

# BILINGUALISM: DEVELOPMENT AND COGNITIVE IMPACT

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**Bilingualism: Development and Cognitive Impact**

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Department of English Language and Literature

## **Bilingualism: Development and Cognitive Impact**

BA Thesis

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## 1. INTRODUCTION

“Those who know nothing of foreign languages know nothing of their own.”

- Johann Wolfgang von Goethe, *Maxims and Reflections*, 1833

Bilingualism, as a concept of proficiently communicating in two languages, has been an interesting subject of discussion and research in various scientific fields. In today's world, the predominance of bilingual individuals is on the rise, inciting specialists towards more detailed research regarding the benefits and challenges associated with this linguistic phenomenon. Bilingualism may seem like a simple concept of fluency in two languages, but it includes a mosaic of cognitive benefits, as well as numerous cultural experiences, which reveal bilingualism to be a more intricate concept. Therefore, this thesis aims to give a simple overview of bilingualism and explain the complexity of this linguistic phenomenon. The complexity of this phenomenon starts with the challenge of defining the term, which could be considered an almost impossible task. However, this thesis will provide various definitions and address the issues that appear during this process. It will explain bilingualism by providing different theories of bilingual development and the process of language development. Additionally, the aim of this thesis is to highlight the significant impact of bilingualism on cognitive development. It enhances cognition, having a positive effect on working memory and creative thinking, as well as having an impact on attention control and problem solving (Adesope, Lavin, Thompson, and Ungerleider, 2010; Bialystok, 1999; Kharkhurin, 2009; Ricciardelli, 1992; Schelletter, 2019). Regarding brain function, bilingualism

showed a positive impact on protecting the brain from diseases such as dementia (Bialystok, Craik, and Freedman, 2007; Bialystok, Craik, and Luk, 2012).

As Baker (1998:6) suggests, given the fast-paced and changing world, there are still certain barriers between nations and people, and language, being the most important one, often complicates communication and relationships. However, bilinguals are advantageous in this regard as they have the ability to lower those barriers.

The benefits of bilingualism extend beyond language fluency, as it contributes to an individual's social and personal growth. The knowledge of more than one language prompts an individual to learn about the culture and history of the country associated with the language acquired, making that individual profoundly more educated in the affairs of not only their country and culture but the foreign ones as well. Moreover, the advantage of bilingualism for the individual is the development of positive opinions regarding different ethnic groups and cultures, as well as it offers numerous opportunities, including studying in a foreign country (for example, ERASMUS+ projects in the EU) as well as job, internship and apprenticeship opportunities in other countries. It is my understanding that bilinguals show certain personality traits which are a result of their bilingualism. This is supported by Dewaele and Stavans' (2014:218) research, which indicates how bilingual individuals are shown to be more sensitive towards the differences between people and cultures, pointing out the connection between an advanced knowledge of two languages and the concepts of open-mindedness, social initiative, and cultural empathy. Furthermore, Dewaele and Wei (2013) linked bilingualism with the personality trait of Tolerance of Ambiguity. Furnham and Ribchester (1995, as cited in Dewaele and Wei, 2013:232) define this as a personality trait of an individual who views ambiguous circumstances as appealing and stimulating while not denying the complexity and incongruity of those circumstances.

In the first section of the thesis, an overview of various definitions of bilingualism will be given, followed by various issues that appear while defining the term. This section will also explain different types of bilingualism, including individual, societal, elective, circumstantial, co-ordinate, compound, simultaneous, successive, additive, subtractive, elite, folk, and balanced bilingualism. The final part of the first section of the thesis focuses on bilingual use, that is, the function of language. The second section will provide an overview of the development of bilingualism. Firstly, various theories of bilingual development will be explained, which include single system and separate development hypotheses, universal grammar, cross-linguistic influence, constructivist account, and usage-based theory. Secondly, bilingual language development, which is divided into preverbal and verbal development, will be explained. The final part of the second section of the thesis will focus on the concept of the age factor and its impact on bilingual language development. The final section of the thesis aims to explain the impact of bilingualism on cognition, listing various beneficial consequences. What follows is an explanation of the positive effect of bilingualism on cognitive decline, specifically the bilingual impact on the delay in the onset of dementia. At the end of the thesis, a conclusion will be given where the main points of this thesis will be mentioned.

## **2. DEFINING BILINGUALISM**

Defining bilingualism, or rather, a bilingual person, is a complex and essentially impossible task. That is not to say that there are no definitions regarding the term bilingualism. Baker (2001:6) gives an example of Bloomfield's (1933) definition of bilingualism as a "native-like control of two



languages”, which depicts the popular belief that a bilingual person is able to speak two languages perfectly. However, Hamers and Blanc (2000:6) list some other definitions as a contrast to Bloomfield’s very broad definition of bilingualism, among which they point out Macnamara’s (1967a) idea of a bilingual person as “anyone who possesses a minimal competence in only one of the four language skills, listening comprehension, speaking, reading and writing, in a language other than his mother tongue”. Baker (2001:6) points out how the early definitions of bilingualism, with emphasis on Bloomfield’s (1933) definition, are regarded as maximalist (Baker, 2001:6), while Macnamara’s (1967a, as cited in Hamers and Blanc, 2000:6) definition represents the minimalist example of what bilingualism is.

To further explain the difficulty of defining bilingualism, Hamers and Blanc (2000:6-7) provide Titone’s (1972) definition, which states that “bilingualism is the individual’s capacity to speak a second language while following the concepts and structures of that language rather than paraphrasing his or her mother tongue”.

