

Odor Serves as a Reliable Cue For Context Reinstatement

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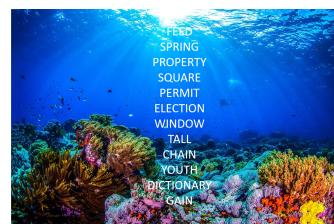
INTRODUCTION

Context Reinstatement Effects

Memory is better when the environmental context at study is reinstated at test than when it is not. Theoretically, this result occurs because associations between the context and studied information are created during encoding. Those same cues are available at test when the context is reinstated, but not when the test is conducted in a new context.

Motivation for Study:

Typically environmental contexts are complex (e.g., Godden & Baddeley's 1975 underwater context), providing potential for unique environmental cues for each studied target. Alternatively, the entire context could serve as a cue for all studied targets.



Which one underlies context reinstatement effects is not possible to determine using a complex context, so we explored the question by manipulating a single contextual cue in a sparse environment by using odor as a singular cue.

Research Question:

Will context reinstatement effects be obtained when a single contextual cue of odor is reinstated (or not) in an otherwise sparse environment?

EXPERIMENT 1

Design and Participants:

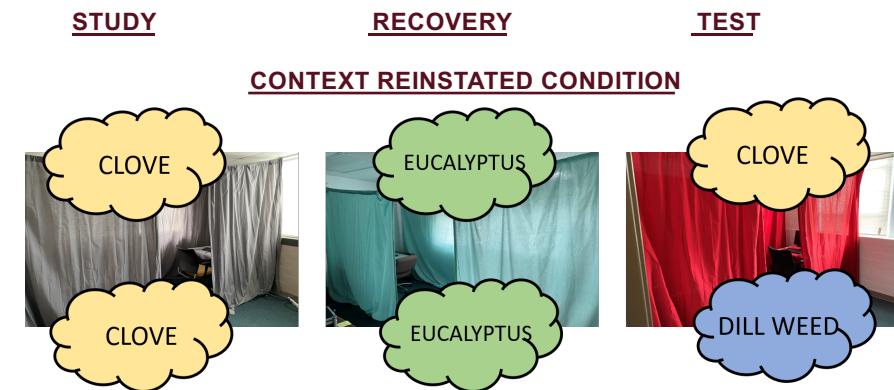
- Two-group design (Odor Context Reinstated, Odor Context Changed)
- 53 Mississippi State University students participated for research credit

Materials:

- 2 lists of 24 unrelated words (collapsed in analysis)
- Essential oils: Clove Bud, Eucalyptus, and Dill Weed (counterbalanced)

Procedure:

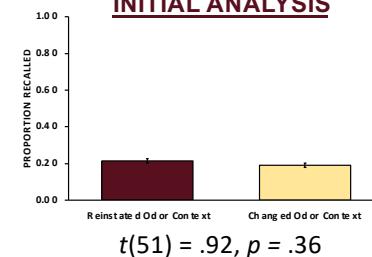
STUDY



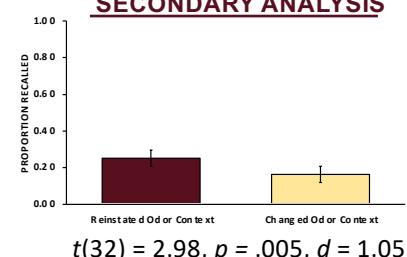
CONTEXT CHANGED CONDITION

Results:

INITIAL ANALYSIS



SECONDARY ANALYSIS



DISCUSSION

INITIAL ANALYSIS

- Dill Weed obscured context reinstatement effect
- Actually reversed effect
- Due to noxious odor?

