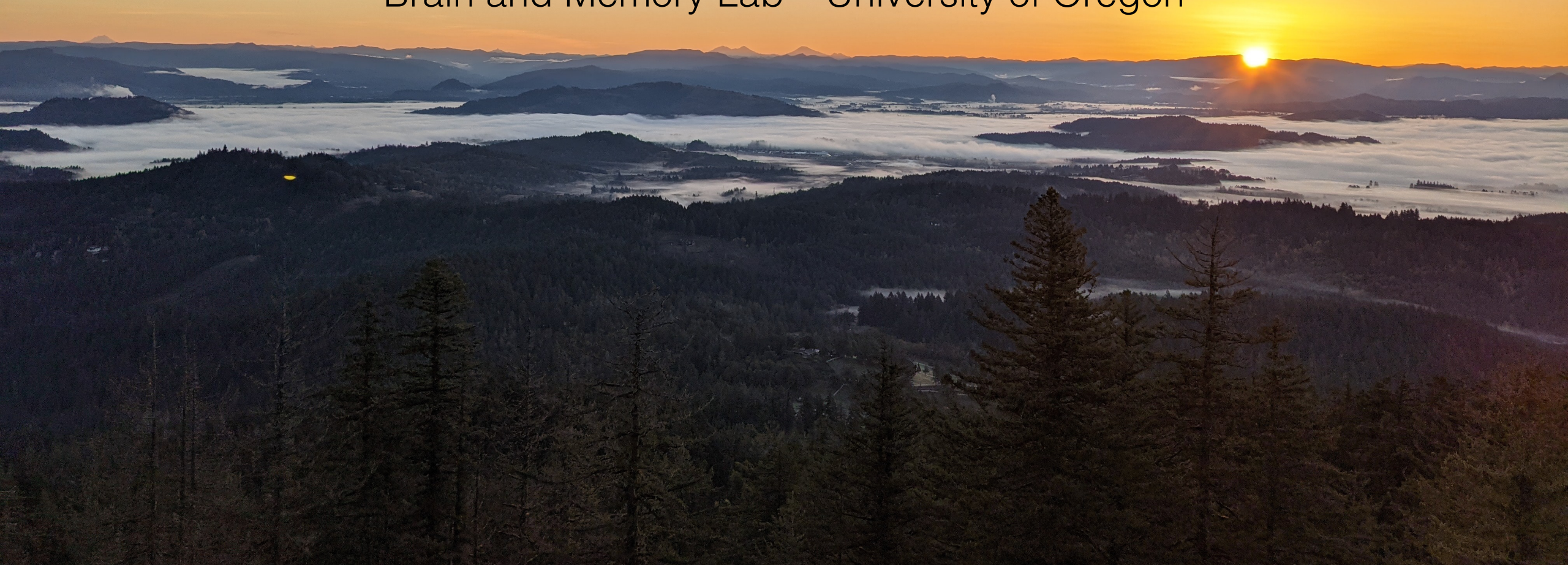


Differential effects of content and location overlap on learning and memory

Benjamin Chaloupka & Dasa Zeithamova
Brain and Memory Lab – University of Oregon



Information overlap: Hurtful or helpful?

Hurtful:
Interference

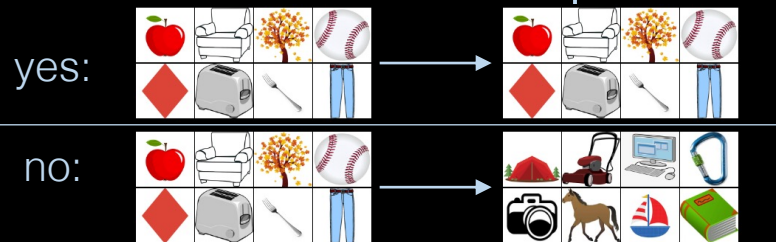
overlap with prior
knowledge can
be detrimental to
new learning

