

Native-like brain processing of second language possible in university students

October 21 2013

Along with helping students gain a global perspective, study abroad experiences may give college students a particular kind of advantage in learning another language.

Research by Harriet Bowden, an assistant professor of Spanish at UT, indicates that native-like [brain processing](#) of a second [language](#) is possible for [university students](#).

Past research had suggested that adults with a very high level of second-language instruction and practice eventually could attain native-language-like brain processing.

Bowden and colleagues discovered that when students study a second language in normal university classes and then follow up with as little as one semester of immersion experience abroad, their brains also begin to process that second language in a way that is very similar to native speakers.

Findings from the study have just been published online by the journal *Neuropsychologia*. The print edition is forthcoming.

"When you learn a second language, it's not so difficult to learn new vocabulary, but it's harder to learn the grammar—to the point where you use it automatically—for your brain to process it like a native speaker," Bowden said.

The way the brain processes language is measurable by electroencephalogram (EEG) scans, Bowden said. Her study involved conducting such scans on university students with low and high levels of Spanish-language study, and a control group of speakers who learned Spanish as their first language.

Brain scans revealed that when advanced-level students read sentences in Spanish, their brain waves were essentially identical to those of the native Spanish speakers, but very different from scans of students with low levels of Spanish proficiency. The advanced-level students had studied several semesters of Spanish and had participated in an immersion experience, spending either a semester or a year in a Spanish-speaking country and interacting with local residents.

The study suggests that an immersion experience may in fact be critical to attaining native-like brain processing of a foreign language.

"Many researchers have argued that late learners could never become native-like in how they process grammar in a new language," Bowden said. "These results argue that not only is this possible, but it is possible earlier than previously thought: at least for young adults who study for several semesters and then study abroad, it's not too late to attain native-language brain processing skills."

Such native-like brain processing may facilitate further learning and retention of the language, she added.

Bowden collaborated with researchers from Georgetown University and McGill University.

Provided by University of Tennessee at Knoxville

Citation: Native-like brain processing of second language possible in university students (2013, October 21) retrieved 20 March 2024 from <https://medicalxpress.com/news/2013-10-native-like-brain-language-university-students.html>

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