

# Reply

To the Editor,

In their commentary on our paper, Patrikelis *et al.* express concerns about the administration and interpretation of standardized cognitive measures when no theory is proposed for the scientific contextualisation of findings and assumptions. They are strongly supportive of a Lurian approach (Luria, 1966) and advise that a preoperative 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.

We read the commentary with interest and would like to respond as follows.

## Context

To begin, it is important to set the guidelines from the ILAE neuropsychology task force in the context in which they were produced. When describing recommendations and guidelines for neuropsychologists around the world, it is important to consider a theoretical framework that can be understood and applied by all. A neuropsychological assessment in an epilepsy surgery setting provides differential diagnostic information, prognostic information, recommendations for treatment decisions and answers to clinical questions posed by the neurologist/neurosurgeon in a very specific context. As a group, the ILAE Neuropsychology Task Force aims to provide evidence-based guidelines which facilitate the communication of results and outcomes across and between centres.

We have a strong commitment to evidence-based practice, and the use of standardized cognitive tests remains the gold standard procedure for neuropsychological evaluation and provides a basis for systematic evaluations, predictions and treatment guidelines.

## Test interpretation

These guidelines are not intended as a “how to” guide for the interpretation of individual neuropsychological test profiles. We agree with Patrikelis *et al.* that the qualitative observation and description of an individual’s performance are also important elements of a clinical neuropsychological evaluation,

including that in an epilepsy surgery setting. We fully acknowledge the need to contextualise the interpretation of neuropsychological test scores within the context of these important clinical data. This knowledge is part of the specialist training of a clinical neuropsychologist (Lurian or otherwise) and is well beyond the scope of these guidelines.

## A false dichotomy?

Patrikelis *et al.* take an individualistic, eclectic position in contrast to a modular or test battery approach to the presurgical assessment. The two positions are not necessarily mutually exclusive and consecutive surveys of neuropsychological practice in the 21<sup>st</sup> century indicate that a mixed model that employs a flexible battery is now the predominant approach in the profession (Sweet *et al.*, 2015).

We are sympathetic to the suggestion of a deeper complementary but not necessarily alternative level of analysis, such as through a Lurian model. A neuropsychological approach to memory and executive function deficits, based on Luria’s concept of functional systems, has the potential to extend our knowledge and practice in the field of epilepsy well beyond the constraints inherent to a simple quadrant-based approach to the brain (Barr and Nakhutina, 2009). A complimentary approach does not negate standard epilepsy profile analysis and we recognise that the Lurian functional systems model bears some resemblance to the contemporary emphasis on networks/neurocognitive networks.

However, at present the Luria approach has yet to build a substantial body of evidence whilst models such as functional adequacy vs functional reserve (Chelune, 1995) have strong support in the literature.

## Blind interpretation

The context of an individual presurgical assessment is very different to that of a clinical trial with blind assessment and randomization. The risk with a position such as the one suggested by Patrikelis *et al.*, is that by ignoring the clinical context which can modify test results, the diagnostic decision would be biased and patients could be misdiagnosed.

We agree that blind interpretation of complementary data can reduce interpretive errors due to

confirmation bias. However, many interpretations of neuropsychological test results (such as interpretation of PET and MRI scans) continue to rely on human judgment and experience that depends on an understanding of the clinical context. In the surgical setting, it is imperative that psychologists interpret their data using their best judgment and experience in the light of all available evidence, rather than “blind” themselves to potential important sources of information, since the stakes for individual patients are very high. □

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<sup>a</sup> Baxendale SA, Wilson SJ, Baker GA, Barr W, Helmstaedter C, Hermann BP, Langfitt J, Reuner G, Rzezak P, Samson S, Smith ML.