Effects of Bilingualism on Linguistic and Nonlinguistic Development

Ivica, Tina

UNIVERSITY OF RIJEKA

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF ENGLISH

Tina Ivica

EFFECTS OF BILINGUALISM ON LINGUISTIC AND NONLINGUISTIC DEVELOPMENT

Submitted in partial fulfillment of the requirements for the B.A. in English Language and Literature and Italian Language and Literature at the University of Rijeka

Supervisor: Dr Tihana Kraš

July 2018

ABSTRACT

This thesis examines the linguistic and nonlinguistic effects of bilingualism. Its purpose is to describe the advantages and disadvantages of bilingualism and to confute wrong conclusions made so far regarding the effects of bilingualism in general.

The thesis offers general information about bilingualism and continues with an analysis of positive effects of bilingualism, including enhanced executive functioning, protection against the decline of executive control in aging, enhanced social cognition, easier acquirement of new information, and linguistic advantages. This is followed by a description of negative effects observed on language proficiency, lexical access, and retroactive and proactive interference. The thesis also reports on the fact that neither positive nor negative effects have been found on working memory.

KEYWORDS: bilingual, bilingualism, linguistic and nonlinguistic development, executive functioning, cognitive enhancement, language control, social cognition, new learning, linguistic advantages, metalinguistic awareness, positive transfer, language proficiency, lexical access, retroactive and proactive interference, negative transfer, working memory

Table of Contents

1. INTRODUCTION

According to Bhattacharjee (2012), since we live in a time of world globalization, being bilingual is extremely advantageous and beneficial for communication, and recently, researchers have shown that bilingualism has even more profound advantages.

While it has been believed for many years that bilingualism affects negatively on our mind, modern research suggests quite the opposite. Not only does bilingualism help enhance our cognitive abilities, it also serves as a shield against brain diseases and disorders. However, modern studies also confirm some bilingual shortcomings, such as weaker language proficiency and lexical access in comparison to monolinguals, but these seem to be easily compensated by advantages that are of greater importance.

The results of modern studies help us understand how bilingualism helps shape our brain, but also our mind; it makes us more open-minded both culturally and linguistically. In the past, parents believed that learning a new language would be detrimental for their children's brain and intellectual abilities, while today, thanks to modern research, the majority sees bilingualism as an advantage and even encourages it.

In this thesis, I will explain the term “bilingualism” and its presence in the world and in modern research. I will then continue by naming and explaining some positive, negative, and indifferent effects of bilingualism on linguistic and nonlinguistic development. Among positive effects, I will include executive functioning, cognitive enhancement, protection against cognitive aging, enhanced social cognition, easier acquirement of new information, and some linguistic advantages. Negative effects will encompass weaker language proficiency and lexical access, and retroactive and proactive interference, while for indifferent effects I

will mention working memory. At the very end, I will provide a summarized comment in which I will reflect on the mentioned effects.

2. BILINGUALISM

2.1. THE TERM

There are many advantages, but also disadvantages of bilingualism, but for a better understanding of its positive and negative effects, this phenomenon should be first defined. The definition of the terms "bilingual" and "bilingualism" can vary according to the situation in which they are utilized. They can indicate "the knowledge and use of two or more languages, the presentation of information in two languages, the need for two languages, the recognition of two or more languages, and so on" (Grosjean, 2013, p. 5). However, in this thesis, I will define bilingualism as "the use of two or more languages (or dialects) in everyday life" (Grosjean, 2013, p. 5). It is also important to mention that according to this definition, the term bilingualism is equivalent to multilingualism, a phenomenon that also indicates the use of two or more languages.

2.2. FLUENCY AS A CRITERION

Fluency in both languages is often considered a criterion for bilingualism, but that is a common misconception, especially because the majority of bilinguals do not have equal fluency in both languages. Many bilinguals are fluent in only one of the languages and they often have an accent. These kinds of bilinguals probably acquired the knowledge of their second language in their adolescence or adulthood, while bilinguals that do not have an accent in either of the languages probably acquired the knowledge of their second language in childhood (Grosjean, 2013). Therefore, a person can be bilingual regardless of having an accent or being less fluent in one of the languages.

Many studies, such as Weinreich (1968) and Mackey (2000), have excluded fluency as a criterion for bilingualism and have instead put stress on language use as the defining factor.

This supports the definition given in 2.1., which states that bilingualism is the use of two or more languages in everyday life.

