

The case of the non-native-like first language: Neurophysiological studies of first-language attrition

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While multilingual speakers worldwide agree that it is more challenging to learn a second-language (L2) in adulthood than in childhood, whether this is due to a neurobiological “critical-period” for language-learning is controversial. According to many, there are maturational limits on the brain’s ability to change with experience; thus, while one’s first-language (L1) is hard-wired and stable from the early years of life, any L2 learned after a certain age must rely on different (non-native) processing systems in the brain than those used for the L1. In both behavioral and brain imaging research, it has been shown that bilingual speakers’ linguistic performance and processing in a language acquired at a later age typically falls short of being “native-like”, especially in complex and subtle aspects of grammar. However, because the L2 is usually the less-proficient language, studies have not always been able to determine whether late learners show differences from native speakers because they acquired the language late, or because they do not have sufficient command of the language. Therefore, it is still unresolved whether experiential factors such as proficiency level or exposure have a greater impact than age-of-learning on how language is processed in the brain.

First-generation-immigrants who move to a new country in adulthood offer new light on this controversial question, as they become highly-proficient in the late-acquired but predominantly-used L2, while experiencing “attrition” (a decline in proficiency) in their native-L1, after years of limited exposure. “Attriters” bridge the gap between the study of L1- and L2-acquisition and allow us to approach the “critical period hypothesis” from a different perspective: are “attriters” still native-like in how their brain processes their first-language, despite their self-reports of gradually-increasing difficulties in that language since immigration? Are they native-like in the L2 they were immersed into in adulthood, and do they show interference effects from this dominant L2 onto their L1? Finally, how do “attriters” compare to late L2 learners, and how does proficiency-level modulate the brain’s responses to language?

To study these questions, Kasparian & Steinhauer are currently conducting 6 ERP (event-related potentials) experiments and a number of behavioral tasks in two languages (Italian and English) with 4 separate participant groups: (1) Italian-English attriters (immigrants who moved to Montreal from Italy in adulthood and are now highly-proficient and dominant in English, reporting difficulties/attrition in Italian); (2) English-Italian L2-learners (who acquired Italian in adulthood

and are highly-proficient); (3) Italian monolingual native-speakers living in Italy; (4) English monolingual native-speakers in Montreal.

The language domains under investigation are: (1) number agreement; (2) word-order in relative clauses; (3) regular/irregular verbs; (4) semantically confusable words; and (4) false-friends, interlingual cognates and homographs. Together, these studies are among the first to investigate the neurophysiological correlates of first-language attrition. In terms of L2 processing, these studies are also among the first to examine L2-to-L1 transfer using event-related brain potentials, and to further our understanding of how proficiency-level may shape the brain's responses to language, whether the language being processed is a person's L1 or L2.