

**Title:** The Brain, Memory, and Using Neuroimaging to Uncover Language Acquisition and Potential Applications of this Research

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Noted psycholinguist Manuel Carreiras conducted groundbreaking research utilizing a blend of computer science, neuroscience, linguistics, and experimental psychology in 2010 that unveiled neuroimaging as the key to discovering the operations of language processing.

Carreiras' study of the functional and structural neuroanatomy of language circuits uncovers how electric impulses translate sound and representations. The ultimate pattern that links our language activation with our mental state is due to representations of words or sentences; brain connectivity changes with learning, as occurs when a person learns a new language.

Research in the field further raises the question of how language is represented in the brain. Augusto Buchweitz (2016) revealed that there are delays in oral language development. There are brain circuits developed for spoken language that are hardwired in our brain, and neuroimaging can be used to predict some language disorders. To answer issues of reading language, Max Planck and researchers from the Institute of Psycholinguistics (2019) isolated the reading area of the brain, the cerebrum, using neuroimaging to compare brain activation when the subjects were shown pseudo-words or non-readable items versus words. This tactic determines how cognitive information recognizes, stores, and retrieves words and their meaning from the brain's memory.

The goal of this presentation is to reveal the developments of neuroimaging in the field of psycholinguistics as it relates to language development and how it could assist individuals who have experienced strokes, memory loss, and other brain injuries.

## References

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