

## Cognitive Neuropsychology Has Been, Significant to Aphasiology

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### Abstract

In recent years, some critical voices have been raised in regard to the significance of cognitive neuropsychology (CNP) to the study of brain and mind. Given the central role of language disorders in CNP research, it is time to consider the relevance of this research approach in aphasiology. We believe that CNP case studies continue to be an important source of information for generating hypotheses and providing converging evidence for research on the mind and on the brain. There is however a need for further research development especially in computational modeling of language processes, their impairments, and recovery. This research is expected to provide further benefit to clinical diagnostics and treatment of aphasia. The present target paper was prompted by recent discussions of the scientific import of cognitive neuropsychology (CNP) as well as general trends in brain and mind sciences that may create the impression that the CNP approach is somewhat obsolete. The CNP approach, as its name implies, embraces both cognition and the brain by linking the two via associations of neural damage and residual patterns of spared and impaired cognitive abilities. However, current paradigms in cognitive neuroscience depart from the original patient study approach advanced by CNP in two directions. At the methodological level, advances in neuroimaging technology have led to an explosion of studies on the neural substrates of cognitive processes in the normal brain. At the theoretical level, emphasis on non-symbolic (distributed connectionist) models of cognition deviates from the reliance on “boxes-and-arrows” models that typically have been associated with the CNP approach. In light of these developments, it appears timely to discuss the role of CNP in the field of aphasiology, as the cognitive architecture of language has been a prime target for the CNP approach. The present paper is organized as follows. First, we briefly describe the recent criticisms leveled against CNP research and our own take on these issues. This is followed by some methodological considerations that pertain to the single-case study approach in CNP. Then we provide the reader with one concrete example on the use of the CNP approach in the study of language and memory systems and discuss the relevance of this approach to clinical work in aphasiology. Finally, we draw conclusions on the theoretical and clinical significance of CNP and consider some future directions for this approach. Some cases with acquired deficits may by chance exhibit some unusual features in premorbid functional brain organization that the researcher is unaware of but that can affect their post-injury performance profile. Additionally, an individual may employ unique compensatory mechanisms to overcome cognitive deficits, particularly at a chronic stage following brain injury. The complexities of interpreting data from single case studies underscore the need for converging evidence from other data sources.

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