2.3. BILINGUALISM IN THE WORLD

Bilingualism is a widespread phenomenon that has rapidly increased its presence in modern society due to globalization and technology. There are many more bilinguals in the world today then there were in the past. According to a European Commission report from 2006, there are 56% bilinguals in 25 European countries. As stated in Grosjean (2013), these bilinguals may not use their second language as often as their mother tongue, but this number does demonstrate how common bilingualism is. Furthermore, Grosjean (2013) describes the situation in North America: in Canada, 35% of the inhabitants speak two or more languages. In the United States, regardless of the fact that many Americans consider bilingualism to be a negative phenomenon, there are around 55 million bilinguals, but this is an equivalent to only 18-20% of the American population. To contrast these statistics, Grosjean (2013) states that in other parts of the world, the percentage of bilingualism is much higher; for example, in Africa and Asia, it is common to know more than just one language.

2.4. NEW ERA OF BILINGUAL RESEARCH

There are many myths and beliefs which falsely accuse bilingualism of being a negative phenomenon, and, of course, there also those that praise bilingualism and falsely attribute it positive effects. However, some false information can be eradicated thanks to linguistic experts who have examined the effects of bilingualism and are on the path of putting an end to unsubstantiated presumptions.

For many years, bilingualism was thought to have more negative effects than positive, but that viewpoint drastically changed in 1962 when Elizabeth Peal and Wallace E. Lambert came to a different conclusion. They conducted a study in Montreal with French-English bilingual children who outperformed monolingual English-speaking children in various tasks, including verbal and nonverbal intelligence tests. This study was a turning point in bilingual research and it changed the way people saw bilingualism.

However, many still consider bilingualism to be contentious. A great example are the United States where bilingual education is seen as politically controversial. According to Diamond (2010), this kind of thinking has even been imposed on the immigrants whose mother tongue is not English, some of whom believe that their children should learn only English in order not to be overloaded with information which then might lead to language interference. Before Peal and Lambert (1962), it appeared that bilingualism is primarily a negative phenomenon and that bilingual children experience a slower and poorer acquirement of vocabulary. However what affected those results were other factors connected to bilingualism, such as education and the socioeconomic status of the participants' parents.

In contrast to these studies, more recent studies took these factors into consideration and monolinguals and bilinguals were shown to be comparable in cognition and language processing; while the monolinguals take the lead in linguistic areas, bilinguals show dominance in cognitive tasks.

3. POSITIVE EFFECTS

As Saidi and Ansaldo (2015) point out, not only is speaking a second language intellectually rewarding, it is also socially advantageous; it potentially leads to better career opportunities, greater cultural acceptance, and economic progress. In addition, it has been shown recently that bilingualism has even more profound positive effects. Bialystok and Feng (2009) suggest that bilingualism is cognitively beneficial for children and that it helps prevent some symptoms of Alzheimer's disease.

Apart from these advantages, bilingualism is also shown to improve various cognitive skills and even to influence the structure of the brain. Many researchers connect these advantages with language control. Studies show that in the bilingual brain both languages are simultaneously and constantly active, but the bilinguals use language control to block the non-target language. This kind of brain training enhances cognitive skills, which leads to enhanced executive functioning and a prolonged lifespan of brain cells. This then leads to the postponement of some of the Alzheimer's symptoms, and even to a quicker and easier acquirement of new information. In the rest of this chapter, I will describe different positive effects of bilingualism.

3.1. EXECUTIVE FUNCTIONING

The first positive effect of bilingualism that I will look at is executive functioning. Executive functioning can be described as a reflective awareness of complex rules (Bialystok, 1999, p. 637) needed to solve problems which are based on these conflicting rules (Bialystok, 1999, p. 636). As primary executive functioning processes involved in problem-solving, Bialystok (1999) includes inhibition, shifting of mental tasks, (i.e. cognitive flexibility or the so-called task switching), and updating information in working memory.

It has been shown that bilinguals have a special challenge involving executive function. According to Diamond (2010), bilinguals constantly have to separate the two languages in their mind, and when they hear or say a word, they have to choose the meaning from the target language. For example, as Diamond (2010) states, a bilingual that speaks Italian and Spanish has to choose the appropriate meaning when (s)he hears the phonemes *b-u-rr-o*, because in Italian it means "butter", while in Spanish it means "donkey". Therefore, they perpetually have to use their executive function system.

This ability has been estimated in recent studies, such as Bialystok (2010) and Bialystok and Feng (2009), in which the researches intentionally created confusing tasks in order to evaluate the participants' ability to ignore the unnecessary information and focus on the information needed to solve the task. For example, in one of the tasks, children had to sort cards that portrayed either a rabbit or a boat: if the card had a star on it, the children had to sort the cards by color, but when the card did not have a star, they had to sort them by the image portrayed. The results showed no bilingual advantage or disadvantage when the rules remained the same, i.e. when they had to sort the cards by color in repetitive trials, but when the rules changed, the bilinguals were more successful and faster in adapting to the change.

