Electrophysiological Correlates of Recollection and Familiarity at Encoding

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Neuropsychological Assessments cont.
- There were no significant correlations between performance on tasks that tapped executive functioning (i.e., Inhibition and Word Generation Tasks).
- Completion time on the Naming portion of the Inhibition Task was related to the percentage of items correctly identified as old, r(19) = .56, p<.05.
- In sum, faster completion of the Naming Test, indicative of greater processing efficiency, was related to more accurate performance on the experimental memory paradigm (Figure 7).

ERP Difference Scores and Behavioral Measures
- At P2, larger differences between items later remembered and missed was positively related to the percentage of items correctly identified as old, r(19) = .47, p<.05.
- Similarly, at FCS larger differences between items later remembered and missed were related to an increased number of details remembered during NM Free Recall, r(19) = .50, p<.05, as well as NM Free and Cued Recall at FCS, r(19) = .64, p<.05 (see Figures 9 & 10).

Discussion

ERP differences at Encoding are Related to Memory performance at Retrieval
- Consistent with previous studies, remembered items elicited a more positive-going waveform in comparison to missed items at centro-parietal leads (see Wagner et al., 1999 for a review).

Recollection/Familiarity Effect
- ERP studies using the remember/know paradigm or similar methods have reported differences between recollection and familiarity (Friedman and Trotter, 2000; Mangels et al., 2001; Yeom & Paller, 2004; c.f Smith, 1993). However, studies using objective measures of memory performance have not discerned a difference between recollection and familiarity at encoding (Guo et al., 2006; Friedman & Trotter, 2000).

Memory and Executive Functions
- Future investigations should be conducted to discern the relationship between memory and executive function using a battery of executive function tasks assessing working memory, inhibitory control, and cognitive flexibility, skills hypothesized to be central to executive functioning (Diamond, 2006).

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