

Working Memory and Reward: A Time-Based Model

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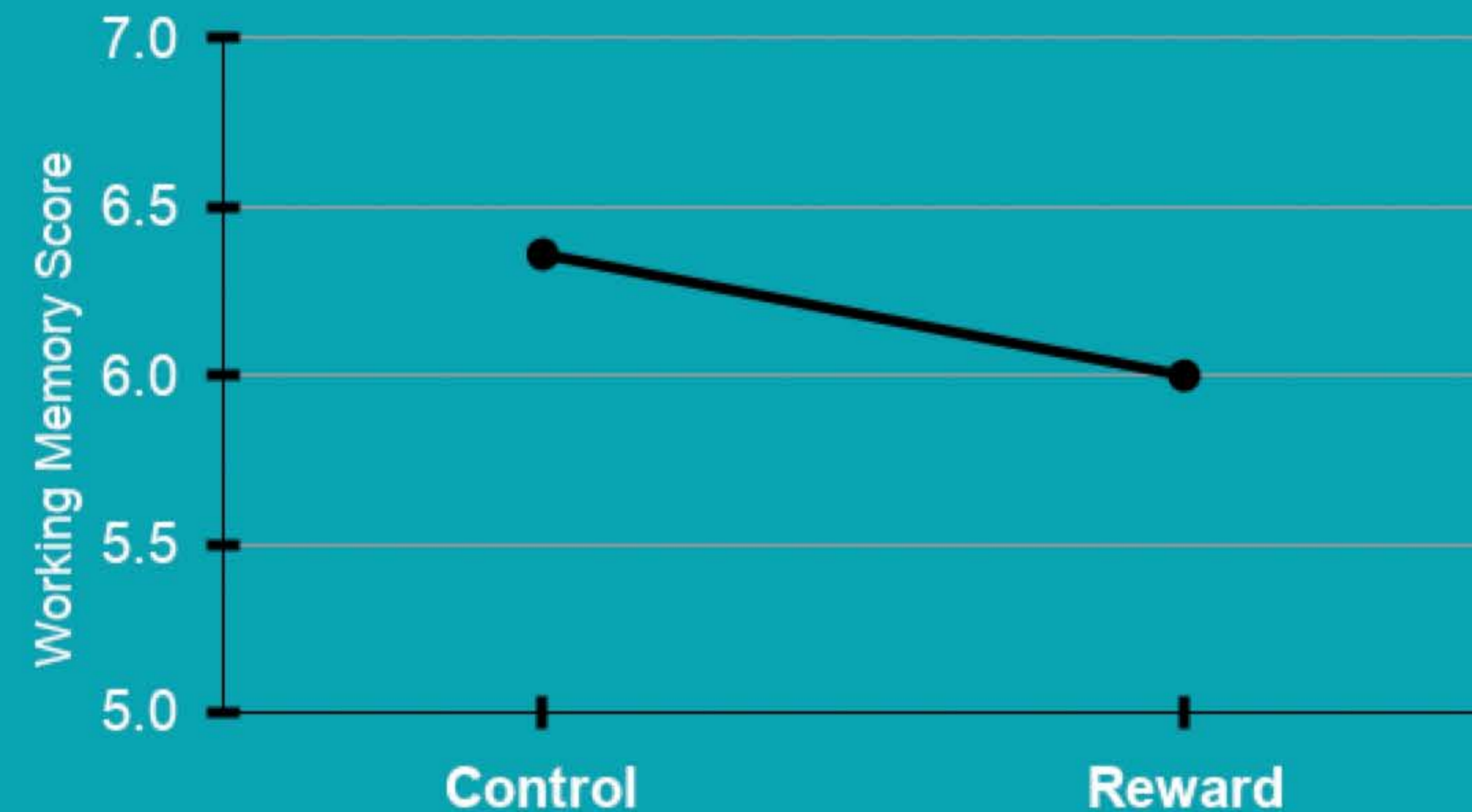
BACKGROUND

- Extrinsic motivation (i.e. reward) is shown to have an effect on memory performance^{1, 2, 3, 4, 5, 6, 7, 8}
- Dopamine is implicated in reward-based improvement for longer-term (one week) memory⁶
- The mechanism for memory improvement when tested the same day is unclear
- We tested 38 participants (27 female, 11 male) with an average age of 20.68