SECONDARY ANALYSIS

- Removed Dill Weed
- Significant context reinstatement effects obtained

CONCLUSION

- Single cue of odor, reinstated, produced context reinstatement effects
- Provides evidence that even for a complex context, the entire context serves as the single context cue for all studied targets

EXPERIMENT 2: Tested the effect of reinstating just the sheet context and found no significant context reinstatement effects, $t(76) = .72, p = .48$

Context Reinstatement Effects



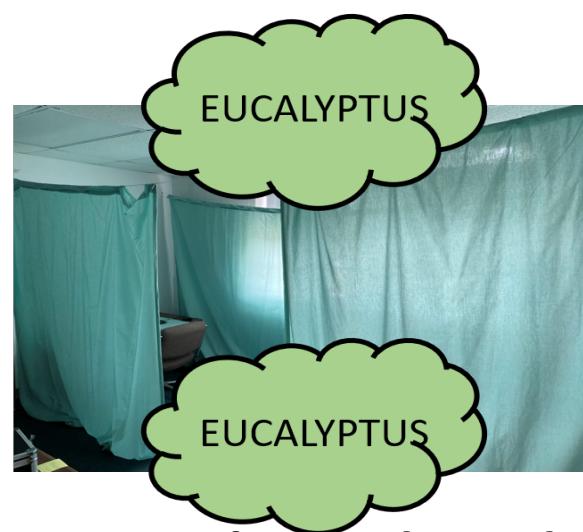
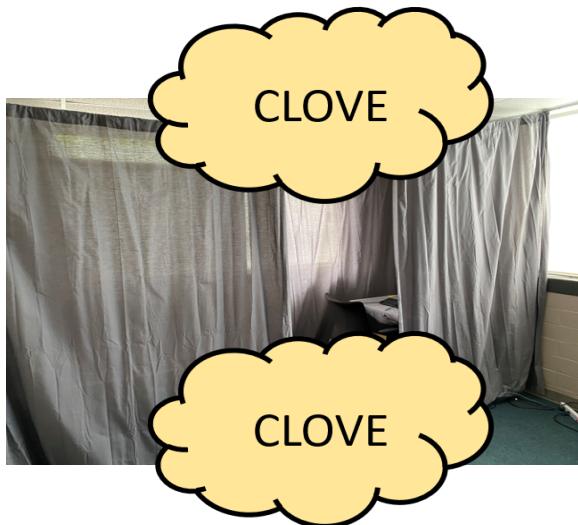
vs



- Associations with unique cues or entire context
- Not possible to determine using a complex context
- Will context reinstatement effects be obtained when a single contextual cue of odor is reinstated (or not) in an otherwise sparse environment