Grosjean (2010:21) highlights how many definitions focus more on the dimension of fluency of the languages and states that “they (bilinguals) simply do not need to be equally competent in all their languages. The level of fluency they attain in a language (more specifically, in a language skill) will depend on their need for that language and will be domain specific.” Regarding that statement, newer definitions focus more on the language use rather than language proficiency and fluency, some of which include Grosjean’s (2010:22) definition which indicates that “bilinguals are those who use two or more languages”.

## **2.1. Issues in Defining Bilingualism**

As already discussed, challenges regarding the definition of bilingualism do exist, and

Baker (1998:2-3) lists five specific issues related to an individual's bilingualism.

Firstly, he mentions the importance of differentiating between language ability and language usage. Individual's proficiency in two languages may vary in their usage of those languages in everyday life. This instance is also known as the difference between the degree and function of language (Baker, 1998:3).

Secondly, Baker (1998:3) points out how language competence can vary across the four basic language skills: speaking, writing, listening, and reading. An individual may be proficient in conversing in the second language but have problems in reading and writing, especially if the two languages do not possess similar alphabet (e.g., English and Korean). This he explains as the difference between passive language competence (listening, reading) and active language competence (speaking, writing). Furthermore, Baker (2001:5) states that these language abilities can be divided into sub-dimensions such as pronunciation, vocabulary, grammar, meaning, and style. Skutnabb-Kangas (1981, as cited in Baker, 2001:6) lists inner thinking as the fifth language ability, which represents "the ability of bilinguals to use both languages as thinking tools" and "to use one or both languages for reasoning and reflection" (Baker, 2001:4-6).

Thirdly, Baker (1998:3) clarifies that bilingualism includes the term known as the dominant language, which does not have to consider the native language of a person. It refers to the idea that bilingual people are not equally proficient in both of their languages, and it is more common that one language is better developed than the other. However, Grosjean (1982, as cited in Gottardo and Grant, 2008:1-2) indicates that it is not to be considered that there are no bilinguals with nativelike proficiency in both languages, which is referred to as true bilingualism, and adds how this is a rather rare phenomenon as it is important to consider various factors such as when and

why were two languages acquired. This concept is also closely related to the idea of balanced bilingualism, which will be explained later.

Fourthly, Baker (1998:3) points out that, commonly, bilinguals lack equal proficiency in either of their languages in comparison to their monolingual counterparts and explains that the reason is the bilingual's usage of language as bilinguals use their languages in a variety of contexts.

Fifthly, Baker (1998:3) specifies that the proficiency of a bilingual person may change regarding changing circumstances and the passing of time. As he explains, a person may need to learn another language when moving to a country where their language is a minority, and over time, their second language would become their dominant language.

## **2.2. Types of Bilingualism**

Considering the above-mentioned issues related to defining bilingualism, it is safe to conclude that defining the term bilingualism is a complex task, and despite the listed definitions being at their core very alike, it is hard to point one as a true definition of bilingualism. To create an all-inclusive definition, it is important to include various degrees, often called dimensions. Considering those dimensions, Valdés and Figueroa (1994:10-11) indicate that different categorisations of bilinguals reflect various interests and focus of researchers on different aspects of bilingualism. Therefore, the authors suggest that bilinguals are classified according to the following dimensions, which reflect various aspects of bilingualism: Circumstances Leading to Bilingualism, Different Contexts of Acquisition, Age of Acquisition, Functional Ability, and Relationship between Two Languages. Circumstances Leading to Bilingualism is a dimension that focuses on various circumstances that either force an individual to become bilingual or an individual has a choice. The dimension of Different Contexts of Acquisition refers to the

environments in which languages are acquired, making a difference between co-ordinate and compound bilingualism. The dimension concerning the Age of Acquisition relates to when a second language is acquired, while the dimension concerning the Functional Ability refers to the functional abilities of an individual, including speaking, writing, listening, and reading. The dimension of the Relationship between Two Languages refers to the balance of two languages, that is, the existence of an equivalent proficiency in both languages (Valdés and Figueroa, 1994:10-11).

Considering these dimensions, it is conclusive to say that bilingualism depends most importantly on the person acquiring two languages and the situations in which they are acquired. In the following part of the thesis, the most common classifications of bilingualism are explained.

### **2.2.1. Individual and Societal Bilingualism**

To understand who is bilingual, Baker (1998:2-3) states that it is imperative to differentiate bilingualism as an individual possession and bilingualism within a certain social group, also known as societal bilingualism. Moreover, different branches of science deal with these two types of bilingualism – where some psychologists and educationists are interested in individual bilingualism, geographers, political scientists, social psychologists, and sociolinguists are keener on researching societal bilingualism (Baker, 1998: 3-5).

### **2.2.2. Elective and Circumstantial Bilingualism**

According to Valdés and Figueroa (1994:12), this classification of bilingualism is related to the reasons why another language is acquired. Considering that, elective

bilingualism refers to acquiring another language in formal contexts while still actively using the first language, which is a majority language, in daily life. Another term to describe this type of bilingualism is 'additive bilingualism' because it refers to adding another language while the first language is still dominantly used (Valdés and Figueroa, 1994:12). Furthermore, Baker (2001:3-4) states that elective bilingualism relates to the ability to choose to learn another language. For example, Croatian pupils who learn German or Italian in school as an elective course. This type of bilingualism does not have the danger of losing a first language while learning a second language (Baker, 2001:3-4).

On the other hand, Baker (2001:3-4) describes circumstantial bilingualism as a concept referring to the circumstances in which an individual is in at a certain moment, situations in which that individual learns another language in order to survive. An example of a circumstance would be an immigrant who has to learn another language to get a job and start a life in another country. However, this type of bilingualism includes the consequence of an individual's first language being replaced by their second language because the first language is not adequate to satisfy the demands of the new society in terms of education, politics, employment, and communication (Baker, 2001:3-4). Gottardo and Grant (2008:2) add how this classification of bilingualism is also used under the term 'subtractive bilingualism', and the reason behind that classification is because the first language proficiency typically declines or disappears in favour of the second language which is a majority language; therefore, the children of immigrants are particularly prone to subtractive bilingualism.

