



# I Forget My Diet When I See Cake: Working Memory, Self-Control, & Goal Activation



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## Introduction

### TEMPTATIONS

- People are regularly exposed to temptations (such as a delicious slice of chocolate cake) that conflict with their goals (a new diet)

### GOAL ACTIVATION

- Some people are faster to recognize a goal after seeing temptation than others
- Temptations activate competing long-term goals, and goals inhibit thoughts about related temptations

### WORKING MEMORY

- Working memory capacity (WMC): ability to manage, manipulate, and maintain information in an active state
- Individual differences in working memory predict individuals' ability to override automatic responses and exercise self-control
- One way high working memory capacity may contribute to high self-control is by facilitating goal activation in response to temptations

### HYPOTHESES

- WMC will be associated with successful goal activation, which comprises both faster activation of related goals and inhibition of conflicting "goals" (temptations)
- Individuals with a high WMC will be faster to identify goals after being exposed to temptation than those with low WMC

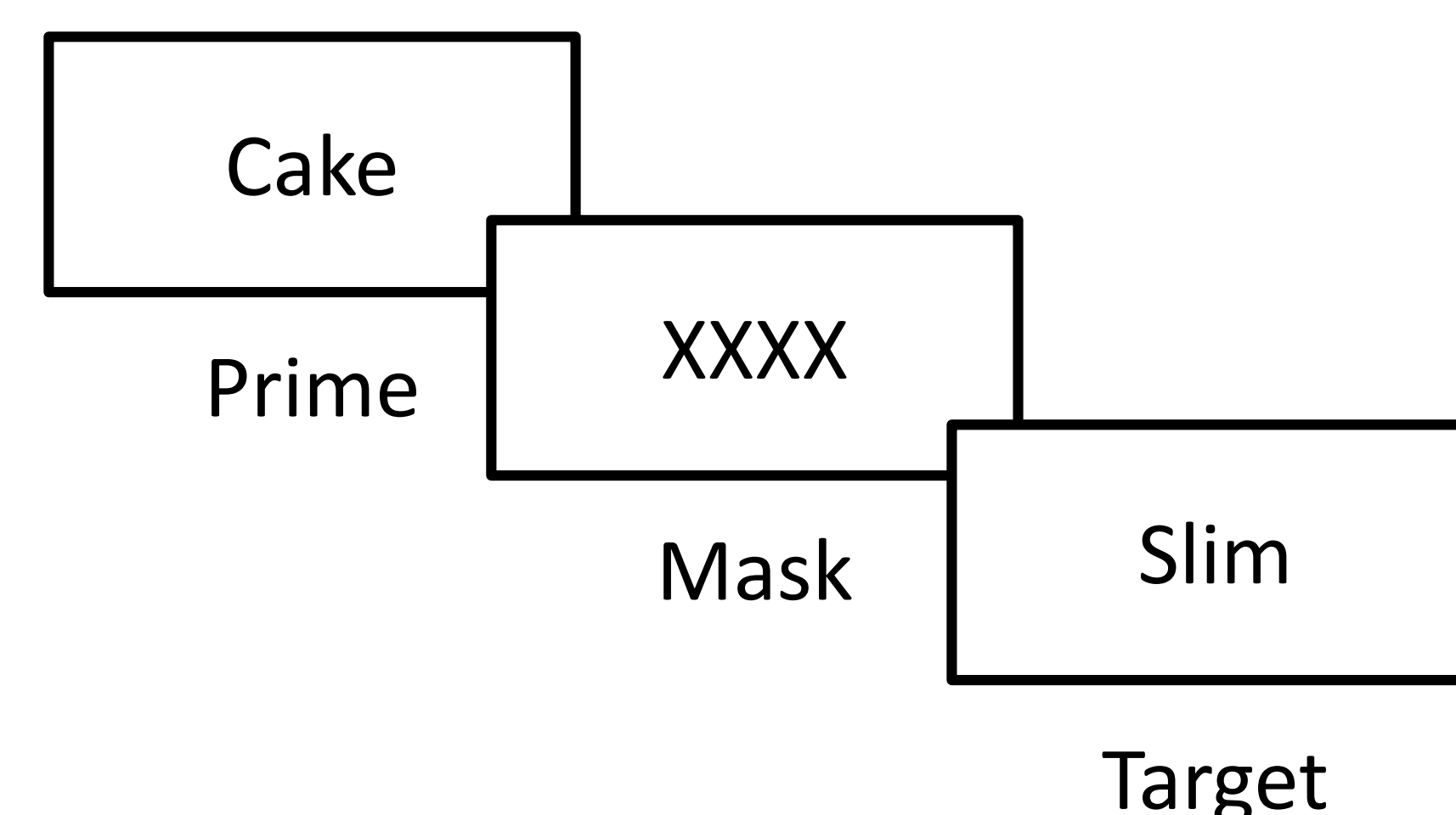
## Method

### PARTICIPANTS

- Predetermined sample size of 107 (6 excluded due to software problems)
- 101 students (26 males, 75 females;  $M_{age} = 18.7$ ) recruited from university participant pool

### MATERIALS

- Working Memory Assessment:** three computerized complex span tasks including reading span, operation span, and symmetry span
- Intelligence:** Raven's Advanced Progressive Matrices- given a 3x3 matrix of shapes, participants selected the figure that completes the overall pattern of the matrix
- Goal Activation:**
  - lexical decision task that measures how quickly participants recognize goal words after being primed with a temptation word relevant to the goal
  - calculated by subtracting how quickly participants recognize a goal after a temptation from how quickly participants recognize a temptation after a goal

