

Second language learners recall native language when reading

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(PhysOrg.com) -- Adults fluent in English whose first language is Chinese retrieve their native language when reading in English, according to new research in the June 2 issue of *The Journal of Neuroscience*. This study suggests that people who learn a second language in adolescence or later recall the sounds of words from their native language.

The scientists who conducted the study, Yan Jing Wu, PhD, and Guillaume Thierry, PhD, of Bangor University in the United Kingdom, said their work helps researchers understand how the brain manages symbols and sounds in different languages. Thierry explained that although most bilingual people believe they function solely in one [language](#) at any given time, these findings show that it is not necessarily the case.

"Bilingual individuals retrieve information from their native language even when it's not necessary, or, even more surprising, when it is counterproductive, since native language information does not help when reading or listening to [second-language](#) words," Thierry said.

To learn how two languages interact in a bilingual mind, the authors asked 90 volunteers — 30 native Chinese speakers, 30 native English speakers, and 30 Chinese-English bilingual adults who learned English after age 12 — to perform a reading and a listening test. The English-speaking volunteers had to decide whether pairs of English words had similar meanings, such as "doctor" and "nurse" or "teacher" and "rabbit." The authors recorded brain activity from [electrodes](#) placed on participants' scalps to monitor how their brains responded.

What the authors didn't tell volunteers was that some English words had the same sounds or similar spelling when translated into Chinese. The results showed the bilingual adults responded to words with related meaning as quickly as native

English speakers. However, when English words translated into Chinese had similar sounds and were presented to the bilingual volunteers, a specific wave of [brain activity](#) called the N400 changed. This suggests that the Chinese language words were being accessed. For example, the unrelated English word pair "experience" and "surprise" translates to "jing yan" and "jing ya."

Michael Chee, MBBS, of Duke-NUS Graduate Medical School in Singapore, who was unaffiliated with the study, said the findings show that even though people who learn a second language later in life are discouraged from directly translating words from their [native language](#), they may be doing so anyway.

"One limitation of the study is that many older generation English learners from China learned English by memorizing lists of words in what seems like a brute force method of learning," Chee said. "It would be interesting to see if the same results would be obtained if persons learning English earlier were studied."

More information: www.jneurosci.org/

Provided by Society for Neuroscience

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