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Bilingualism:

Psycholinguistic Aspects

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0. Abstract and *Resumen*

Abstract: This project presents a bibliographical revision of some general aspects about Bilingualism, specifically the psychological dimension. This dimension includes a description of the brain areas involved in language processing and how they work in cases of bilingualism. Then, some theories will be introduced in order to explain the simultaneous acquisition of two languages and the different stages of the process. It also includes how this type of acquisition differs from successive language acquisition and how the age of speakers may have effects on this process. Some effects of bilingualism are also discussed, such as possible effects on linguistic skills, cognitive or educational effects, or effects on the personality development of a bilingual speaker.

Key words: *mother tongue, first language (L1), second language (L2), bilingual, bilingualism, disglossia, Complementarity Principle, aphasia, language α, lateralization, compound bilingualism, coordinated bilingualism, transfer.*

Resumen: Este proyecto lleva a cabo una revisión bibliográfica de algunos aspectos generales del bilingüismo, en concreto la dimensión psicológica. El estudio de esta dimensión del bilingüismo incluye una descripción de las partes del cerebro involucradas en el procesamiento del lenguaje y cómo funcionan éstas en casos de bilingüismo. Después, se introducen algunas teorías con el propósito de explicar la adquisición simultánea de dos idiomas y las diferentes etapas del proceso. A continuación se establecen las diferencias entre adquisición simultánea y sucesiva y una breve explicación sobre los efectos de la edad en el proceso de adquisición sucesiva. También son tratados algunos efectos del bilingüismo, tales como posibles efectos en las habilidades lingüísticas, efectos cognitivos o educativos, o efectos en el desarrollo de la personalidad del hablante bilingüe.

Palabras clave**:** *lengua materna, primera lengua, segunda lengua, bilingüe, bilingüismo, disglosia, Principio de complementariedad, afasia, lengua α, lateralización, bilingüismo compuesto, bilingüismo coordinado, transferencia.*

1. Introduction

This project is aimed at discussing the psycholinguistic aspects of bilingualism, a topic which belongs to General Linguistics. These aspects also include the different stages by which children acquire two languages simultaneously, mainly English and another one, and how it differs from successive acquisition process.

Nowadays, bilingualism is a debatable issue in our society due to the recent implantation of bilingual programs in Spanish education. It was one of the reasons why I decided to choose this topic for my final project. The fact that I chose specifically the psychological aspects of bilingualism was due to two reasons. The first one is related with the intended implementation of bilingual learning programs by the Andalusian government. As I have already worked with little children and I would like to continue doing that in the future, I consider very important to know how my students acquire both languages, Spanish and English, how their brains work related to language processing, which are the different stages of acquisition in which they are or which would be the possible positive or negative effects in their education. The second reason is the closeness of a bilingual person in my family. A young girl who has received the influence of two languages since she was born and that caught my attention and interest for bilingualism. Hence, I have decided to investigate psycholinguistic aspects of bilingualism to put on practice the conclusions of the project in my lessons and help students as much as possible.

Knowing the performance of the brain is an interesting issue. Thus, it is even more if it is applied to bilingualism and specifically to the two languages around which my life and job revolve, Spanish and English. Some of the subjects studied during my degree made me also start to think in the work of the brain at different stages of acquisition, specifically “General Linguistics” and “Applied Linguistics”. The former introduced some general concepts about language process in the brain and the latter treated this process applied to teaching English. Some of concepts that introduced both subjects will be discussed throughout this project. For this reason, a bibliographical review has been done in order to inquire a bit more on the so extent world of bilingualism and its psycholinguistic aspects.

2. Objectives

In this project, different psycholinguistic aspects related with the phenomenon of bilingualism are taken into consideration. The main objectives are:

- To define some general concepts about bilingualism, contrasting opinions by several authors.
- To make a description of brain parts which are involved in language acquisition, its localization and organization contrasting different theories which were proposed during the last decades.
- To analyze the different theories and stages during simultaneous acquisition process of two languages.
- To establish the differences between simultaneous and successive acquisition processes and how the age influences on both processes.
- To make reference to some of the main effects of bilingualism.

3. Methodology of the project

Methods followed while developing this project are also important to know. First of all, some previous and general terms are provided. Those theoretical concepts are contrasted with many definitions by different authors just to have a more complete idea of the terms. Then, the body of the project is divided into four parts. In the first one, there is a reference to the brain dimension, explaining the different parts of the brain involved in language acquisition, its localization and organization, which have to be taken into account to understand the rest of the project.

