# THE BILINGUAL ADVANTAGE

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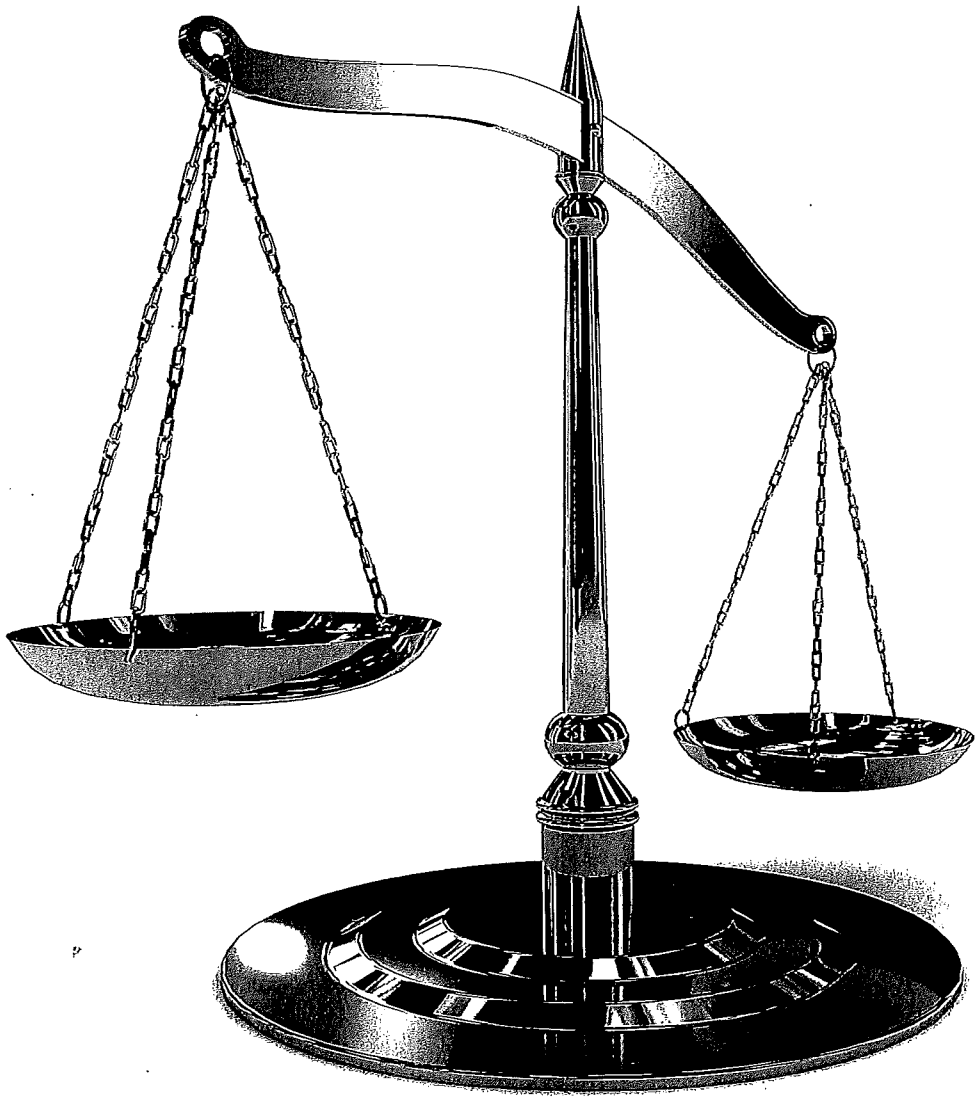

Learning another language has value in its own right. This is clearest when it comes to communication. Knowing and using more than one language makes it possible to communicate with others who speak those languages, take advantage of the internet to track down information in other languages, and even compete for jobs that require communication skills in other languages. The utility of bilingualism is evident even for people who speak English, the widely recognized global language – it is estimated that there are now more second language speakers of English than native speakers. Clearly, knowing English is important; but knowing only English is not enough. Monolingual English-speakers will be competing in the international market place with people who know English and other world languages.

## THE BILINGUAL PARTICIPANTS IN THEIR STUDY WERE SUPERIOR ON TESTS OF CREATIVITY, MENTAL FLEXIBILITY AND ATTENTIONAL CONTROL.

