

An Openly Available Narrative Recall Task For MCI Detection: Validation Of The Puppy Escape Story Against The Craft Story 21

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Main findings: A freely available narrative for recall assessment (the Puppy Escape) detected MCI as well as the Craft Story 21, plus an 18-item short form preserved accuracy. **Free** for clinical fee-for-service and noncommercial research

Background

- Story-recall tests are among the most sensitive tools for detecting early memory decline in aging [1] and prodromal dementia [2]
- The most-validated instruments (Logical Memory, ADAS-Cog) carry per-subject licensing fees and distribution restrictions that exclude community clinics, low-resource settings, and international sites
- The Craft Story 21 (CS) became the non-proprietary standard in the NACC dataset but still needs developer permission, lacks automated scoring, and stays tied to the Alzheimer's research-center network [3]
- No existing free task combined open licensing, both manual and automated scoring, and validation across the normal-to-MCI range

Objective

- Test whether the Puppy Escape (PE), a freely available story-recall task, matches CS for detecting mild cognitive impairment (MCI)
- Derive and validate an 18-item, pen-and-paper short form (PE-18)

Methods

Participants: 388 adults from a community brain-health cohort:
153 cognitively normal (CN), 106 subjective cognitive impairment, 87 MCI

Procedure: Each participant completed both PE and CS on separate visits. PE scored automatically (transcription plus AI rubric scoring, 57 items); CS scored by trained examiners per the standard protocol

