



Bilingual toddlers demonstrate greater cognitive flexibility, study finds

Switching between languages enhances your mental control.

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Speaking more than one language at home doesn't just expose young children to two sets of vocabularies – it could also confer hidden benefits to their cognitive control, according to a new study.

Researchers in Canada have been investigating how the ability to speak more than one language affects problem-solving skills in toddlers. What they've found is that bilingual kids – who become accustomed to switching between different tongues as required – demonstrate greater mental flexibility than monolinguals when it comes to certain types of mental exercises.

According to the researchers, while it might be difficult for young children to initially learn this skill of switching between languages in different contexts, the ability to do so pays off in relation to resolving conflict tasks, where people need to override a rule or behaviour they previously learned to complete a contrasting objective. For example, identifying the colour of certain text when the text itself is trying to trick you, [called the Stroop effect](#).

"This switching becomes more frequent as children grow older and as their vocabulary size increases," [said psychologist Diane Poulin-Dubois](#) from Concordia University. "Therefore, the superior performance on these conflict tasks appears to be due to bilinguals' strengthened cognitive flexibility and selective attention abilities as they have increased experience in switching across languages in expressive vocabulary."

The researchers assessed the vocabularies of 39 bilingual toddlers and compared them with the abilities of 43 monolingual peers. Two study sessions were conducted 7 months apart, with the tests occurring when the children were aged 24 months and then 31 months.

In terms of vocabulary skills, bilingualism didn't appear to confer greater expressive abilities, but a marked gap between the two groups became clear in relation to non-verbal exercises.

"For the most part, there was no difference between the bilingual and monolingual toddlers," [said Poulin-Dubois](#). "But that changed dramatically when it came to the [conflict inhibition](#) test, and the differences were especially apparent in the bilingual toddlers whose vocabulary had increased most."

To assess the children's capabilities in conflict inhibition tasks, the participants were asked to perform a reverse categorisation puzzle: putting little blocks in a little bucket and big blocks in a big bucket, then being asked to reverse the sorting, putting little blocks in the big bucket, and vice versa.

Another task presented the kids with shape conflict. They were shown pictures of differently sized fruits and asked to name them. Then a new series of images was shown, with small fruits embedded inside the large ones, and the participants had to point to the little fruit, overcoming the juxtaposition.

As reported in the [Journal of Experimental Child Psychology](#), the bilingual toddlers did significantly better on these conflict inhibition tasks, consistently outperforming the monolinguals.

"In conflict inhibition, the child has to ignore certain information – the size of a block relative to a bucket, or the fact that one fruit is inside another," [said one of the researchers, Cristina Crivello](#). "That mirrors the experience of having to switch between languages, using a second language even though the word from a first language might be more easily accessible."

According to the researchers, the more language-switching the toddlers engage in, the more it benefits their mental flexibility, with children who had amassed a greater number of 'doublets' – pairs of words in two languages with the same meaning, ie. dog/*chien* – showing greater conflict inhibition resolution.

"By the end of the third year of life, the average bilingual child uses two words for most concepts in his or her vocabulary, so young bilingual children gradually acquire more experience in switching between languages," [said Poulin-Dubois](#).

The findings add to a growing body of scientific research highlighting the diversity of benefits that come with speaking more than one language, ranging from bilinguals [having a higher volume of grey matter in their brains](#) to [enjoying greater prospects of stroke recovery](#). Basically, if you're interested in learning another language, your brain will most likely make it worth your while