

# Commentary on: Indications and expectations for neuropsychological assessment in epilepsy surgery in children and adults

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To the Editor,

Modular approaches in neuropsychology have progressively substituted the complex inferential reasoning that drives diagnostic hypotheses with almost reflexive clinical automatism, such as those seen when administering standardized cognitive measures and interpreting gathered data. This reflects a rather mechanistic and non-theoretical attitude, as if no diagnostic hypotheses are generated from clinical observation and, above all, no theory is proposed for scientific contextualization of findings and assumptions. The neuropsychological phenomena that arise spontaneously or are elicited in the context of either the initial clinical conversation or during test performance provide a starting point for theory-based causal attributions on the anatomical distribution of deficits. When interpreting neurocognitive findings to account for the anatomical distribution of deficits, neuropsychologists often tend to rely on a sort of simplistic judgment strategy “availability heuristic,” *i.e.* group studies that “profile” cognitive dysfunction and/or neuroimaging studies that provide correlations of task performance and regional activations. Instead, neuropsychologists should be gathering psychometric data and constructing a clinical history in the light of a theory model to allow them to reach a scientifically based hypothesis. It is imperative to observe the specific conditions under which a given deficit manifests itself; to conduct qualitative analysis; to theoretically contextualize neuropsychological data; and to co-evaluate the data through the “filter” of the patient’s clinical-demographic, cultural, and idiosyncratic (personalize data) background to establish cause and effect relationships. The patient’s neuropsychological profile should become “clear” not as a result of other investigations, but rather on the basis of a syndrome analysis – a qualitative inquiry aimed at leading directly to the structure of the disturbance – by a disentangling of that/those factor(s) responsible for a functional systems breakdown. Pre-operative neuropsychological assessment in its initial phases would be better conducted with the neuropsychologists being blind to other sources of evidence, to avoid biases from predetermined assumptions.

Although we welcome the recent report of the ILAE (Baxendale *et al.*, 2019a, 2019b) and its important guidelines, we believe that the above argument has not been

sufficiently emphasized. On the contrary, the report emphasizes the need for standardized cognitive measures, thus implicitly reflecting a data-driven rather a conceptually (theory)-driven approach. As Luria (1966) states, an important shortcoming of standardized tests is their reliance on a preconceived classification of “functions”; as such, they by no means always reflect the forms of cognitive impairments resulting from brain lesions. Another shortcoming is that those types of measures are not aimed as much at qualitative analysis of the defects discovered as they are at evaluation of the patient’s degree of functional impairment in terms of performance. Hence, those measures are quite unsuited for determining the qualitative features – meaning the structure of the disturbance – and are even less suited for analysing the pathological components responsible for the impairment. Consequently, implementing standardized measures alone for the diagnosis of circumscribed brain lesions or in cases of epilepsy surgery (for identification of the functional deficit zone) are not likely to justify the confidence placed in them. □

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## References

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