

Adapted Cognitive Assessment Lab Assessing Working Memory in CP



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Working Memory (WM)



- ❧ Refers to retention of information in conscious awareness in the absence of the continued presence of the information.
- ❧ Multiple models of WM; we are exploring visual-spatial memory and phonological memory separately.
- ❧ Anatomically distributed widely and underlies many cognitive processes.
 - ❧ Language acquisition (related to phonological loop)
 - ❧ Predicts reading and math skill development
 - ❧ Developmental and academic risks associated with impaired WM (math, reading, writing, remembering and following complex multi-step directions).
- ❧ Given individuals with CP already at risk for these concerns, WM presents as an important target.

What we don't know



Need to explore

- ❧ Neuropsychological tests have not been characterized for their performance with this population.
- ❧ Existing studies of neuropsych findings in CP are in absence of understanding of basic WM processes in CP.

Why it's important

- ❧ Medical management of children with CP
- ❧ Cognitive interventions

Study Aims and Participants

Aim 1

- ❧ Develop accessible dichotomous choice measure of WM to use in place of traditional measures

Aim 2

- ❧ Examine visual-spatial and auditory WM accuracy in children w/CP and TD peers.

Aim 3

- ❧ Explore additional performance patterns for children with CP on WM tasks (load x delay interactions, visual vs. phonological performance)

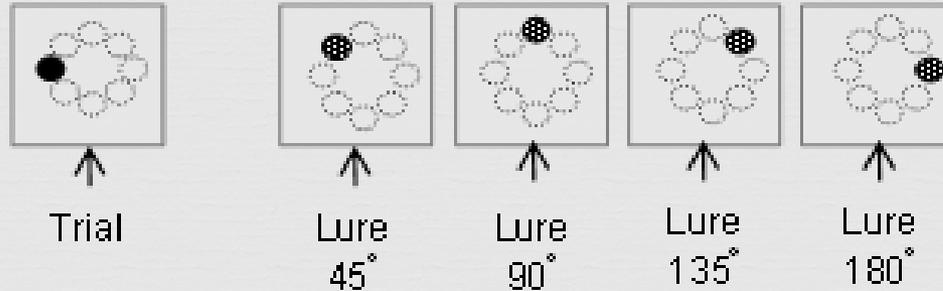
Exploratory Aim

- ❧ Level 2 modification (recognition recall strategy)

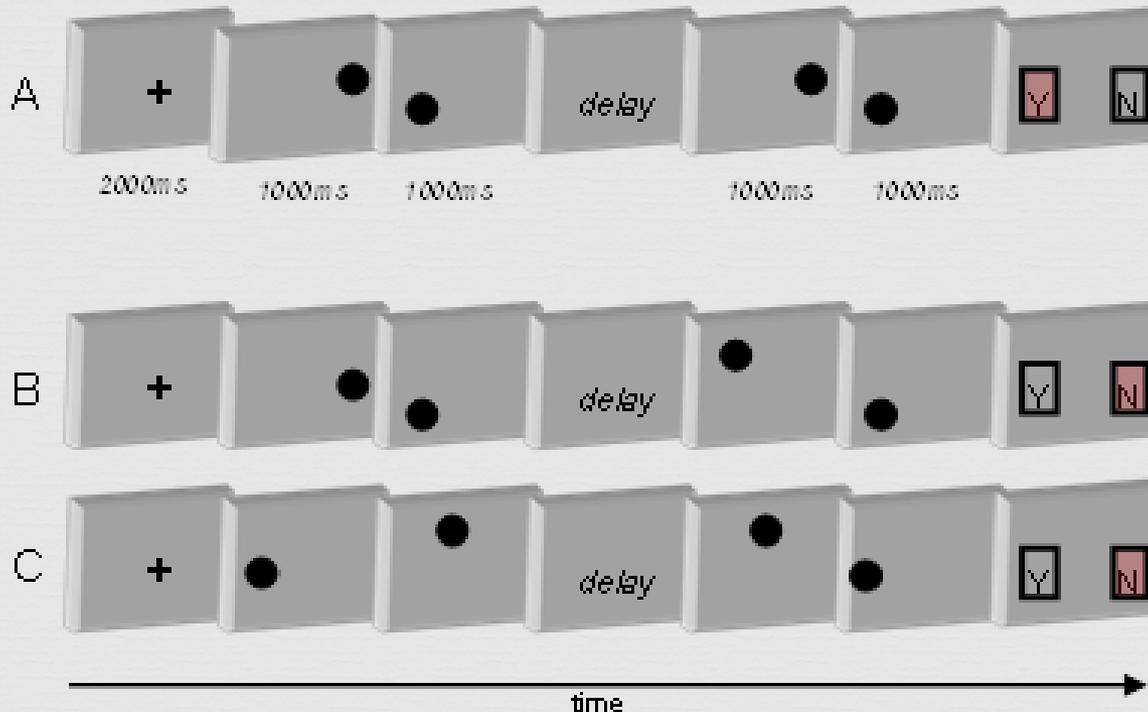
Participants (ages 6-16:11)

