**INTRODUCTION TO NEUROLINGUITICS AND LINGUISTIC APHASIOLOGY**

**Introduction**

**What is neuroscience and neurolinguistics?**

The scientific study and documentation of the nervous system (i.e., central, and peripheral nervous system), its functions and disorders, give rise to neuroscience.Neurolinguistic is a smaller branch of a larger domain that is neuroscience.

It is considered as a multidisciplinary science which prioritise on understanding the origin and developing properties of brain cells or neurons, glia and neural circuits by combining  cellular, functional, evolutionary, computational, molecular and medical aspects of the nervous system.

Neuroscientists have broadly categorized neuroscience into various disciplines based on the research areas and subjects of their studies, amongst which cognitive neuroscience is well versed with neurolinguistic and psycholinguistic.

Neurolinguistics is a branch of cognitive neuroscience, along with different fields such as systemic, movement, sensory, cellular and others, representing the branches of neuroscience in figure 1.1.

Language Acquisition; Understanding and Processing

Language Impairment

**Other explanations of Neurolinguistic includes:**

Neurolinguistics apprehends the role of brain in the representation and utilization of language; acquisition, and process of language development throughout human life as well as how the brain is affected by disease impacting language disorders and whether and how it can be compared to analogous processes in non-human species.

Neurolinguistics is the investigation of how various areas in brain represent the language: that is, which parts and areas of human brain act as the storehouse to store the knowledge of the language (or languages) used for comprehension and expression via speaking, reading, and writing. It also emphasises on what happens in brains after acquiring the knowledge and using it in day to day lives.

Neurolinguistics studies the relationship between language and communication with respect to countenance of brain function, by the way of explanation, it tries to analyse and review that how the brain is responsible for comprehension and expression of language and communication. Hence, it is also considered as a combination of theory of neuroscience (i.e., structure and function of brain) and linguistic (structure and function of language).

In neurolinguistics, other than neuroscience and linguistic, psychology is one of the pivots disciplinary sources. Psycholinguistic portrays the indispensable steps of language processing enjoined for understanding and verbal expressing of words and sentences as well as disordered speech, language, and reading. It prioritises more learning followed by languages. Both neurolinguistics and psycholinguistics are deeply entwined, however neurolinguistics more emphasises on studies of the brain structure and functions.

**What are acknowledged by Neurolinguists?**

There is evidence with address to main question of interest for neurolinguistics in very far back in history.

In 1960s, Chomsky’s influence boosted the psycholinguistics and linguistics to establish the “Neurolinguistics” in the field.

A neurolinguist can acknowledge various important questions related to language and human brain by various neurolinguistic studies. The list can grow out of answers to questions such as the following:

1. How language form in human brains?
2. Why human communication system is elaborative and unique from other living beings?
3. Is it true that human brain use the similar pattern of neural computation and processing for language as for other cognitive systems, such as music, painting or mathematical problem solving?
4. Where does the words or lexicons stored in the human brain that one has learned or acquired? Which brain areas are responsible for understanding and expressing the language?
5. In case of bilinguals/ multilingual, how one switches between two languages and keep them from interfering with each other?
6. How and why, a human brain varies in case of bilingualism/multilingualism and mono/single language users?
7. Whether the left hemisphere is always dominant and considered as the language side?
8. Before verbally expressing, reading, or writing; how a word appears in the mind, although sometimes it does not come at all.
9. How artificial intelligence and computer is responsible for synthesizing the language development, processing, and its disorder?
10. To test the models and hypotheses explaining language processing, what type of experiments can be carried out?

**Relationship of neurolinguistic with brain, language, and neurological language disorder:**

Neurolinguistics deals with relationship between brain and language holding several different views and theories from different researchers.

The neurolinguistic theory, commonly concern with the research and studies investigating the relationship between brain damage and its effects on language and overall communication system.

For instance, after stroke or other brain injury, if one loses the ability to talk or to read, how well can one learn to talk again and what will be the duration for achieving such?

Linguistic aphasiology is the subject matter of neurological language disorder.The study of acquired language disorders considered to be the answer of final set of questions that are central to neurolinguistics. Aphasias- are neurological language disorders caused by brain disorders or effect of damage on the cortical and subcortical parts of language dominant area of the human brain, has been scientifically investigated by various neurologist and neurolinguistics.

Study of neurological language disorder in consequences to brain injury is termed as aphasiology and while analysing the impaired linguistic components in aphasics is considered as linguistic aphasiology.

Aphasiology and linguistic aphasiology are taken into consideration as the dominant branches of neurolinguistics which has been investigated before 19th century and came into picture by two eminent neurologists, Paul Broca and Carl Wernicke via theories and models.

**Relation between linguistic and aphasiology**:

Research on aphasia was one of the long-established custom of neurologists, however the psychologists and philosophers had an inextricably interest in the same.

Studies and research related to establishment of concrete information and understanding the relationship between brain and normal speech and language, the term neurolinguistics was embellished, edited, and eventually adopted.

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