In the second part, the different theories about language acquisition and some previous concepts that have to be previously known. In this part is also located the description of the different stages in which the simultaneous language acquisition process is divided. In the third chapter, there is a differentiation between simultaneous and successive acquisition processes and an explanation about how the age influences in these processes.

And in the last part of the project, possible effects of bilingualism or language acquisition as in children as in adults are discussed.

4. General aspects about bilingualism

In order to understand the psychological dimension of bilingualism cases, several concepts have to be explained together with some of the first thoughts and their reactions, which have originated prominent theories in understanding bilingualism. It is also important to consider some misconceptions emerged in the simultaneous acquisition of two languages process as well as misconceptions that surround the bilingualism effects.

As François Grosjean (2013) proposes in the introduction of his work *The Psycholinguistics of bilingualism,* a clear definition of "*bilingual*" and "*bilingualism*" should be taken into account. According to Grosjean, *bilingualism* can be defined, in general terms, as the simultaneous use of two or more languages or dialects in everyday life. The use of those two or more languages also implies the knowledge and recognition of them, as well as the need for two languages.

René Appel and Pieter Muysken (1987) divide the term of bilingualism into two types to define it: *societal* and *individual* bilingualism. The former takes place when two or more languages are used in the same society. Nowadays, bilingualism is being extended due to many social situations, such as immigration, education and culture, intermarriage or professional opportunities. Considering only Europe and according to Grosjean (2013: 6), *"a European Commission report (2006) showed that some 56% of the inhabitants of 25 European countries speak a second language well enough to have a conversation in it"*. It is something that also happens in countries as Canada, Nigeria, India, Australia and many South American countries.

The latter term, *individual* bilingualism, occurs when there is a bilingual speaker in a society which is not bilingual. This type of bilingualism is more complex and should be deeply treated.

A wide debate exists about what being a bilingual speaker means. What Appel and Muysken (1987: 2-3) try to explain about individual bilingualism is *"to what extent must a speaker have command over the two languages in order to be labelled a bilingual?"* That is, if the speaker has to make a fluent use of all the language skills in both languages in order to be considered bilingual. To find an answer, they compare two different definitions. The first is made by Bloomfield (1933: 56). For him, a bilingual individual should have *"native-like control of two or more languages"*.

On the other hand, Macnamara (1969) proposes a totally different definition, by which a bilingual speaker only needs some second-language skills in one of the four modalities together with the first language skills to be considered as bilingual. This is an introductory and general description of two different types of bilingualism, since some other classifications by other authors will be described later on.

As said before, Grosjean also proposes a clear definition of "*bilingual*". Firstly, he makes a clear distinction between language fluency and language use, and then he describes how the languages of bilinguals can change over time. The decision of make a clear distinction between fluency and use is due to the fact that many people believe that bilinguals control two languages fluently, and that is a common mistake. Most of bilinguals do not speak fluently both languages, and many of them have not acquired the second language since childhood, but in adolescence or like adults. This fact is due to bilingual people use their language in different everyday situations, for different purposes. So the level of fluency in their languages will depend on the necessity of those languages in their lives, making one of them probably more fluent at some skills than the other. This is also discussed by Grosjean (2013: 9): *"the proficiency bilinguals have in the four skills is not the same for their different languages: some may have very good oral comprehension of a language but may not speak it very well; others may know how to read and write one of their languages but not the other, and so on".*

Secondly, Grosjean also describes how bilinguals' fluency in languages can even change depending on the age of these people (Figure 1.1-Appendix).

In some bilingual countries, children use a language at school, a different language at home and even can use another language with some members of the family or if they immigrate to another country in childhood. Those children experiment an alteration in the use of at least one of their languages, as the language spoken at school might not being used so frequently after finishing school period. The same happens in adults when they have to use one of the languages while working and they get another job which requires the use of the other language, the fluency in both languages would regularly change. Hence, *"a bilingual's languages have moments of stability and moments of change where one language suddenly acquires new importance and another language may remain stable or have less of a role to play"* (Grosjean, 2013: 10). These changes over stages usually have consequences on psychological processes.

