

Brain Organization for Reading and Language in Typically and Atypically Developing Learners.

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Converging evidence from modern neuroimaging studies indicates that in typically developing (TD) readers, skilled visual word reading (fluent decoding) in alphabetic languages involves the development of a largely left hemisphere (LH) circuitry with temporoparietal (TP), occipitotemporal (OT), inferior frontal, and sub-cortical components (Pugh et al. 2010). We will talk about exciting new brain imaging technologies that allow us to measure neuroanatomy, neurochemistry, and functional neurocircuits in children and adults. With this background, we will then describe new research from our lab that explores gene-brain-behavior pathways that discriminate typically from atypically developing readers in different languages. We will also discuss new research that examines how the brain solves the problem of creating neurocircuits for second language learning. Finally, on the topic of brain plasticity, we describe new research focused on brain mechanisms for learning and consolidation for language, reading, and reading remediation.