Baker (2001:4) states that it is important to differentiate between elective and circumstantial bilingualism as it points out inequalities among bilinguals in terms of prestige, status, politics, and power.

### **2.2.3. Compound and Co-ordinate Bilingualism**

Another classification of bilingualism divides it into compound and co-ordinate bilingualism which was explained by Ervin and Osgood (1954, as cited in Liddicoat, 1991:4) considering the differences in cognitive functioning.

Liddicoat (1991:4) explains compound bilingualism as a phenomenon that “involves two sets of linguistic signs which become associated with a single set of meanings”. Moreover, D’Acierno (1990:12) adds how compound bilingualism refers to two languages being acquired in the same environment resulting in the awareness of a bilingual person that two phonological realisations correlate with one idea. Considering that this classification of bilingualism regards cognitive functioning, D’Acierno (1990:12) points out how there is a combined representation of two interdependent languages in the brain.

Co-ordinate bilingualism Liddicoat (1991:4) explains as a phenomenon that “involves a set of translation equivalents in the two languages which correspond to two different sets of representations”, and the languages which are being acquired are not often interchanged as they are acquired in different context or environments. D’Acierno (1990:13) adds how, in co-ordinate bilingualism, the vocabulary of the two languages is divided into two separate and independent systems.

#### **2.2.4. Simultaneous and Sequential Bilingualism**

While researching childhood bilingualism, Baker (2001:87) states that it is important to make a distinction between simultaneous and sequential bilingualism. Therefore, simultaneous bilingualism Baker (2001:87) defines as the acquisition of two languages simultaneously, or at the same time, very early in life. Furthermore, McLaughlin (1984, as cited in Liddicoat, 1991:5) indicated how it is important for a child to acquire both languages before the age of three for it to be considered simultaneous bilingualism.

According to McLaughlin (1984, as cited in Liddicoat, 1991:5), sequential bilingualism, for which he uses the term “successive bilingualism” as a synonym, refers to a phenomenon when a second language is being acquired after the first language is already acquired, that is after the age of three years old. Baker (2001:93) specifies that the second language within the concept of sequential bilingualism can be acquired either formally through school or language courses or informally through neighbourhood or nursery school.

#### **2.2.5. Additive and Subtractive Bilingualism**

Lambert (1980, as cited in Baker, 2001:58) makes a distinction between two classifications of bilingualism considering the existence of majority and minority languages. Therefore, additive bilingualism refers to learning a second language or adding a second culture, where the possibility of that second language and culture replacing the first language is rare (Baker, 2001:58).

On the other hand, Liddicoat (1991:6) explains that subtractive bilingualism refers to second language acquisition having a negative effect on the first language, and states that “the two languages are competing rather than complementary”. In other words, Baker (2001:58) indicates that there is a possibility of the first language, which is considered a minority language, being replaced by the majority language, which is more dominant within the environment the person resides.

### **2.2.6. Elite and Folk Bilingualism**

Another distinction within the phenomenon of bilingualism is made by SkutnabbKangas (1981, as cited in Liddicoat, 1991:7) between elite and folk bilingualism. Elite bilingualism is explained as an acquisition of a second language within formal education. For elite bilinguals becoming bilingual is a matter of choice, therefore, this type of bilingualism is considered privileged as it is associated with cultural enrichment and intellectual growth. Individuals who are considered elite bilinguals do not suffer great risks if they fail to learn a second language. As it is usually a part of formal education, individuals can easily discontinue the language and choose another subject without significant negative consequences (Liddicoat, 1991:7).

On the other hand, folk bilingualism refers to acquiring a second language “through practical contact with speakers of that language”. Individuals who are considered folk bilinguals acquire a second language out of necessity, usually because they are members of a linguistic minority living in a majority society. The acquisition of a second language is not a matter of choice but rather a matter of integration within the society. Folk bilinguals face strong external pressure to acquire the dominant language because their first language



is either undervalued or lacks official status. As opposed to elite bilinguals, folk bilinguals' failure to acquire the dominant language can lead to significant disadvantages, such as limited educational opportunities. These individuals often struggle in an education system that does not support their linguistic background which can lead to difficulties in academic achievements and social integration (Liddicoat, 1991:7-8).

### **2.2.7. Balanced Bilingualism**

Haugen (1973, as cited in Liddicoat, 1991:8) states that balanced bilingualism refers to “an individual who has native-like competence in both languages”. Furthermore, Baker (2001:7) indicates that the term balanced bilingual represents “someone who is approximately equally fluent in two languages across various contexts”. However, Fishman (1971, as cited in Baker, 2001:7) argues that while balanced bilingualism is an intriguing concept, the reality is that rarely will there be bilingual people equally proficient in all spheres of life as the uses of two languages vary across different purposes, situations, also known as contexts or domains. Moreover, Liddicoat (1991:8) adds that balanced bilingualism refers to a bilingual person with approximately equal ability in both languages, which implies that an individual with an imperfect performance in both languages would still be considered a balanced bilingual if the proficiency in both languages was comparable.

### **2.3. Bilingual Use / Function of Language**

All the above focuses on the bilingual ability of language, also known as the degree of language, while the following part will focus on language use, that is language function.