As Bialystok and Craik (2010) report, several other studies, such as Bialystok (1988) and Cromdal (1999), also confirm the dominance of bilinguals in executive functioning. In these studies, the bilingual and the monolingual children recognized grammar errors in semantically valid sentences with comparable success (e.g. "Apples growed on trees"), but the bilinguals showed an advantage in ignoring the irrelevant information and recognizing grammar errors in sentences that were semantically misleading (e.g. "Apples grow on noses"). Therefore, as supported by Bialytok (1988) and Cromdal (1999), bilinguals proved to have an attentional advantage in inhibition and selectivity, i.e. processes of executive functioning.

Bialystok and Martin-Rhee (2004) conducted a similar study, in which bilingual and monolingual children had to put digital blue circles and red squares into two separate bins: one bin had a blue square on it, while the other one had a red circle. When they first had to categorize the objects by color, both monolinguals and bilinguals solved the task with similar ease, but when they had to sort the objects by shape, bilinguals were more successful. In other words, the bilingual children showed an advantage in adapting to a more demanding task. Bhattacharjee (2012) explains that this study shows that bilingualism improves executive functioning; it enhances the brain's ability to solve demanding problems and to ignore misleading information while staying concentrated on the information needed to solve the problem in question. Such constant training of the brain subsequently enhances its abilities and shields it from numerous brain diseases and disorders.

3.2. COGNITIVE ENHANCEMENT AND PROTECTION AGAINST COGNITIVE AGING

According to Bhattacharjee (2012), being bilingual greatly affects the brain; not only does it have positive effects on nonlinguistic cognitive abilities, but it also serves as a protection against many brain diseases and disorders, such as Alzheimer's disease. Bilingualism thus changes the brain both on a functional and structural level, primarily leaving positive effects. For instance, bilingualism increases the grey matter density in the left inferior parietal cortex, which is located at the left back portion of the brain (Marian, Chabal, Bartolotti, Bradley, & Hernandez, 2014, p. 108). According to Bialystok (2009), this part of the brain is linked to vocabulary acquisition and given that it is more developed in the bilingual brain, bilinguals acquire vocabulary more easily. Therefore, we can conclude that the parallel activity of two or more languages positively affects cognition and brain structure which then leads to easier vocabulary acquisition. In the following chapters, I will describe

cognitive areas enhanced by bilingualism: I will mention language control, which leads to even more cognitive enhancement, and environmental monitoring. I will also describe how bilingualism affects cognitive health and in that way shields the brain from diseases and disorders.

3.2.1. Language control

According to Kroll and Fricke (2014), because both languages are constantly active in the bilingual brain, bilinguals are required to develop a skill that enables them to switch back and forth between languages while being fluent in the target language. Having to regulate two languages, the bilingual mind and brain modify and the bilingual's cognitive abilities develop.

As stated by Abutalebi et al. (2008), this language skill, called language control, enables the bilingual to change the target language without noticeable consequences on the fluency of either of the languages. In other words, language control allows the bilingual to rapidly change the language (s)he is using without having interferences from the non-target language, and to recognize the language of heard or written structures with ease.

As Bhattacharjee (2012) points out, since it used to be believed that bilingualism presents an interference and impedes proper linguistic and cognitive development, this new view on bilingualism has been a turning point for how the world sees bilinguals. However, past conclusions were not completely wrong regarding interference; there are many studies which confirm that because of the parallel activity of the two languages, in certain situations, one language causes the obstruction of the other. As noted by Abutalebi et al. (2008), the noticed frequent occurrence of the first language interferences during the use of a second language supports this view. Nonetheless, many researchers claim that this interference "isn't

so much a handicap as a blessing in disguise. It forces the brain to resolve internal conflict, giving the mind a workout that strengthens its cognitive muscles" (Bhattacharjee, 2012, p. 1).

3.2.2. Environmental monitoring

According to Bhattacharjee (2012), the past belief that primarily inhibition, i.e. the suppression of one language system (so-called language control), causes the bilingual advantage is not accurate since modern research shows bilingual advantage even in tasks that are not related to inhibition. It might be that monolinguals and bilinguals differ on a more elementary level: because of language switching, which depends on the context, bilinguals have to be aware of their environment and adjust their target language accordingly to the situation. This makes them more aware of their environment and this influences their subconscious monitoring of the surroundings. Abutalebi et al. (2012) concluded that the bilinguals outperformed monolinguals in monitoring tasks; in addition, in the case of bilinguals, the parts of the brain involved in monitoring proved to be less active, suggesting that bilinguals are more efficient in monitoring.

