

A Note on Cognitive Neuropsychology

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Cognitive psychology is the scientific investigation of cognition, that is, of all mental abilities: perception, attention, and learning, memory, processing of spoken and written language, thinking, and reasoning and belief formation. It assumes that cognition can at least in principle be fully revealed by the scientific method, that is, individual components of mental processes can be identified and understood. These individual components of mind are mental modules, and thus contemporary cognitive psychology often assumes the modularity of mind [1].

Any theory about any domain of cognition will therefore be a theory about (a) what the modules are of the system by which performance in that domain is accomplished, and (b) what the pathways of communication between these modules of the system are; that is, a theory about the functional architecture of the system. Most cognitive psychologists seek to develop and test such theories by experiments with people who are skilled performers in the relevant cognitive domain. But one can also learn about cognitive systems by studying ways in which they break down after brain damage: and this is the approach known as cognitive neuropsychology. So cognitive neuropsychology is a subfield of cognitive psychology, distinguished by the feature that it studies people with disorders of perception, attention, learning, memory, processing of spoken and written language, thinking, reasoning or belief formation, with the aim of learning more about the normal functional architectures of the cognitive processing systems used to carry out these activities [2].

Applications

Cognitive neuropsychology has two major domains of application assessment and rehabilitation.

Cognitive-neuropsychological assessment is assessment that is based on an explicit modular information-processing model of the relevant cognitive domain. The existence of the model permits the construction of tests specific to the individual modules of the model, so that a comprehensive analysis can be made of which of these cognitive modules is operating normally and which have been perturbed by brain damage (in the case of acquired disorders of cognition) or have not been acquired to age-appropriate levels (in the case of developmental disorders of cognition). The best-developed cognitive-neuropsychological assessment batteries are the PALPA battery for the assessment of disorders of spoken and written language and the BORB battery for the assessment of disorders of visual perception and visual object recognition

Cognitive-neuropsychological rehabilitation is similarly model-based: it is treatment that is specifically directed at improving the functioning of the particular cognitive modules or pathways that have been identified, via cognitive-neuropsychological assessment methods, as specifically impaired. Other approaches to neuropsychological rehabilitation differ from this in typically being rather generally aimed at the entire cognitive domain within which the patient shows some or other symptoms [3].

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