Helpful:
Schemas

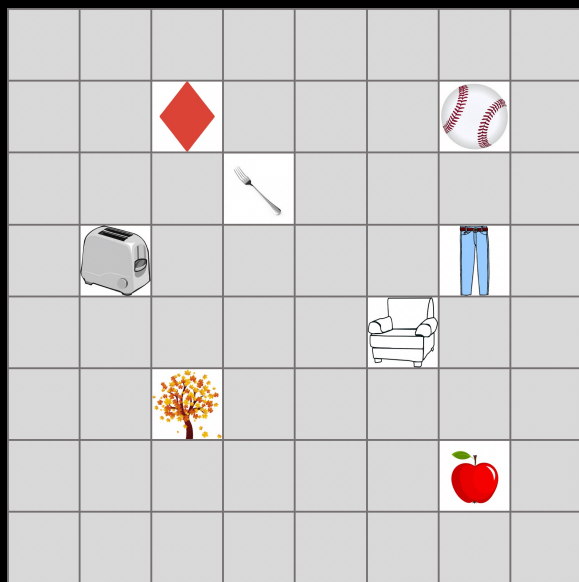
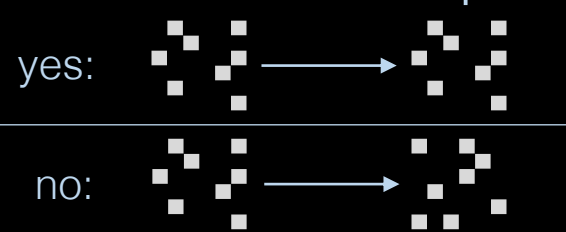
overlap with prior
knowledge can
facilitate new
learning

Do different dimensions of information overlap have different effects?

content overlap



location overlap



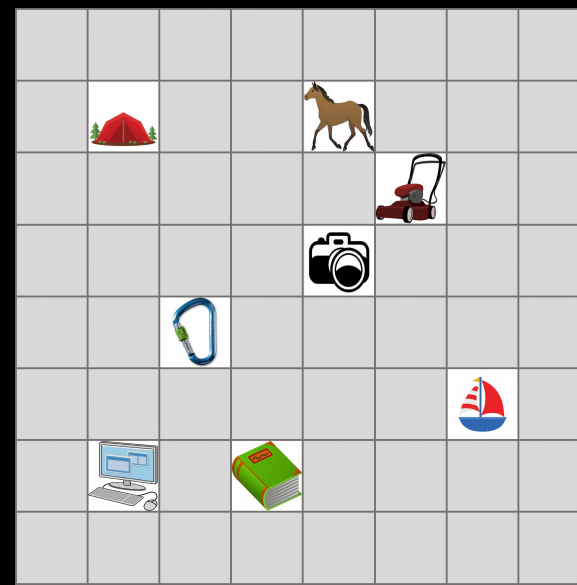
grid 1
until perfect

True or False:

$$8 - 1 = 3$$

Press 'T' for True. Press 'F' for False.