3.2.3. Delay of onset of dementia

According to Bhattacharjee (2012), knowing more than just one language affects the brain throughout the life span and it is believed that is advantageous even for those who learn a second language later in life.

Gollan, Salmon, Montoya, and Galasko (2011) evaluated the proficiency of 44 elderly Spanish-English bilinguals in each language. The results indicated that the age of onset of dementia and other symptoms of Alzheimer's disease increased with the participants' degree of bilingualism (Bhattacharjee, 2012, p. 2).

Bialystok and Craik (2010) examined monolingual and bilingual patients suffering from dementia and looked at the age of onset of their symptoms. It was found that the age of dementia onset significantly differed in the two groups of patients; compared to the monolinguals, the age of dementia onset for the bilinguals was postponed for four years.

Furthermore, Bialystok and Craik (2007) evaluated elderly Canadians and also showed that bilinguals demonstrated symptoms of Alzheimer's disease four years later in comparison to their monolingual counterparts. According to Diamond (2010), the reason behind this is the already mentioned exercise of the brain systems that improve its function; not exercising these systems leads to a decline of the brain's function. That is why Alzheimer's patients are advised to play brain-challenging games, such as Sudoku puzzles or bridge, but because patients cannot play brain-games all the time, bilingualism is considered more efficient since it imposes constant exercise on the bilingual brain (Diamond, 2010). They constantly have to decide which language to use and therefore they constantly train their brain, either consciously or subconsciously.

3.3. SOCIAL COGNITION

Not only does bilingualism enhance the brain's function, it also affects the bilingual's mind. In order to understand another language, bilinguals have to be open-minded when it comes to different languages. Learning different language structures and meanings leads to becoming more open to new information and therefore even to understanding other people's points of view. This improves bilinguals' social cognition, i.e. their understanding of other people's situations and perspectives. Furthermore, since bilinguals are used to constant language switching and are less affected by environmental changes than monolinguals (as explained in 3.2.2.), they are consequently more used to social changes as well which also

makes them more acceptive of different situations and standpoints (Bonfiglio, 2017). According to Piaget (1962), bilinguals possess an ability, known as the theory of mind (ToM), which indicates that bilinguals have a more profound awareness of other people's points of view and their mental states.

Furthermore, Goetz (2003) conducted a study which showed that bilinguals have an advantage in using their social awareness. In the study, monolingual and bilingual children had to explain the rules of a game to a blindfolded child, but regardless of the fact that both monolinguals and bilinguals were aware of the listeners needs, the bilinguals were more successful at taking the perspective of the listener and explaining the rules in a more appropriate manner.

3.4. NEW LEARNING

New learning, or in other words the acquisition of new information, is one of the benefits of bilingualism that has been neglected in bilingual research in comparison to other bilingual advantages. As Kroll and Fricke (2014) point out, it has been shown that bilingualism develops an advantage in vocabulary acquirement and that skill does not appear to be directly connected to executive function ability. Kroll and Fricke (2014) explain that the bilingual research done by now does not determine if this advantage applies only to people who acquired a second language in childhood and, therefore, there may be extra empty storage for new information, or whether it also applies to people who acquired a second language later in their life.

In Kovacs and Mehler (2009), bilingual babies would hear an audio recording, i.e. a short sound, and a puppet would appear on one side of the computer screen. Both monolingual and bilingual babies learned to look at that side of the screen every time they

heard the sound, but when the task changed, i.e. when the puppet began showing on the other side of the screen, the bilingual babies learned to look at that side of the screen, while the monolingual babies did not (Kovacs & Mehler, 2012).

3.5. LINGUISTIC ADVANTAGES

Since bilinguals have an advantage over monolinguals in learning new information, learning new languages also seems to be a skill that is more developed in bilinguals. There are many reasons why it is easier for a bilingual to learn a new language than it is for a monolingual. Not only does a bilingual have an already mentioned (3.2.) increased grey matter density in the left inferior parietal cortex, which is linked to vocabulary acquisition, but (s)he is also more prepared to learn a new language because (s)he previously already experienced the acquisition of another language. Therefore, a bilingual, sometimes even subconsciously, uses language learning methods (s)he already used, and as cited by Altmisdort (2016), a bilingual can also use positive transfer to aid his/her learning of a new language and even to strengthen his/her weaker language by transferring knowledge from the stronger language to the weaker one.

