

Cognitive Benefits from Bilingualism and Second Language Study

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Abstract

During the past decades a growing number of research studies have found cognitive benefits for bi-lingual individuals in comparison to people who only speak one language. Across a broad range of ages and learning conditions research has found that bilinguals and students learning a second language perform better on a number of cognitive tasks and exhibit other benefits from their knowledge of more than a single language. This review presents a general summary of the findings to increase general awareness of the cognitive benefits of foreign language learning.

Key words : bilingualism, foreign language learning, cognitive control, cognitive reserve

Many university students tend to think of foreign language study as little more than a difficult subject that they probably will not use in their future careers. Indeed, foreign language courses can be very difficult and students often quickly forget much of what they have studied. For these students, foreign language study is challenging and discouraging. Some of our students know that foreign language learning can be an important skill that they may need in their future work, especially the learning of English language. They may also realize that many future employers may assess foreign language ability when considering who they will hire. Sadly, students are very often unaware of the numerous cognitive benefits and academic benefits of foreign language learning. During the past three decades research has revealed that learning a foreign language can result in enhanced memory and thinking skills, increased attentional control, and may even increase and extend cognitive function throughout one's life. Here, the general research findings of the cognitive benefits of foreign language study will be reviewed.

Bilingualism is everywhere

It is not a monolingual world. More than half of the world's population can speak in more than language. Sources have reported that 66% of children live in bilingual homes and know at least two languages^(1,2,3). Most educated persons can be expected to understand some rudimentary vocabulary and knowledge useful phrases from one or more languages. Other professionals may require a functional knowledge of several languages. Certainly, if you plan on an academic career or if you wish to travel internationally, you may want to be fluent in English. However, beyond these well known social benefits of being bilingual there are some important cognitive benefits to acquiring a second or third language.

Cognitive Enhancement

It turns out that bilingual persons have enhanced executive working memory functioning when compared with people who only know one language. This means that bilinguals tend to out-perform monolinguals on

some cognitive tests requiring attentional control, such as the Stroop Test. Bilinguals also out-perform monolinguals on task switching and on multiple tasks. These findings indicate that bilinguals have enhanced cognitive control and cognitive flexibility which in turn is associated with enhanced learning capacity^(13,15,16,17). Bilinguals also exhibit an enhanced selective listening capacity. Research using fMRI have found that bilinguals have larger neural responses than people who have only one language. Not surprisingly, bilinguals often learn additional languages and other information faster than monolinguals.

Students who study a second language also tend to tend better cognitive performance than those who do not study foreign language^(5,6,7,9,10,11,13,16,17,18). Students who do study a foreign language have higher scores on standardized tests. There is also positive relationship between bilingualism and intelligence. There is a correlation between high school foreign language study and higher academic performance at the college level. Learning a foreign language increases the student's linguistic awareness. Research suggests that language learners develop a more positive attitude toward the target language and to speakers of that language. There is a correlation between bilingualism and attentional control on cognitive tasks, and on general memory skills. Bilingual students have better verbal and spatial abilities and better problem solving abilities.

What is so special about becoming bilingual that would produce these cognitive benefits? The answer is that when a when a monolingual is using her language she activates related words, so the person uses mental effort to select the word needed and to suppress other word candidates. In the case of the bilingual, she is using one of her languages, but research has found that both languages are activated in the brain, so the bilingual needs to have much more control of her two lexicons. Thus, the bilingual develops a higher level of attentional control and other types of cognitive control^(9,10,11,12,15). Over a lifetime, the bilingual individual not only develops a higher level of attentional control⁽²⁶⁾, but also additional cognitive capacities, such as cognitive reserve^(26,27,28, 31).

Cognitive Reserve

There are some terrible diseases which destroy the patient's brain tissue and eventually results in death. Two of the most well-known are Alzheimer disease and multiple sclerosis (MS). In both of these conditions there is loss of brain matter and a loss of cognitive functioning. However, there are some individuals keep much of their cognitive abilities longer than other patients with the same level of brain loss. The ability to continue normal functioning, or to have less impaired function, even as disease is damaging their brain is referred to as "cognitive reserve." Interestingly, patients who exhibit cognitive reserve tend to be highly educated individuals or they are bilinguals^(18,19,20,21,31). In one Alzheimer disease study which compared bilingual and monolingual patients found that bi-lingual patients reported symptoms of the disease 5 years later than the monolingual patients. Post-mortem examination revealed that the bilingual patients had significantly more brain atrophy, but had functioned at a higher level than the monolingual patients.⁽²¹⁾

It has been established that adult second language acquisition can bring to the adult learner some of the cognitive enhancements that younger bi-linguals experience; that is, foreign language acquisition even at relatively older ages results in improved attention, memory and other executive functioning. It is, therefore, reasonable to advocate for lifelong bilingual language acquisition, and to encourage lifelong bilingual capability.

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二言語使用と第二言語学習による認知的有益性

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要 旨

この数十年、一言語話者と比較した場合における二言語話者の認知的有益性を示唆する研究報告が増加し続けている。広範囲にわたる年齢層や学習状況を対象とした研究では、二言語話者および第二言語学習者は数々の認知タスクにおいて一言語話者よりも高い結果となり、複数の言語から得られた能力の有益性を示唆している。本稿では、これらの先行研究を概観し、第二言語習得における認知的有益性という新しい効果視点への認識を深める。

キーワード：二言語使用, 外国語学習, 認知コントロール, 認知的予備力