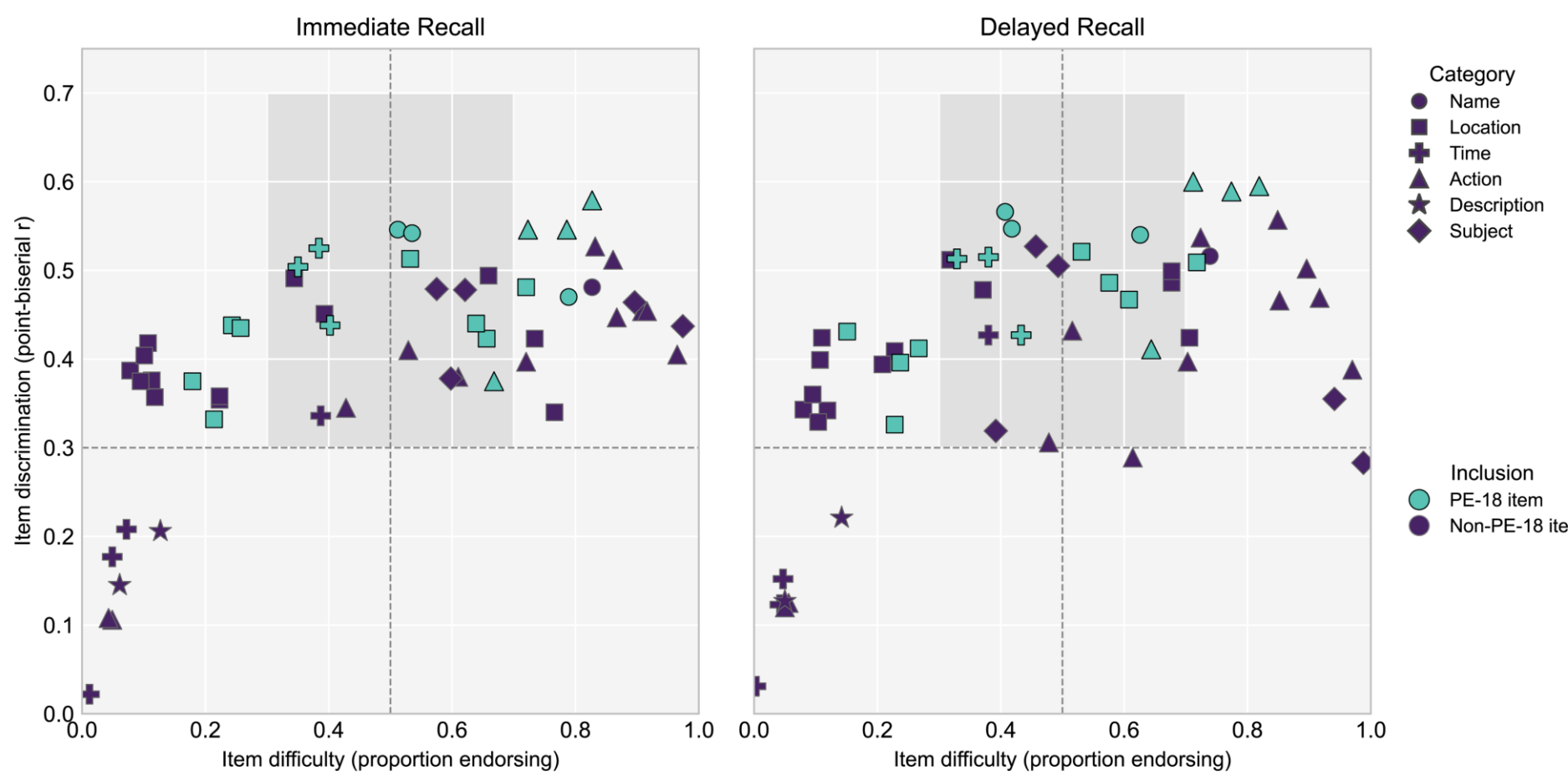
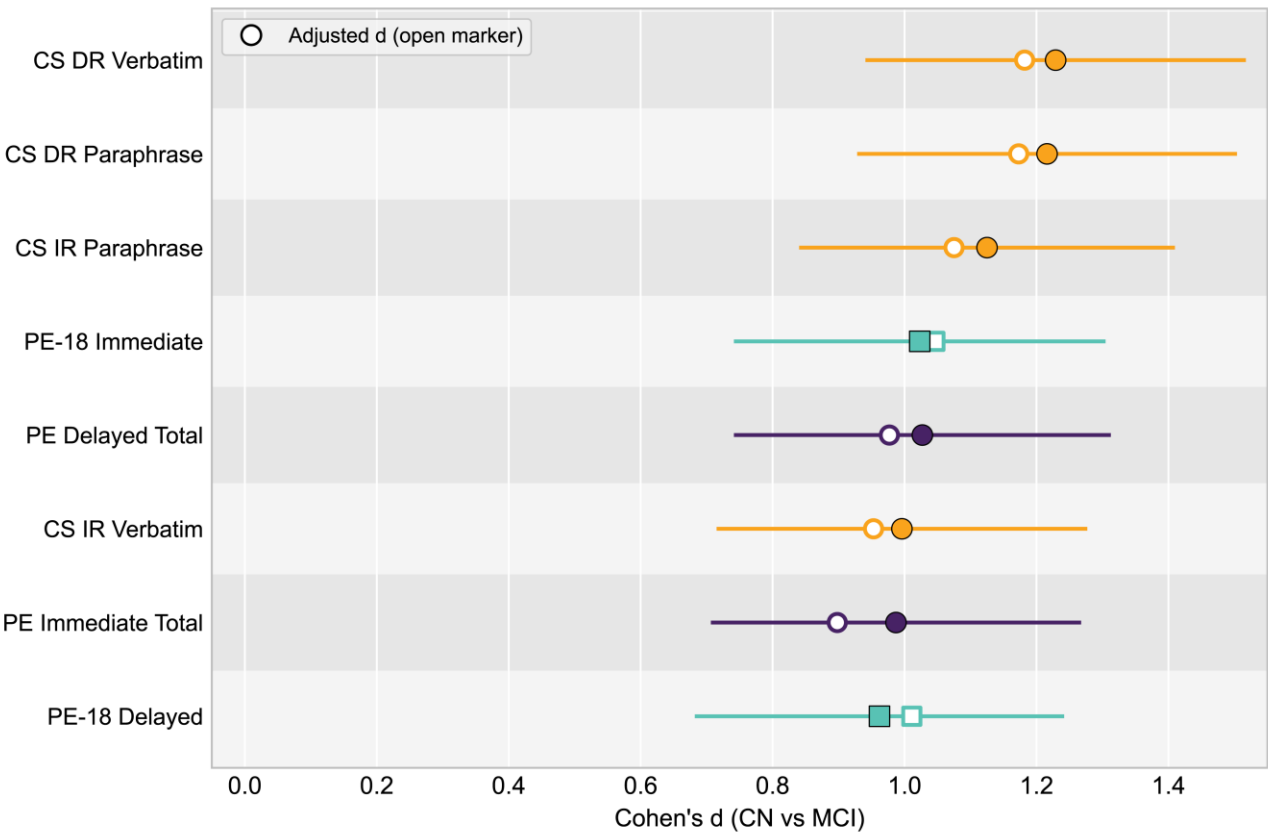
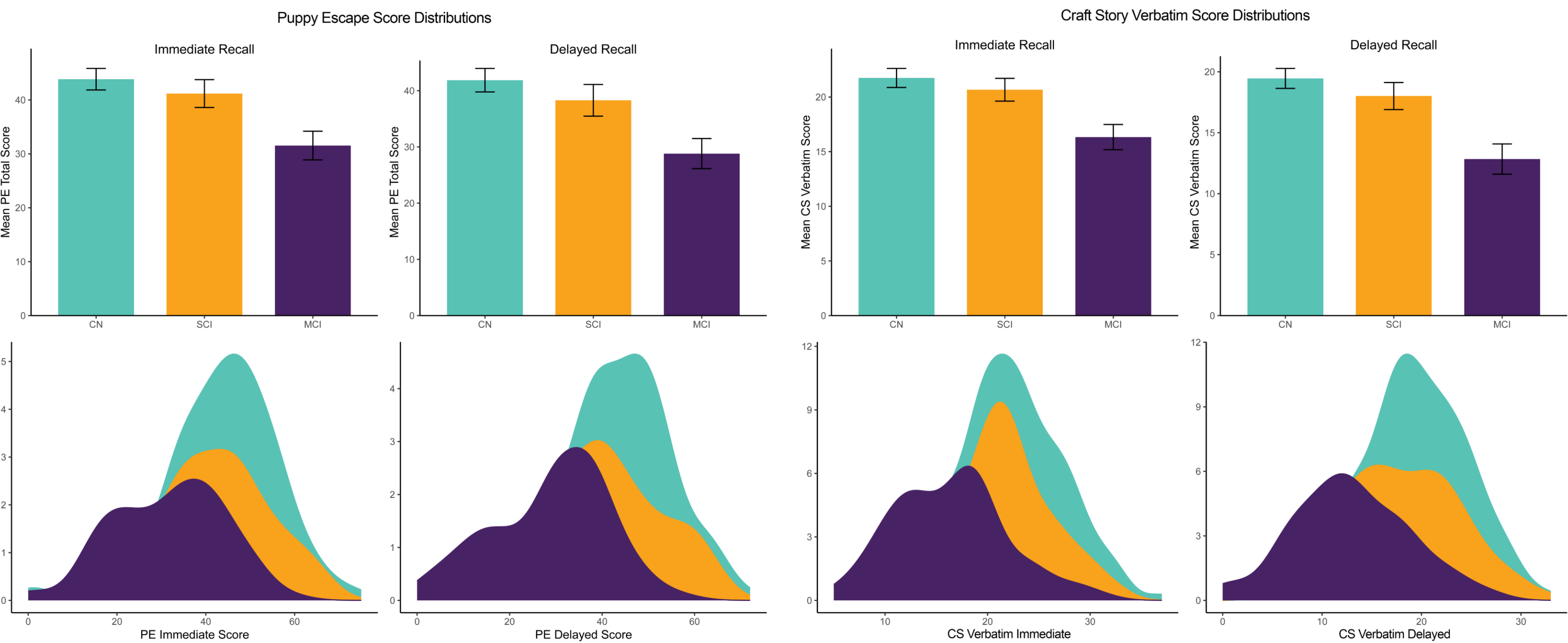
Analysis: Compared the two tasks on agreement, correlation with a 12-test neuropsychological battery, CN-vs-MCI discrimination, and added diagnostic value

