is reinstated?

Odor as Context:

Odor is an important cue for memory:

- Memories cued by odor have more autobiographical associations (Herz & Engen, 1996)
- Primary olfactory cortex directly connected to amygdala-hippocampal complex

Experiment 1

Design and Participants:

4 (Context Type: no odor context, reinstated odor context, changed odor context, no odor context at test) x 2 (Test Type: cued recall and no cue) factorial design

293 Mississippi State University students participated for research credit.

Materials:

List of 100 words – 10 categories

Essential oil: rosemary or lemon



Procedure:

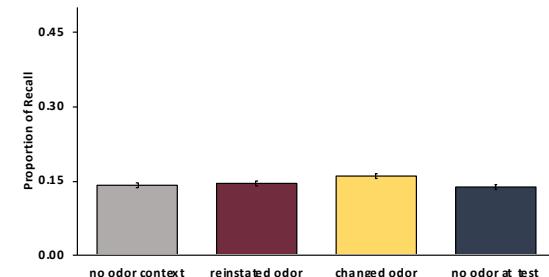
Study Room 1



Test Room 2



Results:



Discussion:

No effect on memory for context type, $F(3,285) = 0.62$, $p = .60$, and for test type, $F(1,285) = 1.35$, $p = .25$, and no interaction, $F < 1$.

- Potential for floor effects
- Moving rooms disrupted context reinstatement effects (Strand, 1970)
- Word list too long – *Cue Overloading hypothesis* (Watkins & Watkins, 1976)

Experiment 2

Design and Participants:

One-way design with 3 levels (Context Type: no odor, reinstated odor, changed odor)

251 Mississippi State University students participated for research credit.

Materials:

List of 40 words – 8 categories

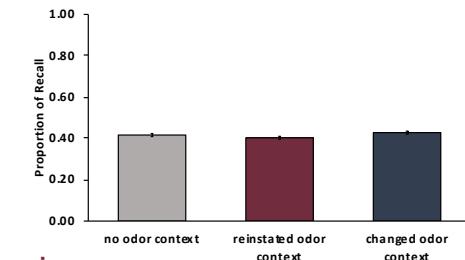
Essential oil: peppermint or lemon



Procedure:

Study and test in same room
Moved diffuser, changing odor

Results:



Discussion:

No effect of odor context on memory, $F(2,248) = 0.59$, $p = 0.56$.

- Use of categorical word lists:
 - Suppressed environmental context – *Overshadowing hypothesis* (Smith & Vela, 2001)
 - Led to better cues than context cues – *Outshining hypothesis* (Smith & Vela, 2001)
- Context was not actually reinstated
- Adaptation to odor
- Odors not distinctive from environment (Herz, 1997)

Conclusion

Context reinstatement effects may be possible with odor as context, but only under particular conditions (Isarida & Isarida, 2014).