To sum up, the fluency and use of languages by bilinguals can be explained with the Complementarity Principle by Grosjean (1997):

> *"Bilinguals usually acquire and use their languages for different purposes, in different domains of life, with different people. Different aspects of life often require different languages."*

5. Psycholinguistic Aspects of Bilingualism

Before focusing on the Psycholinguistic Aspects concerning bilingualism, is important to define what Psycholinguistics is. According to Eva María Fernández and Helen Smith Cairns (2011:1):

> *"Psycholinguistics is an interdisciplinary field of study in which the goals are to understand how people acquire language, how people use language to speak and understand one another, and how language is represented and processed in the brain. Psycholinguistics is primarily a sub-discipline of psychology, cognitive psychology, neurolinguistics, and speech science."*

After this definition, this chapter will focus on four specific aspects. First of all, a description of the psychological dimension of bilingualism will be done. It includes a discussion about how the brain' linguistic functions are located and organized, the mental representation of two languages and an explanation of language switch. Secondly, the simultaneous acquisition of two languages will be described, with a previous definition of some theories, and the discussion of many authors about the different stages of acquisition. Thirdly, the successive language acquisition will be treated together with some effects of the age. Lastly, the effects of bilingualism will be mentioned, such as cognitive, linguistic skills effects or effects on the development of personality.

5.1. Bilingualism: psychological dimension

In order to describe the psycholinguistic aspects of bilingualism is necessary to know how the brain works, the localization of language processes in the brain and its functions.

5.1.1. The bilingual brain

There have been many theories along the last centuries about the work of the brain in connection with language processing. This field of study started at the end of 19th century by Franz Gall (1785-1828). His research is about what today is called by neuroscientists as the localization of brain functions. As Ping Li (2013: 215) affirms about Gall and his followers *"their idea that the brain, rather than the heart, is the seat of all mental functions had a long-lasting impact in the 19th century".*

Some other authors who appeared after Gall and followed his idea were Paul Broca (1824-1880) or Carl Wernicke (1848-1904). They, as Ping Li (2013: 215) highlights:

> *"Clarified what specialized brain functions might look like specifically: damage to the left inferior prefrontal cortex (Broca's area) leads to speech articulation difficulties and agrammatical behaviour, whereas damage to the posterior part of the superior temporal cortex (Wernicke's area) leads to comprehension difficulties and semantic impairment"*.

In the next century, there was an important figure in the neurosurgery field that carried out experiments while he made brain surgeries to epileptic patients. He was Wilder Penfield, a relevant and pioneer neurosurgeon. What Penfield did was to stimulate different parts of the brain while he operated on epileptic patients. That stimulation avoided, as Ping Li (2013: 215) explains, *"removing normally functioning brain regions when taking out malignant tissues. Patients were able to report a sensation or lack of it each time an electrical stimulation was applied"*. Hence, Wilder Penfield got a localization of specific areas in a living brain, instead of doing that on dead brains, as in Broca or Wernicke's experiments.

5.1.1.1. Brain localization and organization of linguistic functions

During last centuries, the localization of linguistic functions in the brain has been the object of many researches. Besides, from the necessity of knowing the exact location in one of the two hemispheres emerged the concept of lateralization of the language, that is, the division of the work between the two hemispheres.

According to Appel and Muysken (1987: 73) *"it is generally assumed that the left hemisphere of the brain is mainly responsible for language processing"* but the question is if it also happens in bilingual brains, a question that has not been solved by many authors. Appel and Muysken tried to give an answer to this question taking as sources different reports about linguistic effects after brain injuries and some experiments about the involvement of both brain hemispheres.

Some of those reports after brain injuries were made by Paradis (1977), who studied cases of bilingual aphasic patients. Before explaining his conclusions, is important to define what aphasia consists on. Aphasia, as Appel and Muysken (1987: 74) describe, is *"the name for all types of disturbances of languages and speech resulting from brain damage. This damage can be caused by accidents, shot wounds, a stroke or a brain tumour"*. Aphasia is a

very common problem as in children as in adults. Thus, going back to Paradis, he tried to give an answer to the brain localization of language processing studying these bilingual aphasic patients. He discovered different patterns of recovery.

The first one was called *"a synergistic pattern of recovery"* which means that both languages progressed at the same time and, in almost all cases, at the same rate or degree. The second pattern is the *"selective recovery",* by which the patient did not retrieve any of his/her languages. The selective recovery is based in the experiment of Pitres (1895), in which some patients retrieved proficiency in one or more languages but not in other languages that they controlled before the damage. There were other patterns less frequent, as the *"successive pattern",* by which *"one language begins to reappear after another has been restored"*, as Appel and Muysken (1987: 74) defined. The most frequent pattern between bilingual patients in this experiment was the parallel synergistic pattern. From these results, the conclusion is that *"different languages are generally represented in the same area of the brain"* (Appel and Muysken, 1987: 74).

