4-12-2024

The Effect of Different Timing Schedules on Learning in Individuals With and Without ADHD

Carmen Casper
Hope College

Chloe Swanson
Hope College

Ethan De Koker
Hope College

Lauren Tocco
Hope College

Emily McCloskey
Hope College

Student Author(s)
Carmen Casper, Chloe Swanson, Ethan De Koker, Lauren Tocco, Emily McCloskey, and Isabelle VanAntwerpen

The Effects of Different Learning Schedules

Carmen Casper, Chloe Swanson, Ethan De Koker, Lauren Tocco, Emily McCloskey, Isabelle VanAntwerpen

Faculty Mentor: Dr. Lauren Slone

Hope COLLEGE

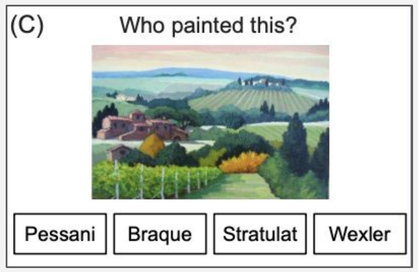
Introduction

- Encoding and retrieval are two key parts of learning, typically accomplished with massing or spacing.
- Massing and spacing can both benefit learning in the short/long-term.[1]
  - These benefits have not been widely researched in individuals with ADHD
- Important to understand because individuals with ADHD can have difficulties with encoding/retrieval.[2]

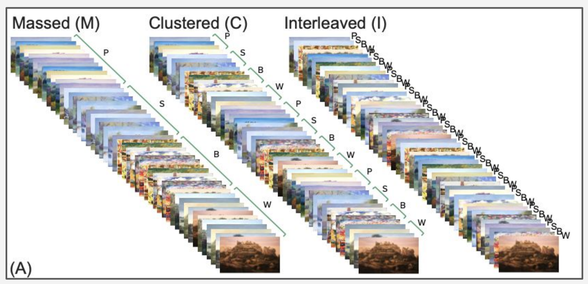
Research Question:
How do people with symptoms of ADHD learn best?

Methods

- 84 participants with 2 sessions
- 4 different artists and 12 paintings from each artist
- Eye-tracking software



Three Conditions:
Massed, Clustered, Interleaved



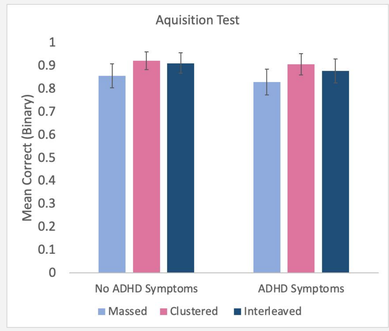


Figure 1. Performance immediately after the viewed condition; C = I > M

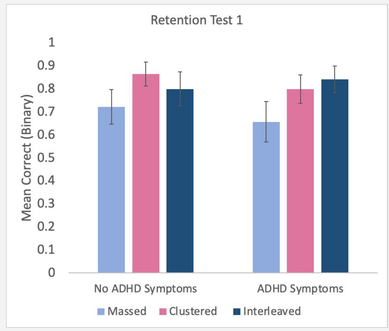


Figure 2. Performance immediately after all three conditions; C = I > M

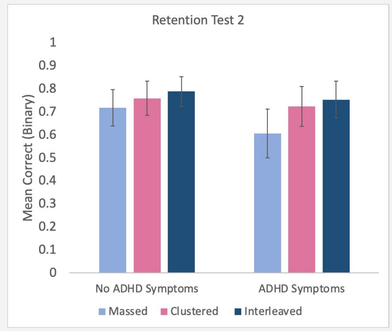
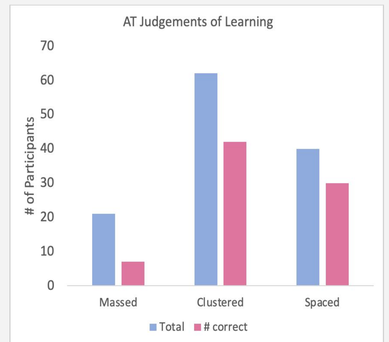
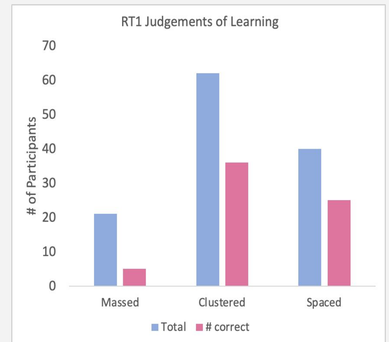


Figure 3. Performance immediately after all three conditions; C = I > M





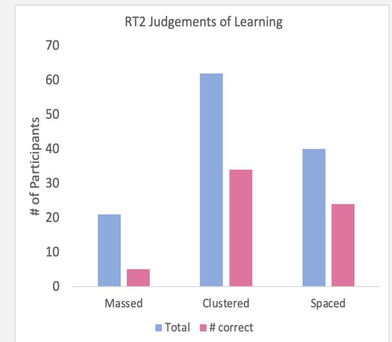


Figure 4. Percent difference of looking time between conditions. Error bars represent the 95% CIs.

Figure 3. Percent looking time to targets vs. to distractors in both conditions. Error bars represent the 95% CIs.

Hypothesis #1:
Clustering will be more beneficial with learning than spaced/massing

1a) Performance of participants without ADHD may be better than those with ADHD

1b) Timing Condition * ADHD-symptom group

Hypothesis #2:
Participants will judge clustering to be the most effective method of learning compared to spaced and massing.

Discussion

- Clustered and Spaced performed equally well, both better than Massed learning.
- Participants who thought that their performance in the clustered condition would be better overall, performed the best in clustered.
- **Limitations:** no official diagnosis in the ADHD-symptom group
- **Future research:** Utilizing more complex stimuli (high vs. low similarity) to avoid ceiling effect → more conclusively determine if one condition supports more effective learning.

Scan here to learn more!

References: 1. Carvalho & Goldstone 2013 2. Skodzik et al. 2017