Results

- PE and CS agreed moderately: $r = .42-.45$ (all $p < .001$)
- PE matched CS on 10 of 12 neuropsych assessments
- PE delayed separated CN from MCI at Cohen's $d = 1.03$, above the $d = 1.0$ benchmark; $AUC = 0.776$ vs CS $AUC = 0.802$, no sig. difference (DeLong $p = .51$)
- Automated scoring revealed selective MCI impairment of location, action, and name content (Group $\times$ Category interaction, $p = .010$)
- PE-18 retained the full test's accuracy ($d = 1.02$, imm.) using just 18 of 57 items

Discussion

- A free, openly licensed task matched the CS across every validation domain. **Documents freely provided, requires simple agreement with University of Miami**
- The pen-and-paper PE-18 needs no licensing fees, kits, or digitization, while automated scoring adds dimensional content that total-score tasks cannot resolve.
- **Limitation:** the short form was derived and validated in the same sample, so its accuracy is an upper bound pending independent replication.
- Next step: validate PE and PE-18 in an independent cohort and examine longitudinal decline.



[1] Boland, Angela K., Adelaide Jensen, Patrick S. R. Davidson, and Vanessa Taler. "Linguistic Markers of Story Recall Can Help Differentiate Mild Cognitive Impairment from Normal Aging." *Language and Health* 2, no. 2 (2024): 100030. <https://doi.org/10.1016/j.laheal.2024.09.002>.

[2] Mueller, Kimberly D., Anja Soldan, Rebecca E. Langhough, et al. "Decline in Proper Name Retrieval during Story Recall Is Associated with Alzheimer's Disease CSF Biomarkers in Cognitively Unimpaired Individuals." *Alzheimer's & Dementia* 19, no. S18 (2023): e070753. <https://doi.org/10.1002/alz.070753>.

[3] Weintraub, Sandra, Lilah Besser, Hiroko H. Dodge, et al. "Version 3 of the Alzheimer Disease Centers' Neuropsychological Test Battery in the Uniform Data Set (UDS)." *Alzheimer Disease and Associated Disorders* 32, no. 1 (2018): 10–17. <https://doi.org/10.1097/WAD.0000000000000223>.

DISCLOSURES:
MJK is CSO of SciKey, and an inventor of IP that is utilized in this study. The University of Miami also stands to gain royalties from commercialization of the IP