- ❧ 85 children with diagnoses of CP (60 CP group & 25 CPLC group)
- ❧ 60 TD children

Visual Spatial WM Task (level 1)

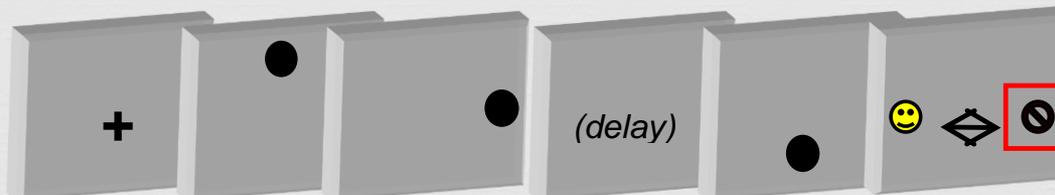
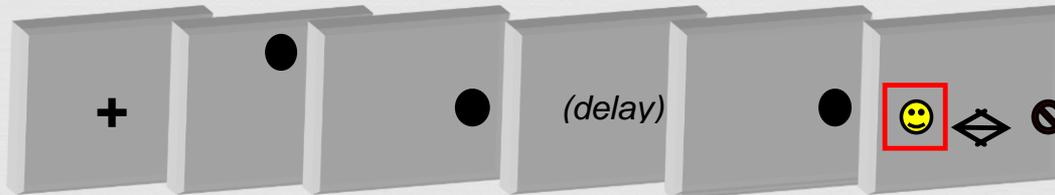
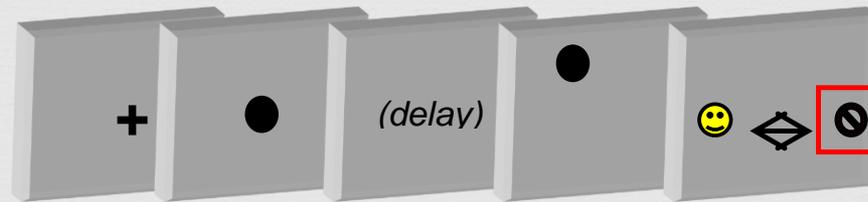
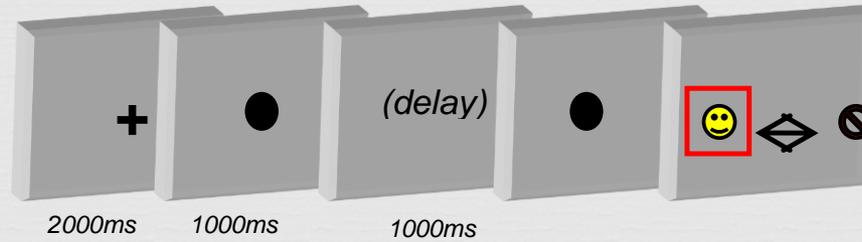


Load totals range from 1-7 dot locations and delays vary between 1000, and 5000ms.