Furthermore, because of enhanced metalinguistic awareness, bilinguals experience a consequent easier learning of other languages. According to Yayla, Kozikoglu and Celik (2016), such language learning skills are most often beneficial with languages that originate from the same language family, like for example Slovenian and Croatian. In such cases, bilinguals usually successfully transfer structures from one language to the other, making it easier to learn a new language.

What follows is a description of the bilingual language learning skills that are influenced by the knowledge and use of two or more languages. Most of these observations have been deducted from personal experience since I am a bilingual myself.

3.5.1. Enhanced metalinguistic awareness

According to Bialystok (1991), bilinguals have a more developed metalinguistic awareness than their monolingual counterparts. Since they use more than one language, bilinguals subconsciously, and often even consciously, think about the ways they use language; they reflect upon the use of the linguistic information they possess. Bialystok (1991) suggests that their awareness of language processing is more advanced due to their rich linguistic experience. Since they are more aware of the structure, meaning, and use of languages, their enhanced metalinguistic awareness leads to consequent easier understanding and learning of other languages.

3.5.2. Learning strategies

Another bilingual linguistic advantage are the language learning strategies which usually occur in bilinguals after they have experienced at least one acquisition of a new language. These strategies can even develop subconsciously and can therefore be created from an early age; an infant that is exposed to more than one language subconsciously develops strategies that aid the acquisition of the language that is not the mother tongue. However, according to Bryan (n.d), cognitive abilities decline with age and, therefore, it is harder for adults to acquire a new language and it usually takes them more time. Because of that, adult bilinguals have more developed strategies which they usually create consciously in order to ease their learning. If certain strategies prove to be successful, the bilingual is highly likely to

use them again when leaning a new language. According to Tippin (2011), children learn languages subconsciously while adults must actively think about learning a language. Therefore, bilinguals who have the knowledge of two or more languages since childhood usually do not have as strong learning strategies as do bilinguals who learned a new language later on in life, such as in teenage years, adolescence, adulthood, or even during their senior years.

The theory on bilingual advantage in language learning strategies has been confirmed in several studies, such as Kostić-Bobanović (2010) and Yayla, Kozikoglu, and Celik (2016). According to Kostić-Bobanović (2010), these studies show that bilinguals have an advantage over monolinguals in learning grammar rules and in unsupervised language learning, and demonstrate higher awareness of various learning strategies. Furthermore, as stated by Yayla, Kozikoglu, and Celik (2016), bilinguals are more likely to use language learning strategies than their monolingual counterparts and are also more efficient users.

3.5.3. Positive transfer

Positive transfer is another phenomenon that bilinguals use, both consciously and subconsciously, when using the target language. This phenomenon refers to the transfer of language structures from one language to another and is more frequent in the case of closely related languages, such as, for example, Croatian and Slovenian, and Spanish and Italian, because they share similar structures. However, since positive transfer can refer to grammatical structures, vocabulary, phonology, and orthography, in some cases positive transfer is possible even between languages that are not closely related. For example, both English and Italian have the same basic word order, i.e. SVO (subject-verb-object), regardless of the fact that English is a Germanic language, while Italian is a Romance language.

Therefore, a bilingual who speaks English and Italian can successfully transfer the basic word order from one language to the other. Positive transfer is particularly useful when a bilingual is less proficient in one of the languages and therefore needs to draw on the knowledge of language (s)he is less proficient in.

The use of verb tenses is another area where positive transfer can occur. Not only is the logic behind the use of verb tenses the same or similar in closely related languages, but the verb forms are also often similar. For example, in Slovenian, the verb “am” is written *sem*, while in Croatian it is written *sam*, both of which are pronounced in a similar way. Both the form and the use of these verb forms are similar and, therefore, can be transferred successfully from one language to another.

Based on personal observations, a language area where transfer is more visible is vocabulary. Words can often be successfully transferred from one language to another, but in some cases, adjustment is needed. For example, the Slovenian word for "nice" is *lepo,* while in Croatian it is *lijepo*. However, in some cases adjustment is not needed. An example is the word "no", which is written *ne* both in Slovenian and Croatian and is also pronounced in the same way.

Therefore, phonology and orthography can be positively transferred as well. Verhoeven (1994) shows that in terms of language transfer, bilinguals show an advantage over monolinguals in phonological skills, i.e. in the pronunciation of linguistic structures. Since phonology and orthography is often similar in closely related languages, a bilingual can use his/her pronunciation knowledge from the more proficient language to successfully pronounce a linguistic structure from language s(he) is less proficient in. One of the examples can be the Croatian and Bosnian language, which some may say are almost the same languages. In both languages, words are written how they are pronounced and are pronounced

as they are written, and since these languages share a very similar vocabulary, many words have the same form, meaning, pronunciation, and orthography. For example, the sentence *"Ova majica je ružna"* (in translation: This shirt is ugly.) has the same meaning, structure, word forms, orthography and pronunciation both in Croatian and Bosnian.

