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Research question: how does being bilingualism affect memory flexibility in a young child?

The term “bilingualism” can mean two things: the ability to equally communicate in two languages, and to communicate in two languages but with better skills in one particular language. The second definition is most common in society because we as humans tend to be dominant in one thing; for example, the majority of people are dominant in one hand, but it doesn’t mean it’s impossible to use both. Throughout my research, I noticed that professors used three types of bilingualism when conducting experiments on children.

One type of bilingualism is referenced as “simultaneous bilingualism”[1] which simply refers to a person learning two languages as a “first language.” In the study, simultaneous infants went from not speaking at all to speaking two languages at once. This was due to both their parents presenting two different languages from birth. This is most common in immigrant households, where a child learns their surrounding area’s native language and also their parents' native language. One experiment that Korvacs and Mehler used was eye-trackers, which worked with cue cognitive control skills. They found that 7-month-old infants were better with their control skills than monolingual infants of the same age. They were able to switch their attention from one place to the next, smoother.

Another type of bilingualism is “receptive,” which refers to a person who is capable of comprehending two different languages but only utilizes one when speaking. In the studies, children who were exposed to both languages but had less of an opportunity to use one language would be identified as receptive. Many researchers have argued that bilinguals have two “active” languages, and they must inhibit one language when producing the second. This results in them performing an “attentive control” or in other words, they are better listeners. Another study that was conducted shows how children coming from Spanish and Chinese households were better able to speak and understand English in preschool because they would hear English on television but make connections in their native tongue.

The last type of bilingualism is called “sequential,” which refers to someone who is “learning one language after already having established the first language.” This mainly refers to

[1] UKEssays. (November 2018). How bilingualism can effect cognitive functions. Retrieved from https://www.ukessays.com/essays/psychology/how-bilingualism-can-effect-cognitive-functions.php?vref=1

those who learn a new language in adulthood. These stages are important because the child's learning and interpreting ability differ in each stage of bilingualism. As a parent, if you want your child to understand and interpret Spanish and English, it's best to teach them as early as 4 months old for them to be part of the "simultaneous" group. When they enter grade school, their self-control and memory control would be more efficient compared to their counterparts.

Memory flexibility is the function in one's brain that works with retaining information and manipulating memory, and it's used to guide behavior. In recent studies, researchers have found that bilingual children showed an advanced ability and performance in memory flexibility in contrast to monolinguals. More specifically, their verbal intelligence was higher. They were able to retain concepts deeper and they had symbolic flexibility. In Dr. Natalie Britos' research, she conducted a test on 54 monolingual and 60 bilingual 6 month-olds with a basic task of encoding and retrieval of information. This resulted in bilingual infants outperforming their monolingual peers in both efficiencies of habituation and visual recognition memory of the stimuli. They concluded that bilingual infants were able to rapidly form internal memory by using broad cognitive abilities. In terms of memory flexibility, Tulving and Thomson's[2] conducted an encoding specificity hypothesis, which states that a memory of an event will only be recalled if the cues at the time of retrieval match the same cues previously seen at the time of the original encoding. As bilingual infants develop, they are better able to retrieve memories despite changes in specific cues. Overall, this study supports the argument that bilingual infants have better memory flexibility than monolinguals.

While this research was a lot to discover and to conduct, I find this topic interesting because I was able to combine two of my passions - languages and neuroscience. Being a quadrilingual individual, I wanted to learn about the advantages I have in comparison to my fellow peers. A lot of individuals, more specifically teachers and other school staff, tend to place children in ESL classes simply because they speak Spanish or Chinese. More than 75% of those children are capable of speaking English, however the stereotype still roams around this country that English is the primary and only fit language that people should have. Therefore, I hope to shed some light on this topic of bilingualism, and I hope more parents and adults teach their children that learning other languages not only benefits themselves, but also benefits how they perceive and interact with the rest of the world.

For my future studies, I hope to research more on this topic and eventually work with individuals in this field of study. I also hope to research more about what certain languages

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[2] Encoding specificity and retrieval processes in episodic memory. Psychological Review 80, 352–373.

trigger attentiveness the most - whether that be learning Latin versus learning Japanese. Overall, I want to learn more about how our brain can pick up a new language and how it changes gears between reading in one language and talking in a different language.