distractor task
2 min

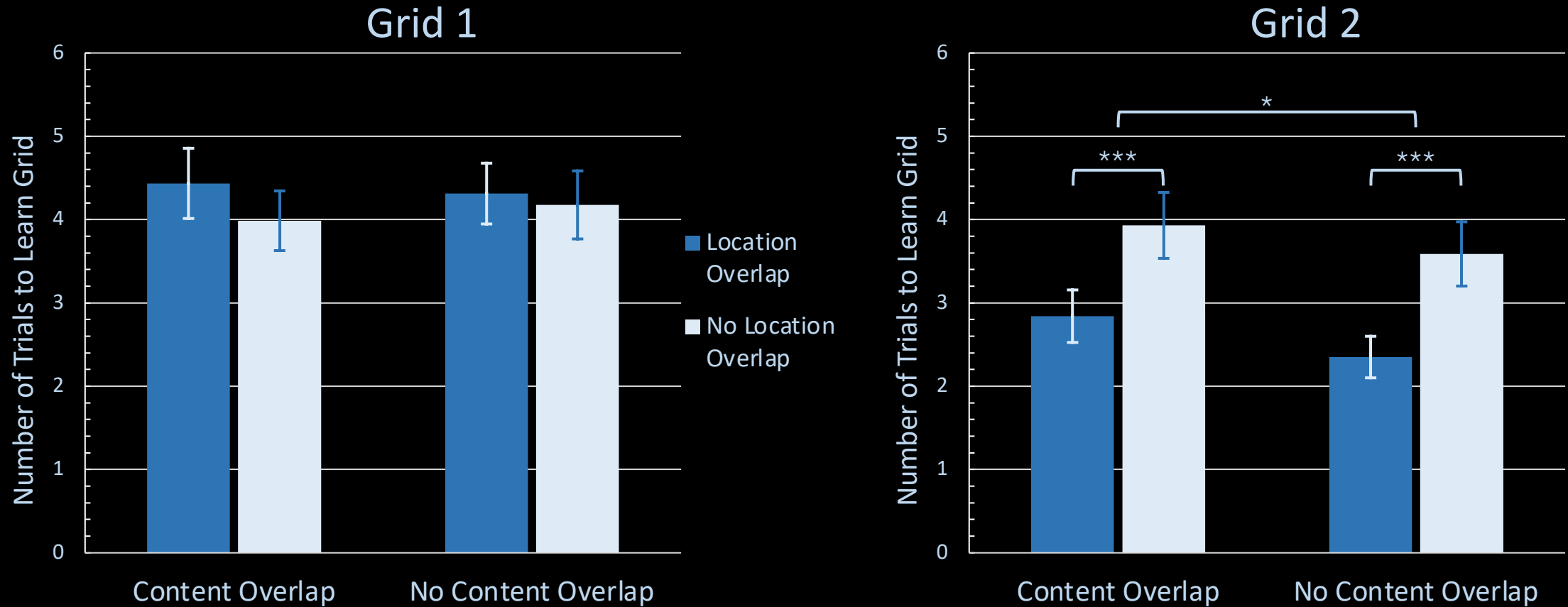


grid 2
until perfect

task design

Location overlap facilitates new learning while content overlap is detrimental to new learning

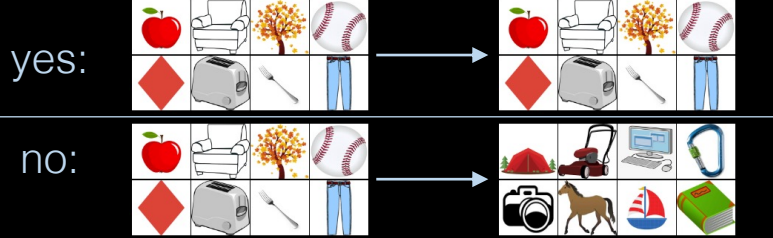
There is no interaction, so these effects are independent and additive



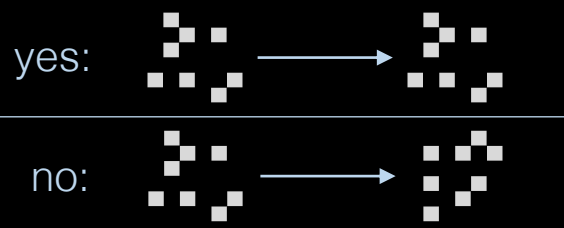
error bars represent 95% confidence intervals

Do these effects generalize across contexts?

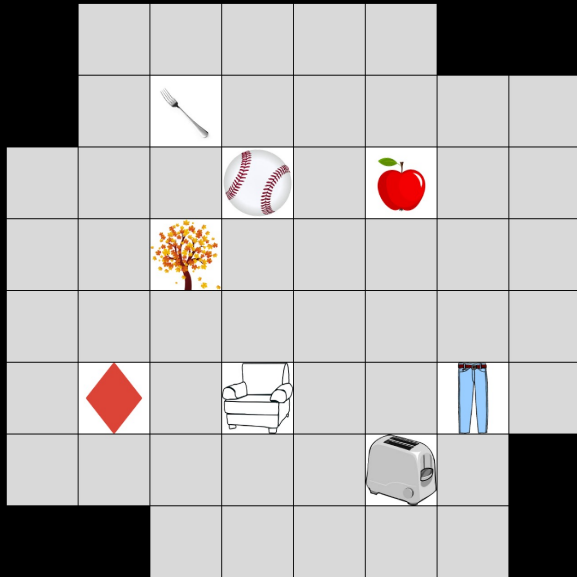
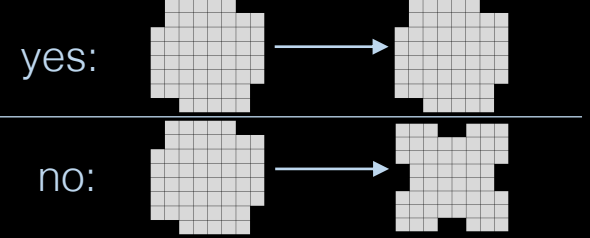
Content Overlap



Location Overlap



Context Overlap



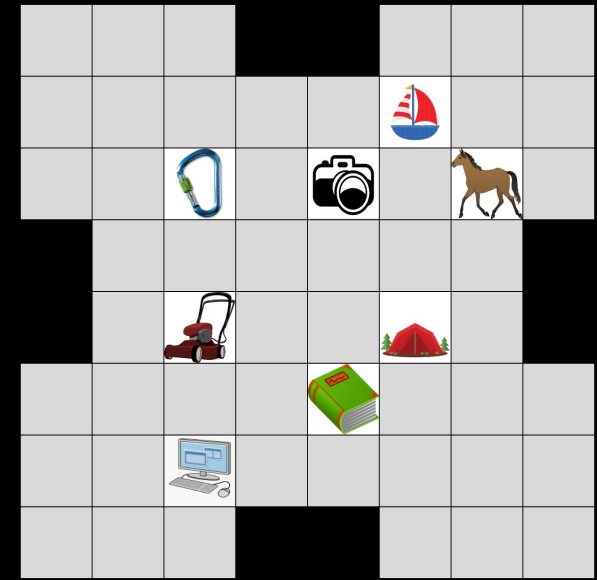
grid 1
until perfect

True or False:

$$8 - 1 = 3$$

Press 'T' for True. Press 'F' for False.