4. NEGATIVE EFFECTS

As already mentioned, it was believed for many years that bilingualism has more negative consequences than positive, and this view has been undermined by modern research. However, even modern research suggests that bilingualism does have some disadvantages. Among them are language proficiency, lexical access, and retroactive and proactive interference. In what follows, I describe each of these phenomena.

4.1. LANGUAGE PROFICIENCY AND LEXICAL ACCESS

As Bialystok and Craik (2010) point out, studies have shown that bilinguals obtain lower scores in tasks connected to vocabulary knowledge for each of their languages, and this deficit is present at all ages. By examining receptive vocabulary scores in English, Bialystok, Luk, Peets, and Yang (2010) compared monolingual and bilingual children between the ages of 3 and 10 years. Regardless of the fact that both monolingual and bilingual children used English daily and were fluent in it, the monolingual ones outperformed the bilingual ones at every age. Furthermore, Bialystok (2009) examined 971 children with a standardized Peabody Picture Vocabulary Test and obtained a significant monolingual advantage: while the monolinguals had a score of 105, the bilinguals obtained a score of 95.

When examining language processing, Michael and Gollan (2005) showed a monolingual advantage in tasks in which quick vocabulary access and retrieval were needed. The bilinguals demonstrated disadvantage in picture naming, both in their mother tongue and in their second language, in tasks of verbal fluency, in tip-of-the-tongue situations, and in lexical decision-making. Bialystok and Craik (2010) state that even though these disadvantages may not be visible in everyday communication, controlled tasks confirm their presence. Rogers et al. (2006) confirmed the mentioned findings, but also added the results on

word identification through noise which also revealed a monolingual advantage. However, as Bialystok (2009) points out, the reasons behind this bilingual disadvantage are not completely clear, but Michael and Gollan (2005) suggest that it may be connected to a poorer bilingual usage of both languages: since monolinguals use their language more often than their bilingual counterparts, they consequently have a more proficient speech production.

4.2. RETROACTIVE AND PROACTIVE INTERFERENCE

According to Darby and Sloutsky (2013), when learning a new language, a person might encounter some difficulties when it comes to information storage. This often appears in the bilingual mind when it is overloaded with information. When learning new information, old information can interfere with new information and vice versa. Proactive interference is when old information obstructs the recall of newer information, while retroactive information is when newer information obstructs the recall of older information (Darby & Sloutsky, 2013, p. 2130).

A phenomenon that occurs due to this interference is negative transfer. As pointed out by Isurin and McDonald (2001), a bilingual can have difficulties recalling structures or words from a weaker language or a more recently learned language because the information of the more fluent language obstructs the recall of information of the stronger language. However, there are cases in which a weaker language or a more recently learned language obstructs the information from the stronger language, but this usually happens during a period in which the person uses the weaker language more frequently than the stronger one. Such obstructions often lead to negative transfer because the bilingual tries to recall the forgotten information but instead subconsciously, or sometimes even consciously, tries to transfer the knowledge from one language to the other.

While conducting an informal investigation, I have noticed that the most common errors bilinguals make occur with words that are orthographically the same or similar but have a different meaning. For example, in Slovenian, the word *rumena* means ʻyellow', while in Croatian the word *rumeno* is used to indicate a rosy color, especially in the collocation *"rumeni obrazi"* (in translation: ʻrosy cheeks'). Therefore, a person who is more fluent in Croatian and less fluent in Slovenian may mistake the meaning of the Slovenian word *rumena*, thinking it is a rosy color instead of yellow. Such word pairs are called false friends, i.e. words with similar pronunciation and/or orthography, but with a different meaning. According to Lindholm and Padilla (1978), errors with false friends that bilinguals make often occur as a result of subconscious or conscious borrowing when there is a lack of appropriate lexical items in one of the bilingual's languages. Negative transfer often occurs when a bilingual speaking similar languages expects the meaning of the given language structure to be the same or similar since many structures and words from these languages have similar pronunciation, orthography, and meaning.

5. INDIFFERENT EFFECTS

When talking about bilingualism, there is always the question of "what are the advantages and the disadvantages?", and the question of indifferent effects is often ignored. However, some researchers concluded that bilinguals and monolinguals show the same level of success in tasks connected with working memory.

As already mentioned, lexical access and verbal fluency have been shown to be a bilingual disadvantage. In Fernandes, Craik, Bialystok, and Kreuger (2007), monolinguals outperformed bilinguals in a task that required quick and fluent lexical access: the participants had to think of certain words while being distracted and the monolinguals had a more successful performance.

