

THE BILINGUAL BRAIN

by The Brainstorms



Multilingualism in Europe

54% of Europeans are **bilingual**,
25% speaks **three**,
10% speaks **four** languages.



Simultaneous vs sequential bilinguals

Bilinguals: can use two languages

Simultaneous bilinguals: learnt two languages simultaneously from birth

Sequential bilinguals: learnt their second language later in life after acquiring their first

Right vs left brain

Most areas of language processing develop in the second year of life in the dominant half of the brain (4, 5).



Bilinguals who acquire both languages by the age of six use both hemispheres in both languages.

Those who acquired their second language after age six only use their dominant hemisphere for both languages.



References

- (1) Special Eurobarometer 386, 2012
- (2) Kuhl 2010
- (3) Berken et al. 2015
- (4) Hull and Valid, 2006
- (5) Hull and Valid, 2007
- (6) Bialystok 2012

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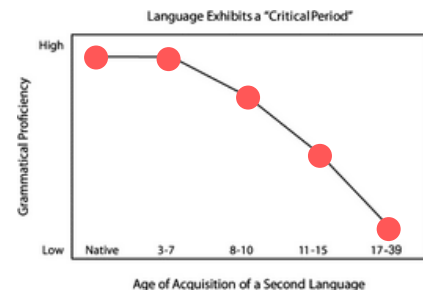


Most spoken second languages

38% of them speak English as a second language (1).

Critical period

Second language proficiency depends on the age when we learn the second language (also for sign language) (2).

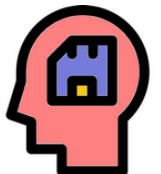


Language representations in the brain

Simultaneous bilinguals share neuronal representations of the languages in the same brain areas, while sequential bilinguals use different areas additionally (3).

The brain has a limited capacity to memorise words

Verbal skills of bilinguals in each language are generally weaker than those for monolingual speakers of each language. However, bilinguals have greater total vocabulary (adding up the number of known words in each languages).



It's on the tip of my tongue

Bilinguals experience tip-of-the-tongue moments twice as often as monolinguals. Processing two languages at the same time comes with a computational cost. However, "multitasking" results in better executive functions (working memory, cognitive flexibility, inhibitory control) (6).