EN_43542301 Research Introduction

It is expected that by 2050 the number of people diagnosed with Alzheimer's disease will have tripled from an estimated 57.4 million to 152.8 million cases (Nichols, 2022). It has also been shown there is a correlation between growing up bilingual and delaying the manifestation of Alzheimer's by 4.6 years (Woumans, 2014). Knowing this, it would be great if we, ourselves, could have a positive influence on this delay by learning a second language. A good question is, why is not everyone studying as many languages as possible if it would postpone Alzheimer's?

In this research article, bilingualism refers to when an individual is able to speak two languages fluently. This does not require growing up bilingually, as one can still become fluent in a nonnative language as an adult. Someone is regarded as fluent in the current article when they have at least a C1 level in speaking and writing.

For years parents have been told how beneficial it is to raise their children bilingual, as was suggested in the study conducted by Woumans about Alzheimer's disease, for example. Besides the fact that they will be able to communicate with more people, these different benefits also include improved working memory (Morales, 2012). Additionally, "…learning a second language is related to better conflict processing, irrespective of initial childhood ability or social class", according to Cox. Et al. (2016). Research also suggests that being bilingual can improve the prefrontal cortex-hippocampal neural circuitry which, in turn, can cause synergetic advantages in both the memory and the executive control (Golshani et al., 2024). Lastly, when it comes to selective attention, bilingual children scored higher than their monolingual peers (Blom et al., 2017). So, it is clear that many studies have been done on being raised bilingual and its benefits which mostly include attention span and information processing.

Unfortunately, compared to the large amount of research found on the benefits of growing up bilingual, less research can be found on the cognitive advantages of learning a second language after adolescence. The question is whether the same benefits can be enjoyed by those who learn a second language at a later age. Children do not have a say about the number of

languages they learn, it is the choice of the parents or caregivers whether they are raised multilingual.

Therefore, if it turns out some benefits mentioned before can still be enjoyed when learning a L2 in adulthood, it could imply that we can still take advantage of the cognitive benefits.

As most of the research in the past years has been about early childhood bilingualism, the intention of this research is to reduce the gap in literature about late bilingualism. By investigating the cognitive benefits of learning a second language later in life, the goal is to be able to contribute to the knowledge about learning a second language in adulthood. Specifically, to what extent does learning a new language in adulthood contribute to cognitive improvements on the flanker and operation span task amongst monolingual individuals? In order to answer this question, an experiment will be conducted. If results are positive, more people might end up learning new languages after finding these results.