The working memory system is generally considered to be one of the processes of executive functioning in which information must remain in memory while particular manipulations are performed on that information (Bialystok, 2009, p. 6). According to Bialystok (2009), when the working memory is not submitted to any manipulations, it is referred to as short-term memory. Bialystok and Feng (2011) examined short-term memory by asking 190 children to recall very long animal names and the results showed that bilingualism had neither advantageous nor disadvantageous effects.

6. CONCLUSION

In this thesis I have reviewed evidence showing that the experience of using two languages on a regular basis has positive effects on cognitive ability, the enhancement of executive functioning across the lifespan, social cognition, and the learning of new information and new languages. I have also pointed out that bilingual disadvantages are shown in verbal knowledge and skill, which is particularly visible in a less rapid access to lexical items, and language interference. Furthermore, I have also shown that bilingualism has indifferent effects regarding working memory, that is that bilinguals show no working memory advantage or disadvantage in comparison to monolinguals.

In my opinion, bilingualism can be considered a positive phenomenon since its negative effects are compensated with advantages that are of great importance, such as, for example, the delay of onset of dementia by approximately four years and easier communication in a globalized world. Furthermore, disadvantages such as lower language proficiency can be compensated by an advantage in executive functioning. Due to its undeniable benefits, bilingualism is beginning to be more and more accepted and encouraged in today's society.

REFERENCES

Abutalebi, J., Annoni J. M., Zimine I., Pegna A. J., Seghier M. L., Lee-Jahnke, H., ... Khateb, A. (2008). Language control and lexical competition in bilinguals: An event-related FMRI study. *Cerebral Cortex*, *18*(7), 1496-1505.

Abutalebi, J., Della Rosa, P. A., Green, D. W., Hernandez, M., Scifo, P., Keim, R., … Costa, A. (2012). Bilingualism tunes the anterior cingulate cortex for conflicting monitoring. *Cerebral cortex, 22*(9), 2076-2086.

Altmisdort, G. (2016). The effects of L2 reading skills on L1 reading skills through transfer. *English Language Teaching, 9*(9), 28-35.

Barac, R., & Bialystok, E. (2012). Bilingual effects on cognitive and linguistic development: Role of language, cultural background, and education. *Child Development*, *83*(2), 413-422.

Bhattacharjee, Y. (2012). Why bilinguals are smarter. Retrieved from https://www.nytimes.com/2012/03/18/opinion/sunday/the-benefits-of-bilingualism.html?_r=1&scp=1&sq=bilinguals%20are%20smarter&st=cse

Bialystok, E. (1991). *Language processing in bilingual children.* Cambridge: Cambridge University Press.

Bialystok, E. (1988). Levels of bilingualism and levels of linguistic awareness. *Developmental Psychology*, *24*(4), 560-567.

Bialystok, E. (1999). Cognitive complexity and attentional control in the bilingual mind., *Child Development*, *70*(3), 636-644.

Bialystok, E. (2009). Bilingualism: The good, the bad, and the indifferent., *Bilingualism: Language and Cognition*, *12*(1), 3-11.

Bialystok, E. (2010). Global-local and trail-making tasks by monolingual and bilingual children: beyond inhibition. *Dev. Psychol*., 46(1), 93-105.

Bialystok, E., & Craik, F. I. M. (2010). Cognitive and linguistic processing in the bilingual mind. *Current Directions in Psychological Science*, *19*(1),19-23.

Bialystok, E., Craik, F. I. M., & Freedman, M. (2007). Bilingualism as a protection against the onset of symptoms of dementia. *Neuropsychologia, 45*(2), 459-464.

Bialystok, E., & Feng, X. (2009). Language proficiency and executive control in proactive interference: evidence from monolingual and bilingual children and adults. *Brain Lang*, *109*(2-3), 93-100.

Bialystok, E., & Feng, X. (2011). Language proficiency and its implications for monolingual and bilingual children. In A. Durgunoglu (2011), *Challenges for language learners in language and literacy development*. (pp. 121-346). New York: Guilford.

Bialystok, E., Luk, G., Peets, K. F., & Yang, S. (2010). Receptive vocabulary differences in monolingual and bilingual children. *Bilingualism: Language and Cognition*, *13*(4), 525-531.

Bialystok, E., & Martin-Rhee, M. (2004). Attention and inhibition in bilingual children: evidence from the dimensional change card sort task. *Developmental Science, 7*(3), 325-339.