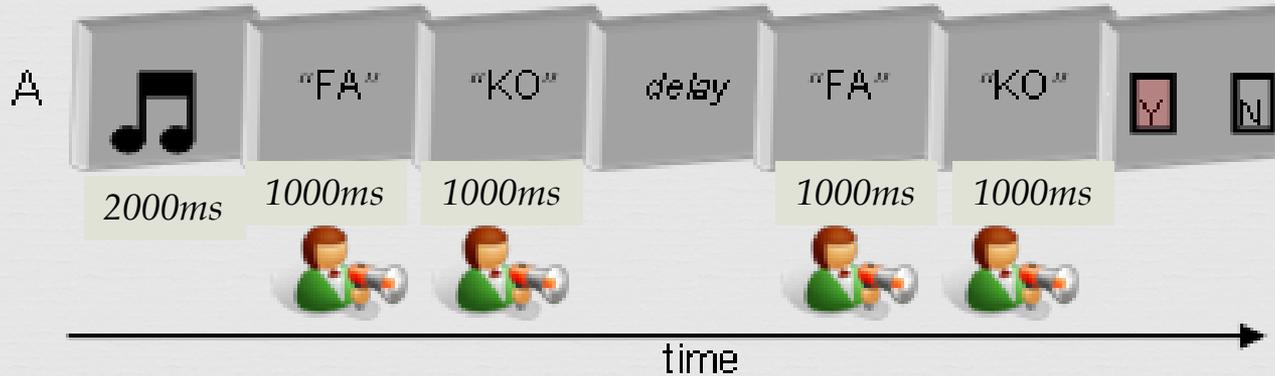


6 memory load x
2 delay x
10 iterations
Total of 120 trials
est. 25-30 min

Visual Spatial WM Task (level 2)



Phonological WM Task (level 1)



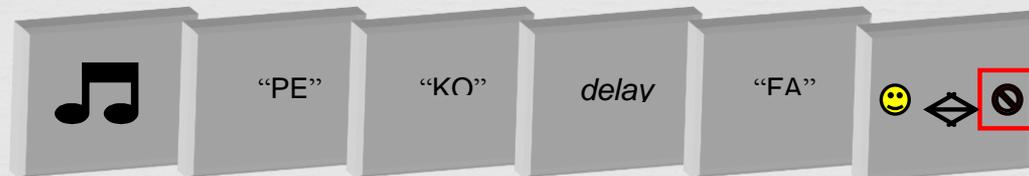
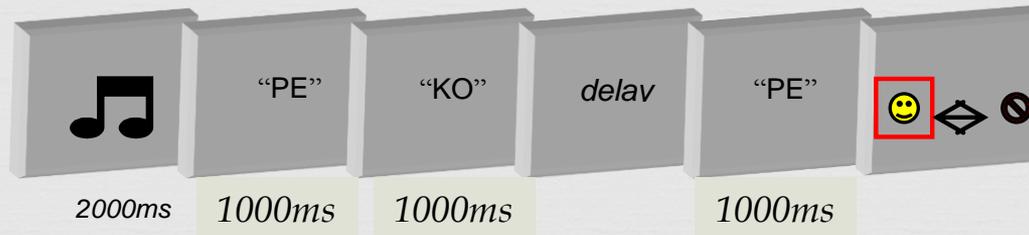
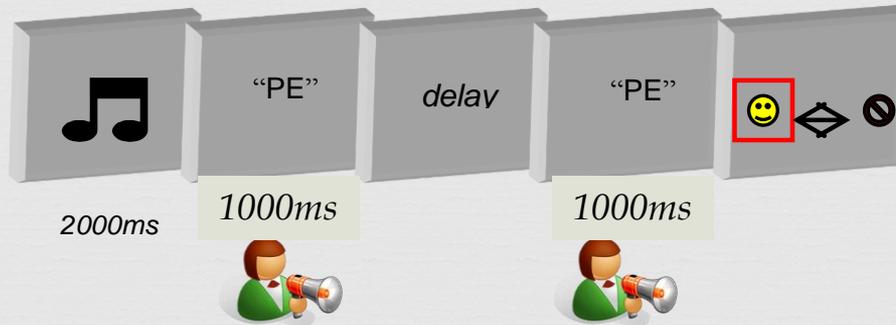
Load totals range from 1-7 CV combos and delays vary between 1000 and 5000ms.



6 memory load
2 delay
10 iterations
Total of 120 trials
est. 25-30 min

NOTE: letters will not be shown on the screen – for illustrative purposes only

Phonological WM Task (level 2)



So Far / Next Steps / Additional Directions



- ❧ In early stages of data collection for CP and TD groups.
- ❧ Full scaffold training not required for most participants.
- ❧ Youngest participants struggling to complete testing (cognitive fatigue/boredom).
- ❧ Working with engineering/computer science group to develop more 'engaging' game-based strategies to assess cognition including WM.
- ❧ Challenge - develop accessible tool to assess impulse control