Researchers and non-researchers alike have long been fascinated by the possibility that there are advantages to being bilingual that go beyond knowing two languages and the increased communication and employment opportunities that this affords. Because language is such a fundamental part of human development, it has long been thought that being bilingual might have significant consequences for our general intellectual or cognitive abilities. There is growing and compelling evidence that, in fact, bilinguals often demonstrate certain cognitive advantages in comparison to monolinguals. This was not always the case. Early research on the cognitive consequences of bilingualism painted an unfavourable portrait (Darcy, 1953). Research in the early part of the 1900s reported that bilinguals often exhibited intellectual and cognitive deficits in comparison to monolinguals. However, this research was seriously flawed – for example, bilinguals were often tested in their weaker, second language and, therefore, were unable to express their full intellectual abilities in comparison to monolinguals who were tested in their fully mastered native and only language. Research in the mid-1960s began to change the picture of bilinguals. A pioneering study by Wallace (Wally) Lambert and his graduate student, Elizabeth Peal, at McGill University found that, when appropriate and rigorous research methods were used, bilinguals actually performed better than monolinguals (Peal & Lambert, 1962). The bilingual participants in their study were superior on tests of creativity, mental flexibility and attentional control. This study began an extensive ongoing research effort that seeks to understand the cognitive ramifications of learning and using two languages. Much of this research has a strong Canadian history.

Bilinguals show an advantage in two domains – metalinguistic awareness and executive control. It was advantages in metalinguistic awareness that were the focus in some of the early research, such as the Peal and Lambert study.

Metalinguistic awareness is the ability to think about the structural properties of language independently of meaning. Metalinguistic awareness is particularly important when it comes to reading and writing. Awareness that words can be broken up into individual sounds ("cat" consists of three sounds) and that these sounds can be represented by individual letters are good examples of metalinguistic awareness where the meaning of the language, words in this example, are unimportant. It is generally thought that bilinguals have superior metalinguistic awareness because they can compare and contrast their languages to see that there are different ways to refer to the same object (a dog is "dog" in English but "chien" in French), that languages have different sounds and those sounds are organized in different ways to produce words, and that words are sequenced differently in each language to form grammatically correct and meaningful sentences.

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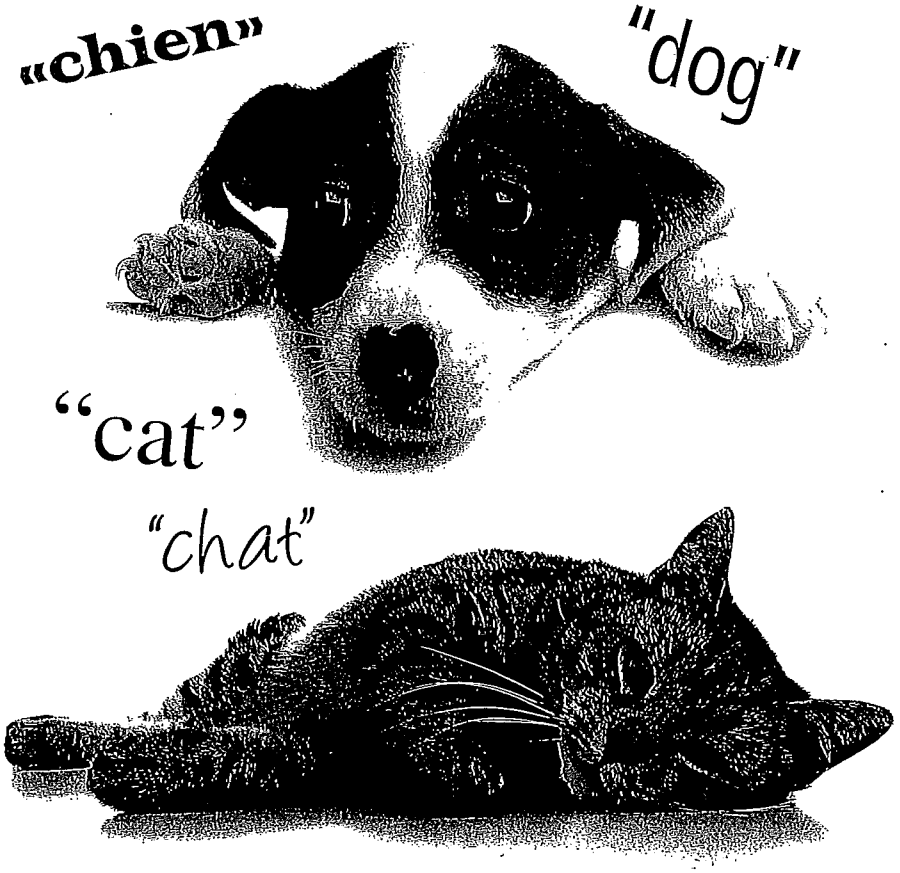
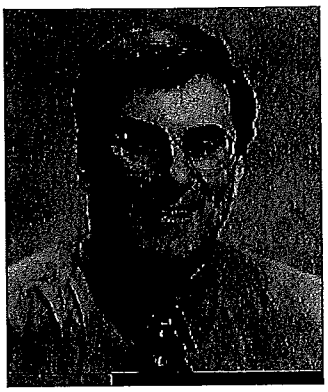


