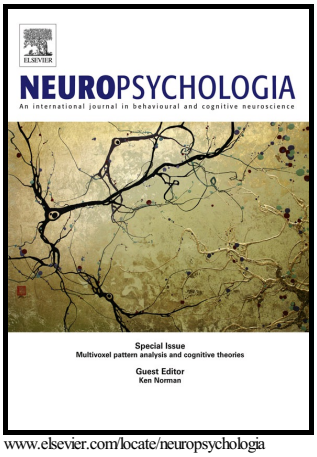

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Early bilingualism, language attainment, and brain development

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Abstract

The brain demonstrates a remarkable capacity to undergo structural and functional change in response to experience throughout the lifespan. Evidence suggests that, in many domains of skill acquisition, the manifestation of this neuroplasticity depends on the age at which learning begins. The fact that most skills are acquired late in childhood or in adulthood has proven to be a limitation in studies aimed at determining the relationship between age of acquisition and brain plasticity. Bilingualism, however, provides an optimal model for discerning differences in how the brain wires when a skill is acquired from birth, when the brain circuitry for language is being constructed, versus later in life, when the pathways subserving the first language are already well developed. This review examines some of the existing knowledge about optimal periods in language development, with particular attention to the attainment of native-like phonology. It focuses on the differences in brain structure and function between simultaneous and sequential bilinguals and the compensatory mechanisms employed when bilingualism is achieved later in