So, the fact that the dominant hemisphere, by both monolinguals and bilinguals, was the left one was accepted, but there were authors who thought that the right hemisphere was also used by bilinguals. It is the case of Soares and Grosjean (1981), who did a psycholinguistic experiment with monolinguals and bilinguals speakers. They showed different words in both visual fields, right and left. Their conclusions were that the reaction time for monolinguals was shorter if the words were showed in the right field, as it requires the connection with left hemisphere. The same happened with bilinguals speakers.

After his reports on bilingual aphasic patients and many other experiments, Paradis (1981) tried to make conclusions. To do that, he differentiated two hypothesis. Firstly, the *"extended system hypothesis",* according to Appel and Muysken (1987: 75), *"stated that two languages form one system, and the elements of the two languages are supported by the same neural mechanisms".* Secondly, the "dual system hypothesis" supported the idea that *"the two languages are located in the same area, but that different neural mechanisms support each language"* (Appel and Muysken, 1987: 75). This could be an explanation to the parallel and non-parallel recovery patterns previously described, as the same system had specialized subsystems for each language.

But all these conclusions were only hypothesis, which needed to be investigated and supported. A recent publication about brain localization was made in 2013 by Ping Li. Ping Li

(2013: 215-216) started explaining the neural model of language by Wernicke-Geschwind, which he described as:

> *"In speech perception, the primary auditory cortex receives the information and transmits it to Wernicke's area for comprehension, and in speech production the information passes through the arcuate fasciculus, the fiber tracts that connect frontal-temporal cortical areas, to Broca's area for articulatory planning and finally the motor cortex for actual articulation; in reading, the visual cortex registers the visual form of the written world, transmits it to the angular gyrus for auditory encoding, and then to Wernicke's area for comprehension."*

If any of these areas resulted injured, it could affect on some of the language skills of the speaker. For example: Broca's area (comprehension), Wernicke's area (production), arcuate fasciculus (word repetition) or the gyrus (semantic representation). Two illustrations of the different brain areas together with the localization of language skills can be found in the Appendix (Figure 1.2.). According to this hypothesis, the disability of certain linguistic skills was related with the damaged areas of the brain, so, as Ping Li (2013: 216) affirmed, there was a *"relation between brain structure and cognitive function".* This is what was called as "double dissociation", which was the basis of brain localization's theories: *"if a lesion to brain region A is associated with impaired behaviour X (A-X), a lesion to brain region B with impaired behaviour Y (B-Y), and there exists no A-Y or B-X association, then it is claimed that in the normal intact brain, structure A is responsible for behaviour X, and B for Y"* (Ping Li, 2013: 216).

The dominant idea of double dissociation has been followed until some years ago, when new researches were carried out in neuropsychology and neuroimaging fields. According to Ping Li (2013: 216-217) *"there are at least four reasons for rejecting a purely localization-based approach to language"*. These reasons by Ping Li (2013: 218) are:

> *"-Lesion to the same brain regions does not necessarily lead to the same type of symptoms.*
> *-Although Broca's and Wernicke's areas are both in the left hemisphere, we now know that the right hemisphere also plays a crucial role in many aspects of language, especially with regard to acoustic and phonological processing.*

-Recent neuroimaging findings suggest that not only cortical but also subcortical structures are heavily involved in language processing, especially the basal ganglia.

-The neural circuitry for language in the left frontal temporal, and parietal areas are also involved in working memory, selective attention, and inhibitory control, and at the same time, new brain regions previously not considered in the classic language model are now revealed."

After those reasons, Elman et al. (1996) changed the term brain localization by "brain organization". This author and his followers defined this *"postphrenological thinking by highlighting the role of an interconnected network across brain regions and the structural plasticity and compensatory functions of language development"* (Elman et al, 1996). For instance, there are many cases of children whose brain has been damaged in the left hemisphere. Those children can achieve a normal use of language thank to the right hemisphere while they recover from the lesion, which may vary depending on the time and severity of the damage. This theory helps to understand the idea that a brain can process more than one language or the different patterns of recovery after a brain injury.

5.1.2. Mental representation of two languages

An interesting point in the study of bilingualism and how it is represented in the brain is the differentiation of types of bilingualism. Ervin and Osgood (1954) differentiated two types of bilingualism after revising Weinreich's classification: compound and coordinate bilingualism. On the one hand, in cases of coordinate bilingualism there is one concept by each meaning element in each language. This type of bilingualism emerges from different acquisition and learning stages to each language, with totally different cultural contexts. On the other hand, compound bilingualism occurs when there is a generic conceptualization, from the cognitive point of view, which leads to different words or expressions depending on the languages. Compound bilingualism is a parallel process, both languages are used in a familiar context or one of them has been learned since childhood.