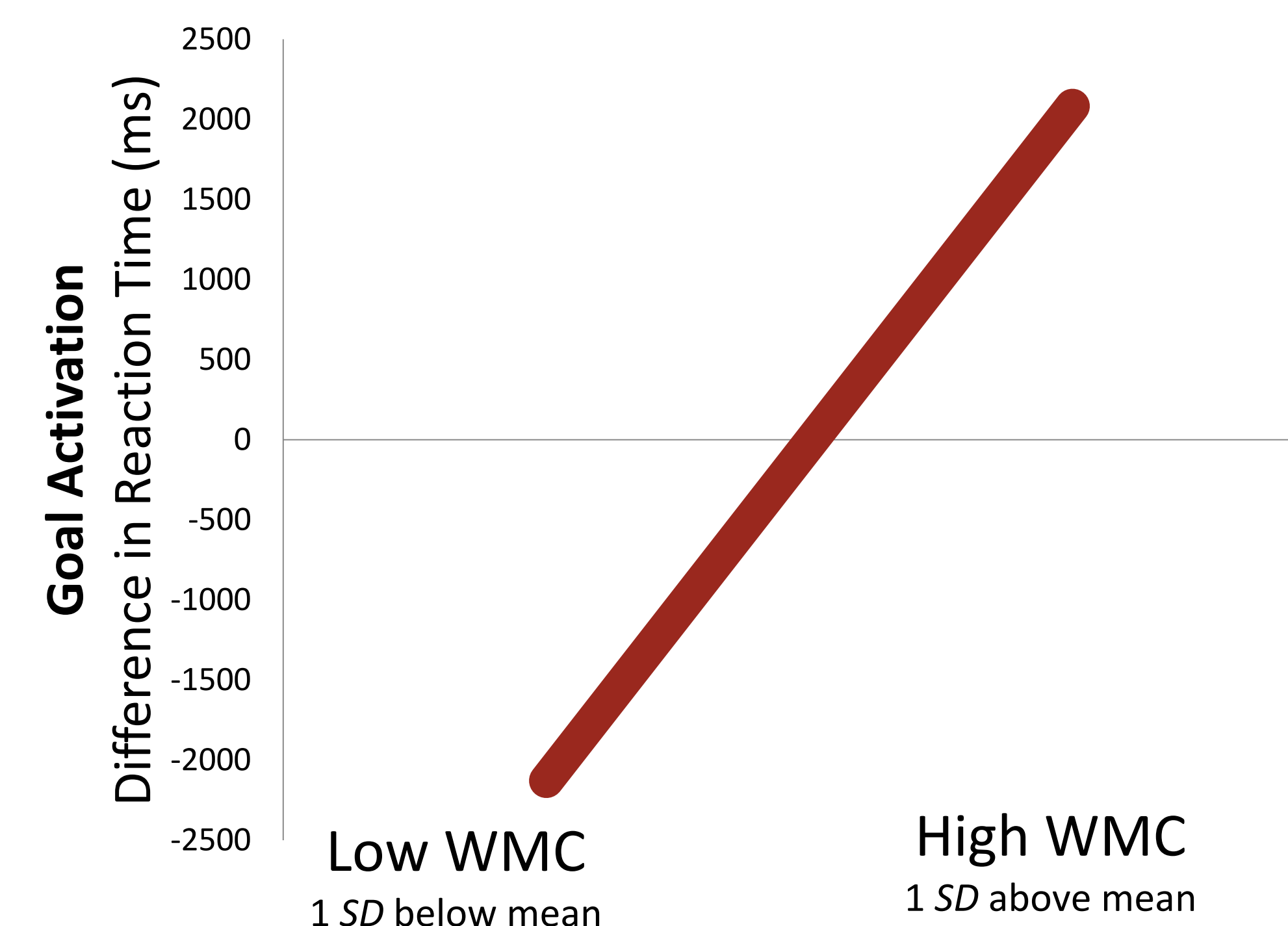


Goal Activation Task: prime displayed for 250ms

## Procedure & Results

### PROCEDURE

- Participants completed measures of working memory, intelligence, and goal activation
- Order of each of the working memory tasks and the goal activation task was counterbalanced. All participants completed Raven's Progressive Matrices after the counterbalanced tasks



### GOAL ACTIVATION

- Goal activation was significantly correlated with working memory capacity  $\beta = -.11$ ,  $t(98) = 2.09$ ,  $p = .04$ , 95% CI [.001, .02]  $r_{partial} = .20$
- Relationship was present when controlling for individual differences in fluid intelligence  $\beta = -.13$ ,  $t(94) = -2.21$ ,  $p = .03$ , 95% CI [-.005, -.001]  $r_{partial} = -.23$

## Conclusions

### WORKING MEMORY & GOAL ACTIVATION

- Goal activation supports people's efforts at self-regulation, and WMC may support people's efforts at self-regulation by facilitating the activation of goals in response to temptations
- We are planning to test if WMC supports behavioral self-control, such as dieters resisting a tempting high calorie sweet, by facilitating the activation of goals in response to temptations
- Understanding the relationship between working memory and goal activation may inform the use of goal activation training to improve people's performance toward successfully attaining their goals

## Select References

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\*complete list of references available upon request



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