According to Baker (2001:12), bilingual individual's use of languages (i.e., functional bilingualism) is to be differentiated from language proficiency. Where language proficiency is often based on academic performance, functional bilingualism relates to the bilinguals' use of their languages depending on different contexts and different people. Fishman (1965:67) focuses on the concept of language choice and explains how functional bilingualism concerns *when*, *where*, and *with whom* bilingual individuals use their languages. Therefore, it is conclusive that bilingual individuals use their languages with different people and within different contexts.

When choosing a language to use, Fishman (1965:68) says that there are three controlling factors: participants (also called targets), situation, and topic. Participants are a factor that refers to *who* is involved in the conversation, and Fishman (1965:68) offers examples of a man using different languages with different groups of people, such as work colleagues, club members, and family members. Moreover, situation refers to the concept of domains, which represent contexts in which a language will be used, and Schmidt-Rohr (1963, as cited in Fishman, 1965:72-73) lists nine domains: the family, the playground and street, the school, the church, literature, the press, the military, the courts, and the governmental administration. Finally, the topic refers to *what* is being discussed, and Fishman (1965:71) specifies that the topic is an important regulator of language choice since some individuals prefer to use one language rather than the other when having a conversation about a certain topic, such as politics.

Baker and Hinde (1984, as cited in Baker, 2001:13) and later Baker (1984, as cited in Baker, 2001:13) focus on distinguishing functional bilingualism from language background, which is a wider concept. Language background refers to the participative and non-participative language experience. Participative language experience refers to an interactive language use, while the nonparticipative language experience refers to an indirect and passive experience of language use

“measured by questions such as ‘What language does your mother speak to your father when you are present?’”(Baker, 2001:13). On the other hand, functional language is a narrower concept referring to a direct and active participation and involvement in language use. Therefore, functional language refers to production and reception of language including processes of writing, speaking, reading, and listening (Baker, 2001:13).

### **3. DEVELOPMENT OF BILINGUALISM**

#### **3.1. Theories of Bilingual Development**

Bilingual development is a complex and diverse process that has been thoroughly researched in various academic fields. Numerous theories have surfaced to explain the process by which individuals acquire and utilise two languages, each providing distinct perspectives on various aspects of this phenomenon. Collectively, these ideas add to the understanding of bilingual development by providing different perspectives on the acquisition and usage of two languages by individuals. Firstly, the question of the existence of one or separate systems for two languages will be discussed, followed by the explanation of Universal Grammar as well as the idea of the crosslinguistic influence of two languages. Finally, hypotheses regarding constructivism and Usage-based theory, on which recent studies based their research trying to explain bilingual language development (Schelleter, 2019:30), will be discussed.

##### **3.1.1. Single System and Separate Development Hypotheses**

Schelleter (2019:30) points out that the single system and separate development hypothesis, both proposed by Volterra and Taeschner (1978), are based on bilingual perception of the languages, as well as word learning and grammar of both languages. The single system hypothesis suggests that bilingual children initially have one ‘fused’

language system until 1;11 of age, that is, bilingual children only have one lexicon and one grammar system. The next stage, which occurs between the ages of 2;5 and 3;3, involves a separate lexicon, but the grammar used is the same for both languages. By the age of 3;11, bilingual children have two distinct language systems (Schelletter, 2019:30).

However, Schelletter (2019:31) emphasises that the separate development hypothesis, which suggests that bilingual children develop two separate language systems from the start, is a more accepted assumption regarding bilingual development. To show support for this hypothesis, rather than the single system hypothesis, Schelletter (2019:35) mentions several studies where the children correctly respond to the other person they are conversing with. The children show the ability to connect equivalents in the two languages from early on, as well as the ability to acquire the structure and bound morphemes. These results indicate the ability of bilingual children to separate their two languages from an early age (Schelletter, 2019:35). Furthermore, Schelletter (2019:36) mentions research provided by de Houwer (1990), whose study focuses on the word order and inflections of an English-Dutch bilingual girl between the ages of 2;7 and 3;4. The data from this research show that the language mixing was lower than 5%. This indicates that low language mixing in bilingual children serves as another evidence of support for the separate development hypothesis because the child has shown an ability to use language in a way that is acceptable for the language context.

### **3.1.2. Universal Grammar and Cross-linguistic Influence**

Schelletter (2019:37) explains the Universal Grammar (UG), which was first introduced by Noam Chomsky (1965), as a theory that is based on nativism. This theory

suggests the idea that children are born with an innate linguistic knowledge, which refers to basic word categories, principles for constructing sentences, and sets of parameters that explain the differences in structures of different languages. The theory is applicable to all language acquisition, not just bilingualism. The theory indicates that while children have the same innate linguistic knowledge as adults, they need exposure to a specific language to set these parameters correctly (Schelleter, 2019:37).

On the other hand, within a bilingual individual, there is an interaction between two languages; therefore, one language may influence the other. Volterra and Taeschner (1978, as cited in Schelleter, 2019:40) stated that cross-linguistic influences indicate that bilingual children are confusing their two languages. However, Schelleter (2019:40), opposing the assumption that children are confusing their languages, states that the use of cross-linguistic structures can be perceived as ‘mixing’ as those structures incorporate both language systems. These cross-linguistic structures can be interpreted as either a type of borrowing, a competitive advantage, or an unclear interpretation of the structure of language an individual hears in both of their languages.

