

Section 4

THE VALUE OF THE CULTURAL-HISTORICAL APPROACH IN A CHANGING WORLD

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Luria's aphasiology in the 21st century

Abstract. Luria's interpretation of brain organization for language and aphasia is analyzed. He published two major books and a myriad of papers devoted to this topic. Luria is one of the major founders of contemporary aphasiology, as from the fundamental point of view as from the clinical perspective. His significant influence has continued during the 21st century. Many of Luria's ideas have been integrated into contemporary aphasiology. His aphasia classification, however, remains partially controversial.

Keywords: Aphasia; cognitive neurosciences; functional system

Introduction. Luria published two major books on brain organization of language and aphasia: "Traumatic Aphasia", initially published in Russian in 1947 and translated to English in 1970 [1]. This was his initial interpretation of aphasia and included his extensive experience with war-wounded patients during WWII. Almost 30 years later and towards the end of his life, he published "Basic Problems of Neurolinguistics" [2], in which he presented a much more elaborated interpretation of the brain organization of language in normal and abnormal condition.

Materials and methods. These two books are initially analyzed. Later, contemporary developments are reviewed [3.4]

Results. Luria's initial proposal includes three major points: (a) theoretical interpretation of aphasia, (b) classification of aphasia; and (c) an attempt to establish clinical/ anatomical correlation using the method of superimposing the lesion drawings.

Luria considered language to be a "complex functional system", requiring many different steps to achieve both comprehension and production; simultaneous participation of multiple cortical areas are required for normal language processing. Each cortical area performs a specific process, but it also participates in different functional systems. Thus, the first left temporal gyrus participates in phoneme discrimination, and its damage causes difficulty in all functional systems requiring phoneme discrimination. Different types of language impairments are associated with damage in specific brain areas. Luria considers that certain brain areas are more directly related to some others and consequently impairment in one of them will be associated with disturbances in the other. He refers to "syndrome analysis" as a fundamental approach in aphasia analysis: based on systemic structure of language. Luria identified the primarily impaired component (primary defect), the secondary systemic consequences of the primary defect, and tertiary compensatory reorganizations as parts of the syndrome.

The major differences in aphasia interpretation between his original proposals (1947) and his final proposals (1976) involved (a) a critical analysis of some contemporary western interpretations of aphasia, basically derived from Wernicke's ideas; (b) Luria seems to suggest that the original semantic aphasia is partially separated into two different aphasia syndromes; (c) a significant emphasis in linguistic issues is observed in his last publication.

Half of Luria's book (the whole Second Section) is devoted to analysis of conduction aphasia, transcortical motor aphasia, and amnesic (nominal) aphasia. He points out that conduction aphasia does not exist in a pure form, and the repetition defects are associated with an extended group of impairments. In particular, Luria emphasizes that repetition requires analysis not only of auditory (phonemic analysis) but also of verbal articulatory ability. Consequently, Luria states that repetition defects are

found not only in so-called conduction aphasia, but also in acoustic-mnesic aphasia; or more exactly, that two different subtypes of conduction aphasia should be separated: one of them associated with the afferent (kinesthetic) motor aphasia, and the other with acoustic-mnesic aphasia.

In his “Basic Problems of Neurolinguistics” the analysis of verbal communication is guided by this basic distinction between syntagmatic and paradigmatic elements of language. However, in his analysis he refers to five subgroups of syntagmatic disorders and five subgroups of paradigmatic disorders.

The fundamental and clinical understanding of brain organization of language was further advanced during the last decades after Luria’s publications. Many of his ideas have been maintained and developed; some other proposals have been forgotten or remain controversial.

The idea that the language and in general, psychological processes represent brain functional systems has been integrated in contemporary cognitive neurosciences. Today it is considered as a basic idea, not as a specific author’s proposal. Contemporary brain research has emphasized that cognitive processes are supported by brain systems or brain circuits.

Some Luria’s interpretations in aphasia have been clearly supported in contemporary research, but some other ideas remain polemic. For instance, his point of view that language understanding defects in cases of left temporal damage are due to phoneme discrimination disturbances, verbal memory defects, and impairments in semantic associations represents today a kind of basic knowledge in aphasia. By the same token, his interpretation of dynamic aphasia as a disturbance in planning expressive language, and hence, close to a prefrontal (dysexecutive) syndrome affecting the language activity has been supported by different authors. On the other hand, his interpretation of other aphasia syndromes remains polemic; for instance, should the language defects observed in cases of left parietal damage be interpreted as a segmentary ideomotor apraxia or a disconnection syndrome? This question remains controversial. Similarly, a clear definition of semantic aphasia is required in the area.

Conclusion. The fundamental and clinical understanding of brain organization of language was further advanced during the last decades after Luria’s publications. Many of his ideas have been maintained and

developed; some other proposals have been forgotten or remain controversial. There are two additional Luria's contributions to our understanding of aphasia, namely, assessment and rehabilitation of aphasia, but they are beyond the scope of this paper.

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