

Chinese 'takes more brainpower'

Speaking Chinese may take more brainpower than speaking English, a study suggests.

Researchers in Britain have found that people who speak Mandarin Chinese use both sides of their brain to understand the language.

This compares to English-language speakers who only need to use one side of their brain.

The researchers said the findings could boost understanding of how the brain processes languages.

This, in turn, could one day help scientists to develop better ways of helping people to re-learn languages after a stroke or similar damage to the brain.

Brain scans

Dr Sophie Scott and colleagues at the Wellcome Trust carried out brain scans on a group of Mandarin and English speakers.

They found that the left temporal lobe, which is located by the left temple, becomes active when English speakers hear English.

People who speak different sorts of languages use their brains to decode speech in different ways

Dr Sophie Scott,
Wellcome Trust

The researchers believe that this area of the brain links speech sounds together to form individual words.

They expected similar findings when they carried out scans on Mandarin speakers.

However, they found that both their left and right temporal lobes become active when they hear Mandarin.

"People who speak different sorts of languages use their brains to decode speech in different ways," said Dr Scott.

"It overturned some long-held theories."

Mandarin is a notoriously difficult language to learn. Unlike English, speakers use intonation to distinguish between completely different meanings of particular words.

For instance, the word "ma" can mean mother, scold, horse or hemp depending on how it is said.

The researchers believe that this need to interpret intonation is why

Mandarin speakers need to use both sides of their brain.

The right temporal lobe is normally associated with being able to process music or tones.

"We think that Mandarin speakers interpret intonation and melody in the right temporal lobe to give the correct meaning to the spoken words," said Dr Scott.

"It seems that the structure of the language you learn as a child affects how the structure of your brain develops to decode speech.

"Native English speakers, for example, find it extraordinarily difficult to learn Mandarin."

Learning languages

Dr Scott said the findings could help scientists to understand how the brain learns language.

It could be particularly useful in trying to understand how it re-learns language after a stroke.

She suggested it could also lead to new drugs to help people who have lost their language skills.

"There is evidence from other studies that certain drugs affect learning in the brain regions that support hearing and speech," she said.

"This is something we can improve on."

Dr William Marslen-Wilson, of the MRC Cognition and Brain Sciences Unit at Cambridge University, welcomed the study.

"It is an interesting finding," he told BBC News Online.

"Looking at languages that are very different from each other helps us to understand how the brain processes language.

"It can also help us to understand language rehabilitation," he said.

"This field is really opening up but it is very early days."

The findings will be included in the summer science exhibition at the Royal Society in London, which runs from 1 to 3 July.

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