

Sign language speakers' hands, mouths operate separately

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When people are communicating in sign languages, they also move their mouths. But scientists have debated whether mouth movements resembling spoken language are part of the sign itself or are connected directly to English. In a new study on British Sign Language, signers made different mistakes in the sign and in the mouthing—which means the hand and lip movements are separate in the signer's brain, not part of the same sign.

David P. Vinson, of University College London, and his colleagues Robin L. Thompson, Robert Skinner, Neil Fox, and Gabriella Vigliocco planned to do basic research on how signers process language. They recruited both deaf and hearing signers, all of whom grew up signing with deaf parents. Each person sat in front of a monitor with a video camera pointed at them. They were shown sets of pictures—for example, one set contained various fruits, another set contained modes of transportation—and were asked to sign the name of each item. In another session, they were shown those words in English and asked to translate them into British Sign Language. The idea is to show the pictures or words quickly enough that people tend to make mistakes, mistakes which help reveal how language is processed.

The researchers only planned to look at the signs, but the videos also captured the signers' mouths. "We noticed that there were quite a few cases where the hands and the [mouth](#) seemed to be doing something different," says Vinson. When people were looking at pictures, the hands and mouth would usually make the same mistakes—signing and

mouthed "banana" when the picture was an apple, for example. But when they were translating English words, the hands made the same kind of mistakes, but the lips didn't. This suggests that the lip movement isn't part of the sign. "In essence, they're doing the same thing as reading an English word aloud without pronouncing it," says Vinson. "So they seem to be processing two languages at the same time." This study appears in *Psychological Science*, a journal of the Association for Psychological Science.

British Sign Language is a separate language from both English and American [Sign Language](#); it developed naturally, and is mentioned in historical records as far back as 1576. Most British signers are bilingual in English. Vinson speculates that mouthing English words may help deaf people develop literacy in English.

Provided by Association for Psychological Science

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