Review manuscript “Frontal lobe involved in conceptual explicit and implicit memory process: evidence in favor of component process model”

By Gong et al.

This paper investigates differences in implicit and explicit memory in patients with frontal brain injury. The main goal of the paper is to examine their performance across task of conceptual and perceptual processing to validate the process model of memory theory.

Comments:

1. Abstract: Rewrite the background section in a more concise way and make rationale of the study short and clear. Methods lacks in age/gender information and reference to statistical analyses. Results should report the findings of the study, not a reference to previous literature. Conclusions should refer to implication for the current understanding or model of memory functioning/impairment, please restate.
2. Introduction: the authors should rewrite the second part of the introduction. Although it is somewhat intuitive what they aim to do it would be helpful for the reader to know aims and hypotheses. Furthermore, if the authors describe frontal brain regions and their involvement in memory functioning they should also provide a detailed description of the nature, location in the brain and severity of the injury suffered by the frontal patients included in this study. If they want to mention the tasks administered in this task the authors should consider stating which ones evaluate explicit memory and which ones assess implicit memory. Overall, they should state more clearly that they are interested in evaluating the component process model in relation to the explicit/implicit memory model.
3. Methods: give background on brain injury (how did it happen, did participants undergo CT scans or MRIs to define the location/extent of the injury, what was the GCS after the injury?). Since patients were tested 2 weeks to 2 months after the injury it would be useful to know how comparable they were in terms of edema or health outcomes. Also did they ever undergo surgery due to the brain injury? These details are essential. The authors should also mention how psychiatric symptoms and “general cognitive functioning” were measured. Why did the authors choose the MMSE to determine mental health status since the age range of the patients was so large? Did patients undergo an MRI to determine where the lesion was located? What does “cooperative” refer to? Is it compliance? The last sentence of the methods is redundant, could be moved to the “neuropsychological background tests” section. Could the authors provide information on the mental health state of the patients.
4. Statistical analysis: why did the authors use t-tests to compare the neuropsychological tests across populations instead of MANOVAs. Also why didn’t the use MANOVAs with left/right hemispheres as fixed factor to compare cognitive performance within the patient group? How was the distribution of the cognitive variables in the patient vs healthy group? Why did they use SNK test? Did the authors correct for multiple comparisons? And instead of correlating neuropsych and cognitive score why didn’t they enter covariates such as education or verbal fluency in the MANOVA? Why didn’t the authors enter age/gender as a covariates? they both have potential effects on recovery and functional activation of the brain during these tasks.
5. Results: a technical comment: instead of talking of “r’s” the authors should state that: “coefficients of correlations ranged from….”.
6. Discussion: please replace the header “Discuss” with Discussion. Paragraph 2: is the explanation provided here meant to address differences in performance within tasks measuring implicit/explicit memory?. Paragraph 3: the authors should consider providing additional details on the tasks administered in previous study or overall help the reader understand the implications of the findings provided here. Paragraph 4: please rewrite in a more concise way, discard the description of the tasks used in the current study (it is redundant since it has already been described in the Methods section, and attempt a more critical review and interpretation of the current studies. References should also be included. The take-home message of this paragraph is extremely unclear. Is the component process model been validated or not? How has the understanding of the memory functioning changed? All these questions are partially answered by the discussion. Knowing more about the lesions suffered by the patients may also provide the opportunity to discuss the role of the frontal regions in memory. Paragraph 6 (final statement): why do the authors talk about occipital stroke here? Please rewrite.
7. Overall: The manuscript should be thoroughly proofread and edited. There are a number of misspellings, poor grammar, poor punctuation. It cannot be published in the current format. Further the understanding of the content is extremely challenging. The title is ambiguous and should be reformulated.