

Fluent English speakers translate into Chinese automatically

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Over half the world's population speaks more than one language. But it's not clear how these languages interact in the brain. A new study, which will be published in an upcoming issue of *Psychological Science*, a journal of the Association for Psychological Science, finds that Chinese people who are fluent in English translate English words into Chinese automatically and quickly, without thinking about it.

Like her research subjects, Taoli Zhang of the University of Nottingham is originally from China, but she lives in the UK and is fluent in English. She co wrote the new paper with her colleagues, Walter J.B. van Heuven and Kathy Conklin. She wanted to study how two [different languages](#) are stored in the bilingual [brain](#). "If you read in English, you don't really require your knowledge of Chinese. Do you switch it off?" Earlier research in European languages found that both languages stayed active in the brain. But that work was in pairs of languages, like English and French or Spanish and Italian, have a lot of similarities in spelling and vocabulary. That's not true for English and Chinese.

The subjects in Zhang's experiments were all [Chinese students](#) at the University of Nottingham in the United Kingdom. For the study, each person was shown pairs of words. The first word flashed on the [computer screen](#) so quickly that the person didn't realize they'd seen it. The second word appeared for longer; the person was supposed to hit a key indicating whether it was a real word as quickly as possible. This was just a test to see how quickly they were processing the word.

The trick was this: Although everything in the test was in English, in some cases, the two words actually had a connection – but only if you know how they're written in Chinese. So, for example, the first word might be "thing," which is written 物 in Chinese, and the second might be "west," which is written 西 in Chinese. The character for "west" appears in the word "thing," but these two words are totally unrelated in English.

Zhang found that, when two [words](#) shared characters in Chinese, participants processed the second word faster – even though they had no conscious knowledge of having seen the first word in the pair. Even though these students are fluent in English, their brains still automatically translate what they see into Chinese. This suggests that knowledge of a first language automatically influences the processing of a second language, even when they are very different, unrelated languages.

"As long as I can speak English to you, why would you care what my brain is doing in terms of Chinese?" Zhang asks. In daily life, it doesn't matter; it's just good enough that she can talk to the people around her. But she says understanding the way languages are linked in the brain could someday help people learn second languages. "When people learn two languages, they automatically make the link between them. We would like to find out how the link between the two languages influences [language](#) processing."

Provided by Association for Psychological Science

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