### **3.1.3. Constructivist Account and Usage-based Theory**

According to Schelleter (2019:46), the Constructivist Account, introduced by Gathercole (2007), emphasises the role of increasing general knowledge and understanding, as well as linguistic input, in language acquisition. Therefore, language development is based on the following principles: (a) piecemeal acquisition, which indicates that a certain category is firstly acquired only for specific occurrences rather than as a whole, (b) acquisition in context, which suggests that children have the ability to

determine the meaning of the word based on the context in which it occurs, (c) emergence from accumulated knowledge which is the children's ability to draw on previously observed patterns from different contexts; the children will learn a name for an object and use that same name for an object of a similar shape (e.g., "apple" as a name for every round fruit), (d) structure affecting the timing of acquisition refers to the idea that the structure of the language that is about to be acquired can affect the timing of a particular structure of the soon-to-be acquired language, (e) amount of exposure affects timing of development, indicates that the amount of exposure of the language that is acquired has an impact on the development of that language.

On the other hand, Schelleter (2019:50) explains that according to the Usage-based theory proposed by Tomasello (2003, 2009), the structure develops through language use. Therefore, language acquisition can be achieved without any specific innate language knowledge. This theory focuses on two mechanisms that are useful for language acquisition: 'intention reading', which refers to children's ability to interpret the intentions of the people in their surroundings and comprehend that people act to achieve specific purposes, and 'pattern finding', which is crucial for the acquisition of grammar since children surpass a specific utterance to develop abstract schemas and patterns that help them construct the grammatical rules of the language they acquire. Furthermore, this theory emphasises the importance of the frequent occurrence of particular words or structures for the process of language acquisition, stating that while the frequency of specific items, known as token frequency, helps with the acquisition of new vocabulary, type frequency, which refers to the specific class of words or structures, enables the child to make comparisons (Schelleter, 2019:51).

## **3.2. Bilingual Language Development**

Hamers and Blanc (2000:52) emphasise that a significant amount of preverbal language manifestations occurs in the first few months of the newborn's life, even though the production of their first words does not occur until the end of the first year of life; therefore, it is conclusive that bilingual development can be separated on into preverbal and verbal development.

### **3.2.1. Preverbal Development**

Hamers and Blanc (2000:52) point out the importance of early reception regarding bilingual development and have concluded that preverbal infants can recognise sounds to some extent. The research mentioned by Hamers and Blanc (2000:52) indicates how infants as young as two to four days old possess the ability to recognise their mother tongue even when spoken by strangers, proving that the characteristics of maternal language are recognisable from an early age. In regard to bilingual children, Hamers and Blanc (2000:53) mention a study of phoneme perception of bilingual and monolingual infants between the ages of four to eight months carried out by Eilers, Gavin, and Oller (1982) which resulted in the conclusion that bilingual infants are able to distinguish better than monolinguals between phonemes in English and Spanish as well as between phonemes in English and Czech, which is a language they were never exposed to. This was interpreted as a possible indication that a more abundant linguistic input from the environment enhances the development of relevant skills, such as the discrimination of phonemes (Hamers and Blanc, 2000:53).

Considering the early production of language, Hamers and Blanc (2000:53) point out how there are no differences between bilingual and monolingual infants. Furthermore,

Hamers and Blanc (2000:54) stated that the differences regarding babbling, specifically the age of onset and amount of produced vocalisation between monolingual and bilingual infants, do not exist. The authors conclude that the language development of bilingual and monolingual infants is similar as they learn to distinguish speech characteristics that are relevant to their surroundings. Developing bilinguals, as opposed to their monolingual counterparts, also need to acquire particular processing abilities. For example, they need to quickly acquire the ability to distinguish between sound patterns in their two languages (Hamer and Blanc, 2000:54).

### **3.2.2. Verbal Development**

Hamers and Blanc (2000:54) state that bilingual infants producing their first word at the same time as their monolingual counterparts is an overall agreeable fact, as well as that bilingual children use words from both of their languages in the holophrastic stage, which is a stage in language acquisition when children use single words to express multiple meanings (Lampi, 2023). As already mentioned, Volterra and Taeschner (1978, as cited in Hamers and Blanc, 2000:55) within the sphere of lexical development observe two stages: children initially have a single lexical system that contains words from both languages, and later they learn to distinguish between the two lexical systems as well as begin to use translation equivalents. Moreover, Doyle, Champagne, and Segalowitz (1977, as cited in Hamers and Blanc, 2000:55) concluded from their study that compared to their monolingual counterparts, the vocabulary of bilingual children was smaller in their dominant language; however, they were able to communicate more ideas and had better verbal fluency in regard to storytelling. Considering the mutual-exclusivity constraint,



which is the children's assumption that one object has one name, Au and Glusman (1990, as cited in Hamers and Blanc, 2000:56) observed that bilingual pre-school children are open to recognising and accepting two different names for the same object, as long as each name belongs to their two languages. Also, Hamers and Blanc (2000:56) mention studies that conclude that for an already familiar object, bilingual children are more likely to accept the new term rather than their monolingual counterparts.

Hamers and Blanc (2000:57) mention the DUFDE project carried out by Meisel (1990), which tried to explain the grammatical development of bilinguals using the premise that universal grammar (UG) requires children to learn how lexical items are assigned to different categories from the input rather than having to study the features of syntactic categories, therefore, linguistic descriptions are provided for the tense and aspect, prepositions, words order regularities, case morphology, gender, verb agreement acquisition, etc. The results of this project led to the conclusion that language acquisition of bilingual children does not significantly differ from language acquisition of monolingual children. However, there was some evidence that bilingual individuals have an advantage in the ability to acquire certain grammatical constructions faster than their monolingual counterparts as well as they are able to decipher underlying grammatical principles with greater ease (Hamers and Blanc, 2000:57).

Hamers and Blanc (2000:57) add how some delays in bilingual language development have been observed. Swain (1972, as cited in Hamers and Blanc, 2000:57) pointed out delays in the development of polar questions, as well as delays in inversion in the English interrogative, which is interpreted as a characteristic of bilingual development rather than a disadvantage, given that the children focus on particular aspects of their

bilingual linguistic system. It is important to emphasise that there is no evidence for this language development delay for other grammatical functions (Hamers and Blanc, 2000:57).