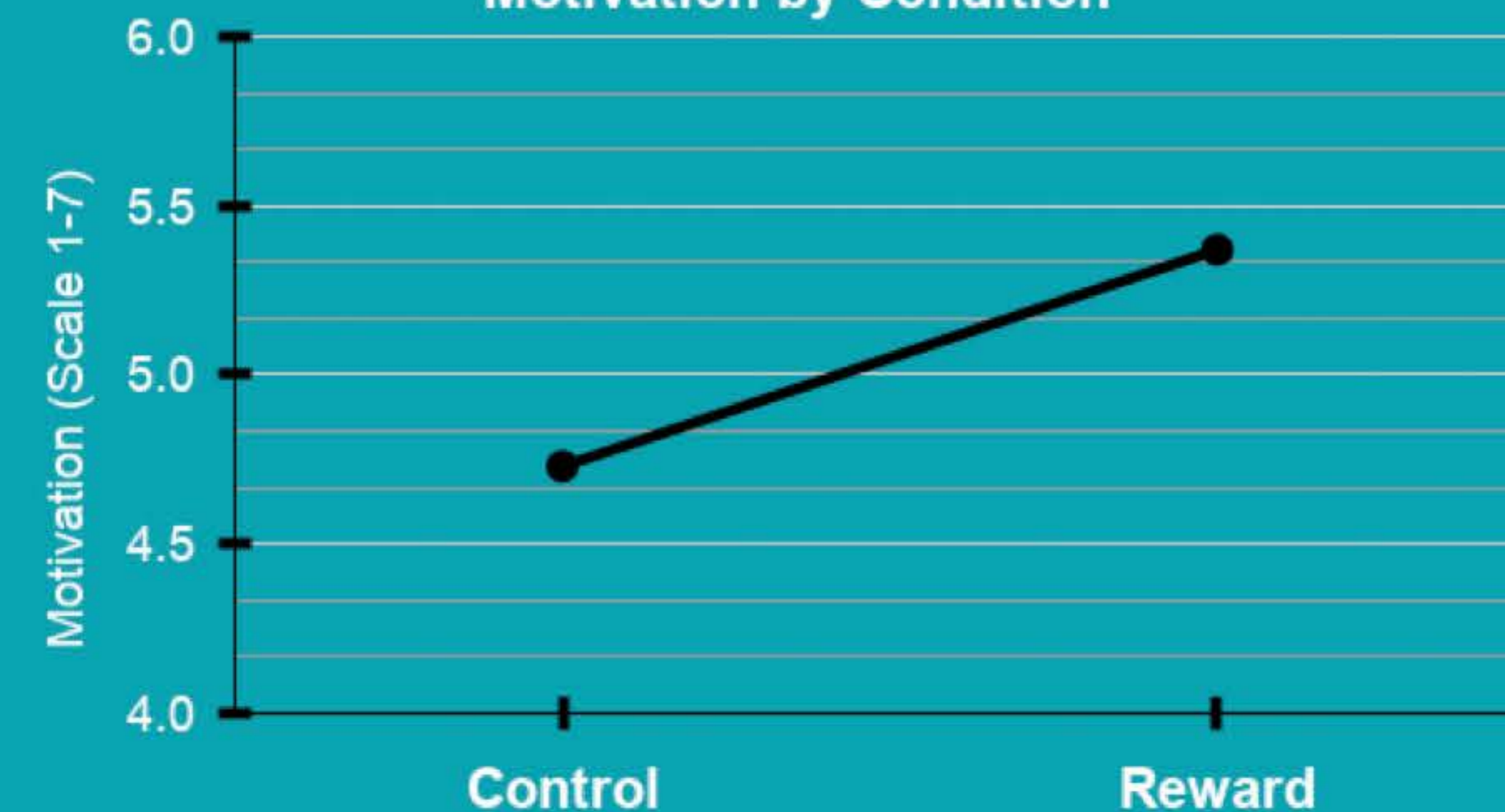
KEY FINDING

Working Memory Score by Condition



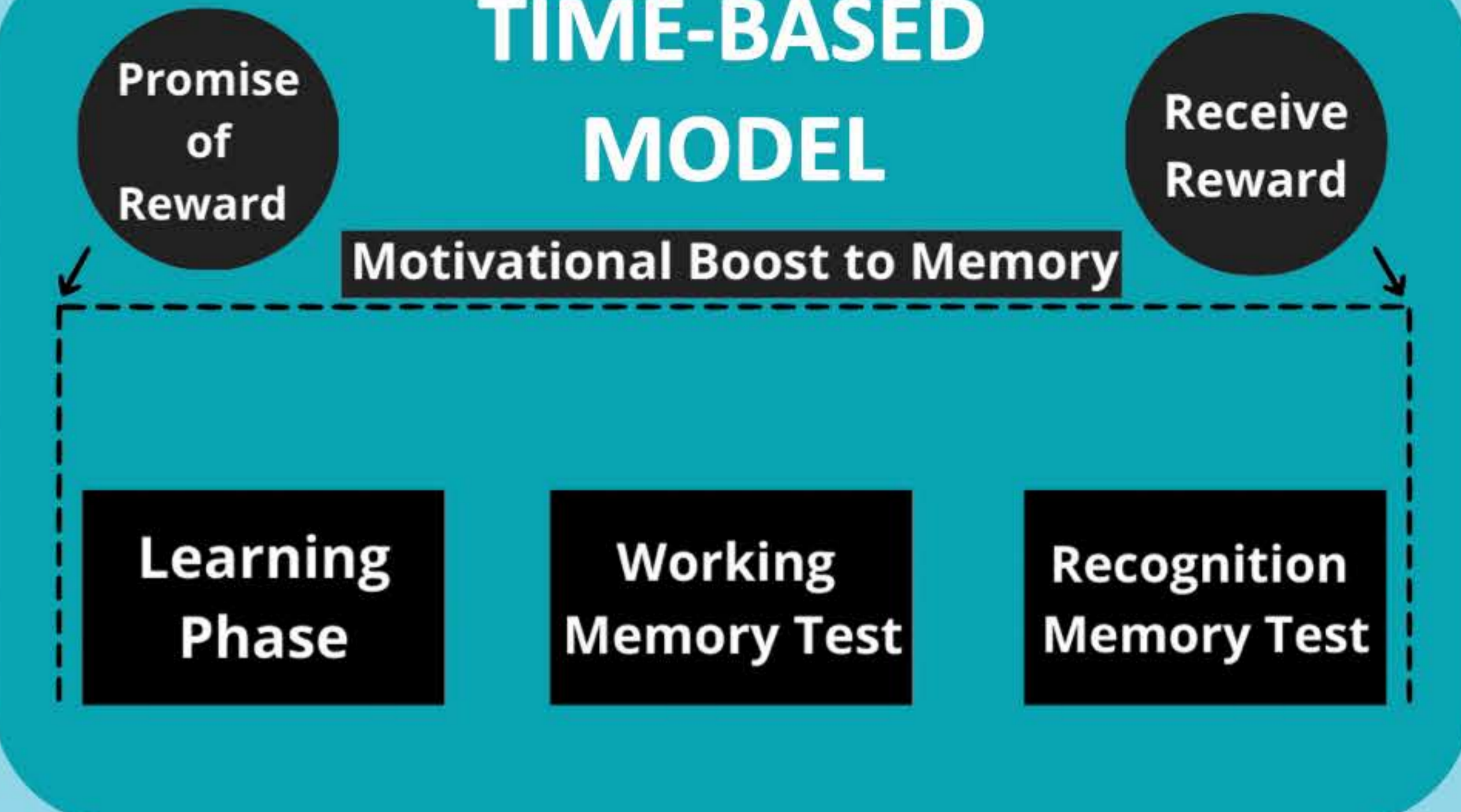
An independent samples t-test revealed no significant difference in working memory performance between the two groups, $t(36) = 0.51, p = 0.61$.

Motivation by Condition



- An independent samples t-test revealed no significant difference in motivation between groups ($M = 5, SD = 1.29, t(36) = 1.19, p = 0.24$).
- This is likely the reason for no difference in Working Memory
- The means were still consistent with our predication so the study was possibly underpowered

TIME-BASED MODEL



METHODS

- Control participants offered no reward
- Reward participants are told they can win a lottery ticket for strong performance on the later recognition memory test



TAKE-AWAY

- No support was generated for our time-based model of rewarded memory
- This experiment should be replicated with a stronger reward and a larger sample size

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References



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