

Study suggests bilinguals have an improved attentional control

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A small child in Mumbai, with a shaved head, eating bread with her hand.
Credit: Wen-Yan King/Wikipedia

Researchers from the University of Birmingham have shed light onto the

cognitive benefits of bilingualism, pointing to an enhanced ability to maintain attention and focus.

The results of the study, published in *Bilingualism: Language and Cognition*, suggest it is this improved attentional control that provides the 'bilingual advantage', rather than a better-than-average inhibitory control.

Bilinguals have been found to possess cognitive advantages over those who only speak one language, but the nature of the advantage is unclear. While some evidence has suggested that bilinguals have developed enhanced inhibitory control abilities, that is, the ability to suppress or tune out stimuli that are irrelevant to the task at hand, other evidence suggests that bilinguals possess enhanced attentional control abilities and are better able to concentrate on a specific stimulus.

The study recruited 99 participants to complete three well known psychological tests that measure [inhibitory control](#) ability; the Simon task, the Spatial Stroop task and the Flanker task. 48 were highly proficient English-Chinese bilingual, who had learned English before the age of 10 and switch between languages on a daily basis, and 51 were English monolingual speakers.

The important measure was the time it took participants to respond to the stimuli presented in the tests on a computer screen.

- In the Flanker task, participants were presented with rows of arrows and asked to indicate the direction of the central arrow by pressing a left or right button. They needed to ignore the flanking arrows, which either pointed in the same or different direction as the central arrow.
- In the Spatial Stroop task, participants needed to indicate the direction of a single arrow, pointing either left or right, by pressing a button. Arrows appeared either on the left or the right

side of the screen, which helped or hindered the correct response.

- The Simon task was very similar to the Spatial Stroop task, but stimuli were single blue or red squares instead of arrows.

The novelty of the study was to examine slow response times separately from the more usual fast responses. This showed that the two participant groups were similarly good at inhibiting interfering stimulus features in the bulk of their responses. However, bilinguals did not have as many very slow responses as monolinguals.

These results suggest that bilingual speakers have better sustained attention than monolingual speakers, but not better inhibition abilities.

Dr Andrea Krott, from the University of Birmingham explained, "While there is plenty of evidence that there are [cognitive benefits](#) to being bilingual, there are also scholars that question the evidence due to replication failures. Our findings suggest that the way that data has been analysed might not have only led to the wrong conclusion that [bilinguals](#) have superior inhibition abilities, it might have also contributed to these replication failures. Together with other evidence, our research suggests that the lifetime [task](#) of switching between languages appears to enhance the ability to maintain attention."

"The next challenge is to determine how these behavioural changes are brought about by changes in the brain. It is already well known that the experience of speaking another language changes the structure of the brain and how it functions. But we do not understand very well how these changes lead to changes in behaviour."

More information: BEINAN ZHOU et al, Bilingualism enhances attentional control in non-verbal conflict tasks – evidence from ex-Gaussian analyses, *Bilingualism: Language and Cognition* (2016). [DOI:](#)

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