Bonfiglio, C. (2017). *10 Amazing Benefits of Being Bilingual*. Retrieved from https://www.accuconference.com/blog/why-adults-can-learn-languages-more-easily-than-children/

Bryan, L. (n.d.). Brain plasticity and cognition: A review of the literature. Retrieved from: http://download.learningrx.com/brain-plasticity-and-cognition.pdf

Cromdal, J. (1999). Childhood bilingualism and metalinguistic skills: Analysis and control in young Swedish-English bilinguals. *Applied Psycholinguistics*, *20*(1), 1-20.

Darby, K., & Sloutsky, V. M. (2013). Proactive and retroactive interference effects in development. *Proceedings of the Annual Meeting of the Cognitive Science Society*, *35*(35), 2130-2135.

Diamond, J. (2010). The benefits of multilingualism., *Social Science*, *330*(6002), 332-333.

European Comission (2006). Europeans and their languages. *Special Eurobarometer* 243.

Ferndandes, M. A., Craik, F. I. M., Bialystok, E., & Kreuger, S. (2007). Effects of bilingualism, aging, and semantic relatedness on memory under divided attention. *Canadian Journal of Experimental Psychology, 61*(2), 128-141.

Goetz, P. J. (2003.) The effects of bilingualism on theory of mind development. *Bilingualism: Language and Cognition, 6*(1)*,* 1-15.

Gollan, T. H., Salmon, D. P., Montoya, R. I., & Galasko, D. R. (2011). Degree of bilingualism predicts age of diagnosis of Alzheimer's disease in low-educated but not in highly educated Hispanics, *Neuropsychologia, 49*(14), 3826-3830.

Grosjean, F. (2013). Bilingualism: A short Introduction. In F. Grosjean, & P. Li, (2013), *The psycholinguistics of bilingualism* (pp. 5-25). Chichester: Wiley-Blackwell.

Isurin, L., & McDonald, J. L. (2001). Retroactive interference from translation equivalents: Implications for first language forgetting. *Memory & Cognition*, *29*(2), 312-319.

Kostić-Bobanović, M. (2010). A comparative study of language learning strategies used by Monolingual and Bilingual EFL learners. *Metodički obzori*, *6*(3), 41-53.

Kovacs, A. M., & Mehler, J. (2009). Cognitive gains in 7-month-old bilingual infants. Retrieved from http://www.pnas.org/content/106/16/6556

Kroll, J. F., & Fricke, M. (2014). What bilinguals do with language that changes their minds and their brains. *Applied Psycholinguistics*, *35*(5),921-925.

Lindholm, K. J., & Padilla, A. M. (1978). Language mixing in bilingual children. *Journal of Child Language*, *5*(2), 327-335.

Mackey, W. (2000). The description of bilingualism. In Li Wei (ed.), *The bilingualism reader* (pp. 26-54), London: Routledge.

Marian, V., Chabal, S., Bartolotti, J., Bradley, K., & Hernandez, A.E. (2014). Differential recruitment of executive control regions during phonological competition in monolinguals and bilinguals. *Brain & Language*, *139*, 108-117.

Michael, E. B., & Gollan, T. H. (2005). Being and becoming bilingual: Individual differences and consequences for language production. In J. F. Kroll, & A.M.B. de Groot (Eds.), *Handbook of bilingualism: Psycholinguistic approaches* (pp. 389-407). New York: Oxford University Press

Peal, E. & Lambert, W. E. (1962). The relation of bilingualism to intelligence. *Psychological Monographs: General and Applied*, *76*(27), 1-23.

Piaget, J. (1951). *Play, dreams, and imitation in childhood*. London: Routledge & Kegan Paul.

Rogers, C. L., Lister, J. J., Febo, D. M., Besing, J. M., & Abrams, H. B. (2006). Effects of bilingualism, noise, and reverberation on speech perception by listeners with normal hearing. *Applied Psycholinguistics*, *27*(3), 465-485.

Saidi, L. G., & Ansaldo, A. I. (2015). Can a second language help you in more ways than one?, *AIMS Neuroscience*, *2*(1), 52-57.

Tippin, C. (2011). Why adults can learn language more easily than children. Retrieved from: https://www.accuconference.com/blog/why-adults-can-learn-languages-more-easily-than-children/

Verhoeven, L. T. (1994). Transfer in bilingual development: The linguistic interdependence hypothesis revisited. *Language Learning*, *44*(3), 381-415.

Weinreich, U. (1968). *Languages in contact*. The Hague: Mouton.

Yayla, A., Kozikoglu, I., & Celik, S. N. (2016). A Comparative study of language learning strategies used by monolingual and bilingual learners. *European Scientific Journal, 12*(26), 1-20.