### **3.3. Age Factor**

While being considered an important aspect of bilingual language acquisition, the relation of age and successful and fluent proficiency in a second language is debated. Some arguments relate the lower age of language acquisition to better proficiency, while other arguments state that older children and young adults tend to learn more efficiently and quickly (Baker, 2001:97).

Lenneberg's (1967, as cited in Hamers and Blanc, 2000:74) critical period hypothesis is one of the assumptions that states that for normal linguistic development to occur, it needs to be activated between the ages of 3 and 12 years. According to this hypothesis, language acquisition after the critical period will differ in quality from childhood language acquisition, regardless of whether it is L1 or L2 acquisition (Hamers and Blanc, 2000:74). Also, Grosjean (1982:192) adds how the younger children are better learners since they have less inhibition and are less embarrassed when making mistakes, which adds to the support of the importance of age in language acquisition.

Grosjean (1982:192) lists researchers who criticised the assumption that the age factor, or a critical period for language acquisition, is an important aspect of language acquisition, stating that young children are immature when it comes to learning because they still lack specific cognitive abilities, such as the ability to abstract, generalise, infer, and classify. Furthermore, Selinger (1978, as cited in Grosjean, 1982:192) suggests that there are different critical periods for different abilities, while Grosjean (1982:193) states how psychosocial factors, such as attitude

towards linguistic groups and willingness to identify with those groups, play a more significant role in language acquisition rather than the critical period (Grosjean, 1982:193). Hamers and Blanc (2000:76) point out that the age factor as an important aspect of language acquisition is not necessary while listing social, cognitive, and experimental factors as aspects that could facilitate learning for children.

Baker (2001:98) suggests that within the sphere of language learning, critical periods are non-existent, while advantageous periods are a better term for that aspect of language learning. Considering that Schelleter (2019:61) mentions a study carried out by Granena and Long (2012), which suggests that there is a sensitive period for phonology up to the age of five. Regarding lexical knowledge, the study also showed a sensitive period which is a little longer than that for the pronunciation, suggesting the sensitive period to be approximately the age of 9 years, while a sensitive period for morpho-syntax is suggested to be approximately the age of 12 years (Schelleter, 2019:63). Schelleter (2019:64) emphasises the age at which children begin to hear another language plays a significant role in their ability to become bilingual, especially considering various sensitive periods assigned to various linguistic aspects.

#### **4. BILINGUAL IMPACT ON COGNITION**

Bilingualism having consequences for development has been a common assumption. However, the early assumptions have been that bilingualism has a negative impact on development, which stems from the conclusions of early research of bilingual impact (Barac and Bialystok, 2011:36).

One of the main reasons why the early research of bilingual impact on development had negative conclusions is the fact that early research primarily focused on intelligence defined by standardised test scores as well as using inadequate methodology. The results of the research indicated that bilinguals score lower on intelligence quotient (IQ) tests in comparison to monolinguals, as socioeconomic status (SES) was not taken into consideration despite having an impact on IQ scores. An example of such research is provided by Saer (1923), where bilinguals scored lower than monolinguals on an intelligence test, while SES was not matched for both groups. Furthermore, considering methodology, when socioeconomic status was taken into consideration, differences between bilinguals and monolinguals disappeared. This is proven in research provided by Hill (1936), who matched bilinguals' and monolinguals' SES which resulted in no differences between both groups. It is conclusive that bilingualism has no impact on development in relation to the intelligence of an individual (Barac and Bialystok, 2011:36,39).

As the focus of research shifted towards language acquisition and metalinguistic development rather than intelligence, the results showed beneficial consequences of bilingualism on development. This demonstrated nearly consistent favourable results for bilinguals, as it showed that bilingualism has a beneficial impact on metalinguistic awareness and cognitive development. Modern research focuses on the impact of bilingualism on executive function (EF), which is a set of cognitive abilities, and it includes processes that are at the centre of higher cognition, such as attention, selection, inhibition, shifting, and flexibility. An example of such research includes one provided by Bialystok and Viswanathan (2009), where bilingual and monolingual groups were matched in SES, and bilinguals scored higher on executive function tasks (Barac and Bialystok, 2011:36-37,53).

Poarch and Krott (2019:2) further explained how the cognitive benefit of bilingualism “is based on the theoretical assumption that bilingual and multilingual individuals experience constant cross-linguistic activation and interaction during language processing”. Therefore, the ability of a bilingual person to use the correct language in different situations is related to the aforementioned cognitive control mechanism known as executive function (EF). This cognitive control mechanism is needed for resolving conflicts between two competing languages, that is, for deciding between competing and alternate replies in everyday life. Bilinguals often engage in tasks that require cognitive control, for instance, appropriate language selection depending on the context while inhibiting the other language. This frequent engagement is considered cognitive control training which can over time enhance the efficiency of executive function. Therefore, the constant managing of two languages and switching between them can enhance cognitive abilities, such as attention, selection, shifting, and conflict resolution (Poarch and Krott, 2019:2).

#### **4.1. Problem Solving**

Bialystok (1999:643), while researching bilingual control in nonverbal tasks, provided results that bilinguals have an advantage over monolinguals in solving problems that require high levels of control, indicating how bilinguals show control over attention in a nonverbal problem as well as using distinct methods of problem solving which are different than any previously used. Moreover, Adesope, Lavin, Thompson, and Ungerleider (2010:210) point out that bilinguals have an advantage in problem solving, stating that the increased ability for problem-solving could result from cognitive flexibility, which is associated with bilingualism. Due to their ability to switch between two languages, bilinguals may become more flexible in regard to thinking, which might be helpful in solving problems (Adesope et al., 2010:210).