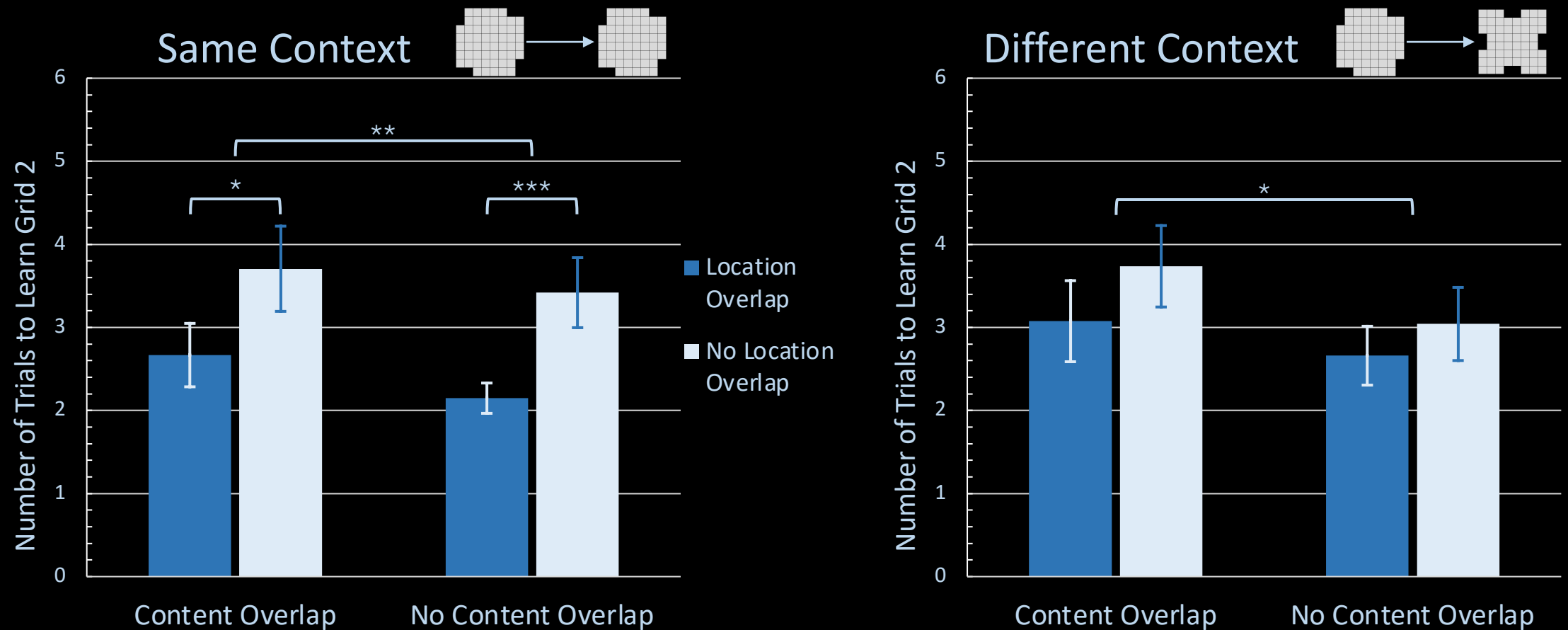
distractor task
2 min



grid 2
until perfect

task design

The detrimental effect of content overlap generalizes, while the generalization of the facilitatory effect of location overlap is inconclusive



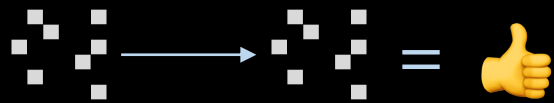
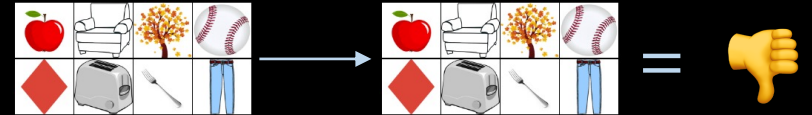
error bars represent 95% confidence intervals

N = 390

What does this tell us?

Different dimensions of information overlap have different effects on new learning

Content overlap is detrimental to new learning
This effect generalizes across contexts



Location overlap facilitates new learning
Whether this effect generalizes across contexts is inconclusive

Brain and Memory Lab University of Oregon



Benjamin Chaloupka
graduate student



Dasa Zeithamova
principal investigator



Lea Frank
graduate student



Min Zhang
lab manager