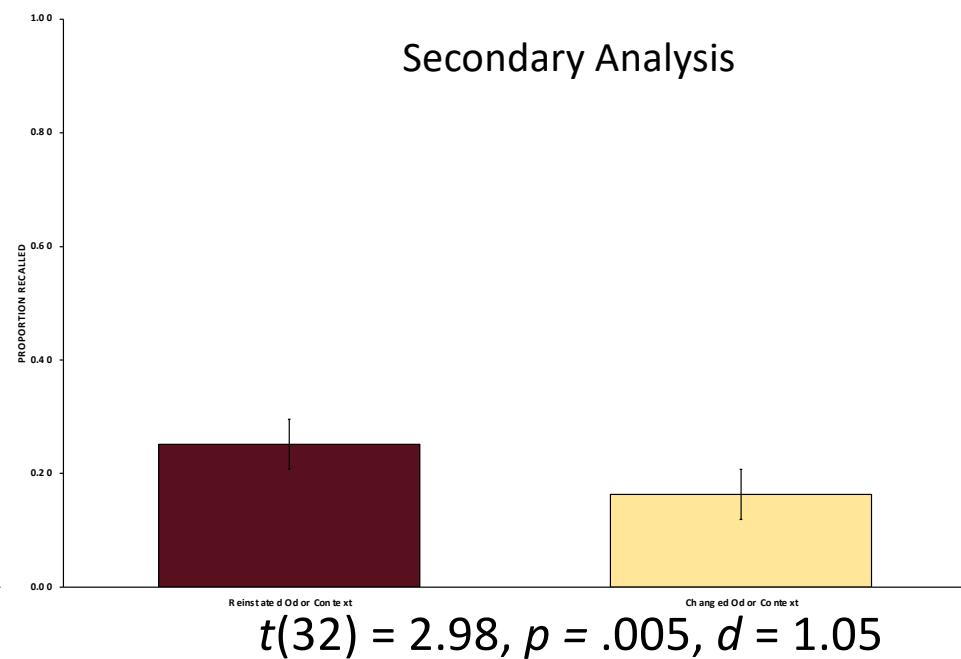
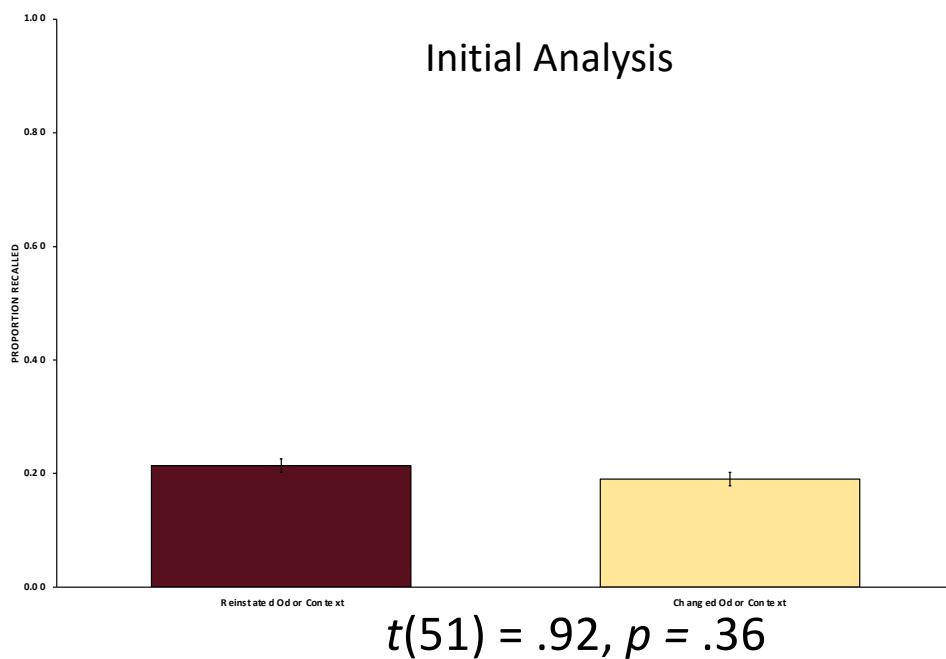
Exp 1: Odor in a sparse environment

Context Reinstated Condition

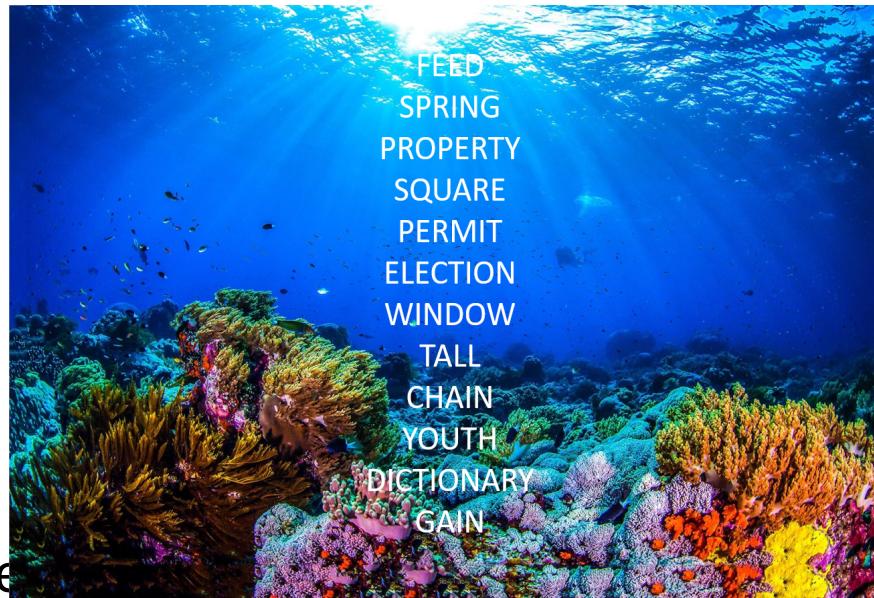


Context Changed Condition

Exp 1: Significant context reinstatement effects obtained



Entire context serves as the single context cue



Experiment 2 tested whether the entire context cue reinstated the meet context and found no significant context reinstatement effects, $t(76) = .72, p = .48$