## **4.2. Attention Control**

Adesope et al. (2010:208) stated how the results of many studies indicated that bilingual individuals show better control of their attention in contrast to monolinguals when participating in verbal and nonverbal activities. The reason for this advantage is explained as bilinguals' regular use of two languages, which requires control and selection of the appropriate language. Furthermore, the bilingual ability to manage two languages at once as well as resist interference from the non-target language is another evidence of better attention control in bilingual individuals (Adesope et al., 2010:208).

## **4.3. Working Memory**

Adesope et al. (2010:209) lists two hypotheses regarding the impact of bilingualism on working memory. The first hypothesis suggests that managing two languages at the same time could have a demanding effect on working memory due to the cognitive overload on working memory. The second hypothesis points out that the bilingual ability to inhibit one language while using the other may enhance the efficiency of their working memory, as this inhibitory control allows for better management of working memory resources (Adesope et al., 2010:209).

Schellletter (2019:187) points out that in the tasks which test the working memory, where bilinguals and monolinguals had to memorise lists of words or numbers, the bilingual advantage was non-existent. However, the bilingual advantage exists within the tasks which test the nonverbal working memory. Those tasks include the one where different shapes occur in different parts of the computer screen which had to be pressed, where the result was the bilingual advantage over their monolingual counterparts (Schellletter, 2019:187). Furthermore, Adesope et al. (2010:209)

point out that the bilingual advantage within the working memory appears during tasks that demand more attention control.

#### **4.4. Metalinguistic Awareness**

Cazden (1975, as cited in Adesope et al., 2010:209) defines metalinguistic awareness as the ability to reflect on language, that is, to have a clear understanding of linguistic forms and structures, as well as how are these forms and structures related to meaning and its production. The results of many studies show how bilingual individuals, emphasising those with high proficiency in both languages, exhibit higher metalinguistic awareness compared to monolingual individuals (Adesope et al., 2010:209).

Friesen and Bialystok (2012) list the bilingual individual's understanding of the relationship between forms of the words and their meaning as arbitrary as an important advantage bilinguals have over monolingual individuals. Cummins (1978, as cited in Friesen and Bialystok, 2012:2) explained that bilinguals possess this advantage because of their early awareness that each object has a different label in each of their languages (Friesen and Bialystok, 2012:2). Furthermore, bilingual individuals show superior symbolic flexibility, that is, bilinguals are better at understanding symbolic nature of written language. This is evident in certain tasks, one of which includes children having to recognise that a printed label still relates to the same object, despite being "accidentally" positioned in front of a new object. Another task includes Piaget's sun/moon problem, where children are challenged to recognise the arbitrary nature of labels while renaming well-known objects. This task involves switching the names for the sun and moon, and bilingual

children understand that should the sun be referred to as the “moon”, then during the day, it would be bright as the “moon” would be up.

Adesope et al. (2010:210) add how bilingual individuals show a greater understanding and explicit awareness of the different syntactic rules within different languages, while their monolingual counterparts will be only implicitly aware of those syntactic rules.

#### **4.5. Metacognitive awareness**

Flavell (1978, as cited in Adesope et al., 2010:210) explains metacognitive awareness as an individual’s knowledge of their cognitive processes, which includes awareness of an individual's learning strategies and mental activities which are necessary for regulation of the learning process. Kamp (2007, as cited in Adesope et al., 2010:210) considered this a bilingual advantage because learning vocabulary, syntax, phonology, and morphology of two languages, as well as managing and applying that knowledge in appropriate contexts and situations is regarded as a complex process, which could serve bilingual individuals as an insight into their learning methods and cognitive processes.

#### **4.6. Multitasking**

Poarch and Bialystok (2015:2) state that in bilingual individuals, both of their languages remain somewhat active, even when only one language is supported by the surrounding environment. Considering that, the authors argue “that bilingual experience enhances the set of EF processes that are central for multitasking so by implication, bilingual children should be better multitaskers than monolinguals” (Poarch and Bialystok, 2015:7). Moreover, the ability of bilingual individuals, who are able to control the choice of language in a needed situation without the



interference of the language that is not used, indicates that any bilingual language use is a form of linguistic multitasking. This hypothesis is based on the results of the study carried out by Poarch and Bialystok (2015) that showed bilingual (and trilingual children) scoring significantly higher results on the conflict condition aspect of the task. Given that bilingualism involves coordination and regulation of two languages, which improves nonverbal executive processing, bilingualism may facilitate multitasking. Therefore, bilingualism shows that people are capable of multitasking (Poarch and Bialystok, 2015:11).

#### **4.7. Creativity and Divergent Thinking**

Results of many studies have pointed out that bilingual individuals show greater skills regarding creativity and divergent thinking. Peal and Lambert (1962, as cited in Adesope et al., 2010:210) proposed that the reason for the creative advantage bilingual individuals have is because of the constant use of two languages as well as two perspectives.

Ricciardelli (1992) did a meta-analysis review of twenty-four studies regarding the influence of bilingualism on creativity, where twenty of these studies have shown results that indicate a bilingual advantage in creativity as opposed to monolingual individuals. It is conclusive that the relationship between bilingualism and creativity exists, and it is positive (Ricciardelli, 1992:248).

