



Clinical and Critical Markers in Cognitive Neuropsychology

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Received: March 18, 2019; **Published:** April 10, 2019

Psychology is the scientific study and investigating behavior. The behavior we have been interested has three components, Cognition, Emotion, and sensophysiological. These component is very significant for the normal and abnormal behavior. Regarding the abnormal behavior. We have spent long time investigating a case that has two questions:

- First, what has happened to the Clint to cause him to show the particular symptoms he does?
- Second, can his pattern of disability and disorders teach us anything about the way the normal mind and brain are organized?

The response to the above questions determines our pathway, instrument and methodology we should use to get the target. It is very important to depend on the Biopsychosocial trend as integrated model for reaching the three aims of the science: understanding, predicting, and controlling the behavior [1].

Neuropsychology is the branch of psychology that combines neurology and psychology, concerned primarily with clinical and scientific aspects of the relationships between brain structure and human behavior. While, Cognitive neuropsychology is a branch of cognitive psychology that aims to understand how the structure and function of the brain relates to specific psychological processes. Cognitive psychology is the science that looks at how mental processes are responsible for our cognitive abilities to store and produce new memories, produce language, recognize people and objects, as well as our ability to reason and problem solve. Cognitive neuropsychology places a particular emphasis on studying the cognitive effects of brain injury or neurological illness with a view to inferring models of normal cognitive functioning. Evidence is based on case studies of individual brain damaged patients who show deficits in brain areas and from patients who exhibit double dissociations. Double dissociations involve two patients and two tasks. One patient is impaired at one task but normal on the other, while the other patient is normal on the first task and impaired on

the other [2]. For example, patient A would be poor at reading printed words while still being normal at understanding spoken words, while the patient B would be normal at understanding written words and be poor at understanding spoken words. Scientists can interpret this information to explain how there is a single cognitive module for word comprehension. From studies like these, researchers infer that different areas of the brain are highly specialized. Cognitive neuropsychology can be distinguished from cognitive neuroscience, which is also interested in brain damaged patients, but is particularly focused on uncovering the neural mechanisms underlying cognitive processes [3].

Cognitive neuropsychology is has undergone a revival since around 1970, and is the study of mental-cognitive processes which underlie and make possible our everyday ability to recognize familiar objects and familiar people, to find our way around the world, to speak, to read, to write, to plan to understand, to process information and to execute actions. This field has two basic aim, the first is to explain the patterns of impaired and intact cognitive performance seen in brain injuries of the patient in term of damage to one or more of the components of theory or model of normal cognitive functioning. The second aim of cognitive neuropsychology is largely responsible for the recent upsurge of interest in the method. It is to draw conclusions about normal, intact cognitive processes from the pattern of impaired and intact capabilities seen in brain-injured patterns.

Neuropsychologists have been telling us that the human visual system has a precise and intricate organization. The specificity of some of the disorders of visual and spatial abilities that are beginning to be revealed is very impressive. Highly selective impairments of different aspects of color processing, movement perception, and visual location should be described and understood.

The social and biological importance of faces is such that quite extensive areas of neural tissues must be involved in one way or another with face processing tasks. It does not, however, necessary

follow that these parts of the brain should deal with faces exclusively. We can imagine that the areas of the brain involved in recognizing everyday objects may also be employed for the task of recognizing the faces we encounter in our daily lives.

If you are to name an object you are looking at you must perceive it clearly, recognize and comprehend it for what it is, retrieve its name from memory, and articulate it correctly. A normal person may experience a temporary difficulty with any of these stages on a particular occasion. On the other hand, if you are engaged in ordinary conversational interaction with someone, then the two most important sources of information are the person's voice and face.

The voice conveys several different sorts of information including affective information regarding the speaker's emotional state, identity information regarding who is speaking, and verbal or phonic information regarding the sounds and words being spoken.

If we define writing as a system of visual commutation in which the written elements represent elements of the spoken language (words, Phonemes and syllables) then writing is less than 6000 years old. Only a tiny minority of the people who have ever lived have been able to read, and even fewer have been able to write.

The topics of the field are: object recognition, visual and spatial abilities, face processing, producing spoken words, recognizing and understanding spoken words, reading, spelling and writing, further language and communication processes, memory [4].

The recent trend in the neuropsychology is relationship between cognitive neuropsychology and individual differences [5]. The study of this relation lead to understand the significant objects and processes of special disabilities such as: neuropsychology of perception, temperament and the development of self-regulation, individual differences in general cognitive ability, language development, learning disabilities, psychopathological disorders. I present some significant and Critical markers and issues of the field:

- Although the study of amnesia has engaged more people for a longer time than the study of say, acquired dyslexia, most commentators feel the progress in the cognitive neuropsychology of memory has been less certain than in an area like reading: we seem neither to have such good explanations of the disorders themselves nor such firm conclusions to draw about the normal state from the analysis of its impairments.
- High-level conceptual impairment may cause the fluent but semantically empty speech of patients with semantic aphasia. Some patients with severe aphasias may show preservation of automatic or non-propositional speech.

The right cerebral hemisphere may have some advantage for producing this sort of speech.

- Impairments of sign language in the deaf take several different forms which in some way resemble varieties of spoken language aphasia.
- The acquired dyslexias may be divided for convenience into peripheral and central dyslexias. Peripheral dyslexias affect early visual processes by which letters are recognized, coded for position and grouped into letter strings at the beginnings of words. Central dyslexias affect recognition, comprehension and naming processes and processes dealing with unfamiliar words or non-words.
- The precise nature of the inability to read aloud unfamiliar words, or non-words, sometimes termed "phonological dyslexia", may also vary from client to client. These patients show clearly, that the recognition of familiar words is not dependent on the availability of low-level grapheme-phoneme conversion procedures.
- Disorders of spoken word recognition dissociate from disorders of visual word recognition, spoken word production, lip reading, voice recognition and the processing of emotional tone-of-voice. The evidence suggests that these disorders are all capable of dissociating one from another, implying the existence of separate cognitive subsystems of modulate for each of these types of language processing [4].

In sum, there have been no long-term studies clearly relating brain injury at any age to later psychiatric disturbance except correlationally. All researches is single-short, correlational investigations rather than longitudinal/developmental researches that can support mechanism and individual differences of neurological pathways of cognitive disorders. For example, any group of learning disabilities of children is likely to be heterogeneous to the point that no single stamen regarding their deficits or etiology of such disturbance will be adequate. This point had its neuropsychological beginnings in the work of Wepman and later Kinsbourne and more recently Steven Mattis.

Cognitive neuropsychology is an approach which attempts to understand cognitive functions and performance and the way the intact mind and brain work from studying neurological patients, and such conclusions can obviously be drawn from observation and experimental investigations of normal and abnormal subjects. We need integrated methodological and interdisciplinary and developmental approaches to get the most important target of the sciences: understanding, predicting and controlling.

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Volume 2 Issue 5 May 2019

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