A lot of recent research has focused on executive functions. Ellen Bialystok at York University in Toronto is best known for this research (Bialystok, 2001). These are cognitive functions that reside in the frontal lobes of the brain and are like mental CEOs—they retain information and control the flow of information during mental activity or complex tasks that require planning. Of particular importance to bilinguals, executive functions direct, redirect or inhibit attention during problem solving and other complex cognitive tasks. It is generally thought that bilinguals have superior executive control functions in comparison to monolinguals because they have to exercise attentional control to avoid interference between their languages, monitor the language of others, know when to mix languages and when to keep them separate, and so on. The additional attentional vigilance that bilinguals must exercise enhances their executive control functions and often gives them an advantage not only when performing language-based tasks, but also during spatial, mathematical and other kinds of cognitive tasks. In effect, learning and using more than one language is like a cognitive workout that results in stronger "executive control muscles".

Even pre-verbal, 7-month-old infants exposed to two languages from birth have been found to exhibit enhanced attentional control in scientific experiments (Kovacs & Mehler, 2009). Moreover, a number of studies have found that the onset of Alzheimers in bilinguals was delayed by up to 4.5 years in comparison to monolinguals who also suffered from Alzheimers (Alladi et al., 2013). The common explanation in all of these is that bilinguals have extra cognitive reserves that facilitate mental activity in the case of infants, children and adults with normal cognitive abilities, and protect seniors against the consequences of aging, at least to a certain extent.

Indeed, there is growing scientific evidence among researchers who study brain-based aspects of aging that greater intellectual activity creates cognitive reserves that can buffer individuals from



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decreases in cognitive capacity that is a normal part of aging.

However, not all bilinguals are alike and show the same advantages in executive functions and metalinguistic awareness. Jim Cummins of the University of Toronto was one of the first researchers to argue that the advantages that bilinguals reap from being bilingual are linked to their level of proficiency in their two languages. According to his "threshold hypothesis", a certain relatively high level

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of proficiency in both languages is necessary for bilinguals to demonstrate cognitive advantages in comparison to monolinguals (Cummins, 1976). Recent research by Bialystok (2012) similarly indicates that gains in executive functions among bilinguals are related to how much experience the individual has in bilingual environments. More accumulated experience in bilingual environments is linked to enhanced executive control functions. In other words, just a little bit of knowledge or experience with an additional language is not likely to result in an advantage.

It is important to understand that there are limits to the real-life significance of these findings. These results are based mainly on comparisons between groups of bilinguals and groups of monolinguals. Although bilinguals as a group outperform monolinguals as a group on executive control and metalinguistic awareness tasks, there is variation among the bilinguals in these studies. Some score at the low end and do not perform better than monolinguals. Moreover, the bilingual advantage is demonstrated in experiments that use carefully-controlled tasks designed to reveal advantages, if they exist, and to reduce the effect of outside factors (e.g. stress). Cognitive advantages might not be evident in real life tasks that can be influenced by multiple factors all at the same time. This does not mean that the bilingual advantages reported by researchers are insignificant, but that they may not be obvious in all bilinguals outside the lab.

We have come a long way from early thinking about bilingualism when scientists and laypersons alike commonly characterized the bilingual as cognitively weakened from knowing more than one language. While we still have much to learn about the complex relationships between bilingualism and cognitive ability, it is clear there is a bilingual advantage in cognitive ability that results from learning, knowing and using more than one language. More bilingual proficiency and experience in bilingual environments enhance these advantages. Taking bilingualism seriously pays off. ■

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