Furthermore, Kharkhurin's (2009) study investigating the influence of bilingualism on creativity showed that bilingual individuals outperform monolinguals in divergent thinking tasks, stating that being bilingual relates to the ability to be creative and to derive original ideas. However, the study found that bilingualism does not influence the ability to generate and analyse a large amount of different thoughts and ideas. Considering that the previous research on the same topic showed opposite results, this disagreement in the results can be explained considering the

impact of culture-specific distinctions in both studies. It can be concluded that bilinguals may have an advantage in both creative and generative thinking, but different cognitive mechanisms may be used regarding particular circumstances. That is to say that advantages bilinguals may experience, such as creative and generative thinking, could be influenced by different factors related to their linguistic and cultural experiences (Kharkhurin, 2009:69). Another result of this study showed the positive influence of bilingualism on the ability to deviate from a standard set of category properties, but when variables which do not relate to bilingualism, including IQ and socioeconomic status (SES), were taken into account, the effect disappeared (Kharkhurin, 2009:70).

#### **4.8. Bilingualism and Dementia**

Bialystok, Craik, and Luk (2012) reviewed studies that show the important role of bilingualism in older age, pointing out the positive effect of bilingualism on cognitive decline, focusing especially on the delay in the onset of dementia. The authors state that studies indicate that bilingualism has an active role in enhancing cognitive reserve, which is the idea that engaging in mentally or physically demanding activities can help preserve cognitive function in healthy ageing as well as delay the onset of dementia symptoms. Factors that influence the delay of the onset of dementia include education, the status of occupation, higher socio-economic class, as well as ongoing participation in intellectual, social, and physical activities (Bialystok et al., 2012:10).

The study provided by Bialystok, Craik, and Freedman (2007) shows results of bilingual individuals whose diagnosis of dementia was delayed 4 years in comparison to monolingual individuals, which the authors calculated as a 47% decrease in occurrence. The authors note that the effect bilingualism has on the delay of the onset of dementia cannot be generalised to those

individuals who are not fully bilingual because every patient included in the study was fluent in both English and a second language, having used both daily for the majority of their lives (Bialystok et al., 2007:462).

## **5. CONCLUSION**

This thesis overviewed bilingualism as a complex linguistic phenomenon that could be defined, in the simplest terms, as an ability to use two languages fluently. However, it was shown how bilingualism is not as easy to define as this definition might indicate. The process of defining bilingualism involves being aware of certain aspects, which include the difference between language ability and usage, four basic language skills, the concept of the dominant language, context, and circumstances. Moreover, it is important to point out the different types of bilingualism, which further add to the complexity of this linguistic phenomenon, including individual, societal, elective, circumstantial, co-ordinate, compound, simultaneous, successive, additive, subtractive, elite, folk, and balanced bilingualism. Another aspect that has to be taken into consideration is the usage of language which is associated with factors that include participants, situations, and topic, that is, with whom is a conversation happening, where is it happening, and what is being discussed.

The thesis also provided an insight into the process of bilingual language development, starting with explaining various theories such as single and separate system hypotheses, universal grammar and cross-linguistic influence, constructivist account, and usage-based theory, as well as explaining preverbal and verbal language development with a focus on the concept of the age factor.

The final part of this thesis aimed to explain the bilingual impact on cognition, listing various studies that are in favour of positive cognitive impact. Certain cognitive abilities on which bilingualism has an effect include problem solving, attention control, working memory, metalinguistic and metacognitive awareness, multitasking, creativity, and divergent thinking. The assumption that bilingualism has a negative impact on the brain has been made false, as recent studies showed bilingualism has a positive impact on cognitive decline. It was concluded that bilingualism influences the delay of the onset of dementia. However, these findings cannot be generalised to those bilinguals who are not fluent in both languages.

In conclusion, bilingualism is a widespread concept that can be considered a positive phenomenon. The awareness of the positive impact of bilingualism on our brain and functioning, as well as its numerous advantages, can lead to bilingualism being more accepted and viewed as a standard in today's world. Personally, I believe that bilingualism should be actively encouraged, keeping in mind not only its cognitive benefits but also its potential to enhance empathy and understanding. I believe that bilingualism offers numerous cultural experiences while serving as a link that connects the world.

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## Summary

The aim of this thesis is to give an overview of bilingualism as a linguistic phenomenon. The thesis begins by defining the term bilingualism as well as explaining why there are certain issues in defining that term. To better understand this linguistic phenomenon, the thesis explains different types of bilingualism. What follows is an overview of the language development of bilingualism, which includes theories of development, preverbal and verbal language development of bilinguals, and the concept of the age factor in relation to bilingual development. The end of the thesis aims to explain the impact of bilingualism on cognition and the positive impact of bilingualism on the delay in the onset of dementia.

**Key words:** bilingualism, types of bilingualism, verbal and preverbal language development, theories of bilingual language development, age factor, cognition, dementia.

## Sažetak

Cilj ovog rada je predstaviti pojam dvojezičnosti kao jezičnog fenomena. Rad započinje definiranjem pojma dvojezičnosti te objašnjenjem zašto postoje određeni problemi pri definiranju tog pojma. Radi boljeg razumijevanja ovog jezičnog fenomena, u radu se objašnjavaju različite vrste dvojezičnosti. Slijedi pregled jezičnog razvoja dvojezičnosti uključujući teorije razvoja, predverbalni i verbalni jezični razvoj dvojezičnosti te utjecaj dobi na dvojezični razvoj. Na kraju rada objašnjava se utjecaj dvojezičnosti na kogniciju te pozitivni utjecaj dvojezičnosti na odgodu nastanka demencije.

**Ključne riječi:** dvojezičnost, vrste dvojezičnosti, verbalni i predverbalni jezični razvoj, teorije dvojezičnog razvoja, dob, kognicija, demencija.



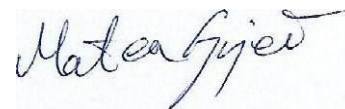
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