An example of this difference can be the following:

Coordinate: L_1 [/kóče/ → coche]

L_2 [/ka:/ → car]

Compound: $L_1 = L_2$ → coche = car → /kóče/

/ka:/

Appel and Muysken (1987: 75) explains this differentiation according to Weinreich (1953): *"for coordinate bilinguals equivalent words in the two languages have (slightly) different meanings or refer to different concepts"*; 'coche' and 'car' are different concepts with different meanings. *"For compound bilinguals, the two forms have an identical meaning";* 'coche' and 'car' have both an identical meaning.

But Weinreich (1953) included a third distinction to this typology: subordinate bilingualism. This type emerges when a second language is learned receiving influence or help from the first or dominant language. According to Appel and Muysken (1987: 75) *"one language is dominant, and the words in the non-dominant language are interpreted through the words in the dominant language".* For example, a child knows the word 'coche' (dominant language) and, after that, the child learns the word 'car' and interprets it due to the previous concept of the word in the dominant language.

There were some other complementary classifications which tried to solve the drawbacks of Weinreich's typology. One of them was the distinction between natural bilingualism and secondary bilingualism. The former means that both languages are initial and with the same rate of dominance. The latter, language skills are not equal in both languages, but one of them appears like the first language. Some other distinctions were receptive and productive bilingualism or the distinction between incipient, ascendant or recessive bilingualism.

However, all these typologies or distinctions, including the compound-coordinate distinction, have been rejected after many methodological objections. For example, Segalowitz (1977) criticized the way in which "meaning" had been studied. According to Appel and Muysken (1987: 77) *"The semantic differential technique used by Lambert and his associates only deals with the affective or emotive aspects of meaning, and does not cover its*

most important aspect, i.e. denotation". Other reviews were made due to experiments only took into account some isolated words, while Weinreich's classification was based on the complete language system.

According to Appel and Muysken (1987: 77) two revisions were made after the distinction between compound and coordinate bilingualism:

> *(a)Completely compound and completely coordinate bilingualism are the end points of a continuum on which a bilingual individual can be rated.*
> *(b)The language system of a bilingual may be partly more compound (e.g. the lexicon) and partly more coordinate (the grammar).*

After the mentioned distinction, other important point to take into account by researches was the mental lexicon or the semantic memory of bilinguals (Appel and Muysken, 1987: 78). About mental lexicon, is possible to define it as a mental dictionary in which a bilingual speaker has all the information about words he or she knows. The semantic memory *"is not strictly linguistic, containing as it does the mental representation of the individual's knowledge of the world"* (Appel and Muysken, 1987:78), *"this knowledge is represented in concepts and relations between these concepts"* (Lindsay and Norman, 1977). The most accepted hypothesis about the topic was made in 1980 by Paradis:

> *"Bilinguals possess one and only one set of mental representation but organize them in different ways depending on whether they verbalize a thought in L1 or in L2, and to that extent function cognitively differently when speaking or decoding in L1 or in L2."*

In spite of that, there is still too much to study and discover about the mental organization and representation of a bilingual brain.

5.1.3. Language switch

When a speaker is considered bilingual, he or she has to be able to switch from one language to another in production or reception keeping both languages separate. Hence, what many linguistics and researches wanted to know is how bilingual speakers can activate a language while the other is disconnected and vice versa. Penfield and Roberts (1959) proposed the *single-switch theory: "it assumed one mental device, a 'switch', which operated*

in such a way, that when one language was on, the other was off" (Appel and Muysken, 1987: 79). Ping Li (2013) also suggests that theory as one of the most recent and modern theories, although there has been a progress in the study of this field from 1959.

For instance, in 1967 Macnamara proposed a theory by which two switches should be considered, an output and an input switch. The output was controlled by the speaker, in the chosen language, but the speaker is not able to control also the input at the same rate. Thus, as Appel and Muysken (1987:80) explained *"the input switch is therefore said to be 'data driven': the language signal from the outside operates the switch, whether the bilingual individual wants it or not"*. Therefore, this theory requires more time of mental operations, as many researches have proved.

Virginia Yip (2013: 133), said that this code-switching does not mean a lack of differentiation, but it is seen *as "a resource which children exploit to express themselves more fully and effectively"*, although sometimes it is viewed as a negative aspect for some parents or educational systems.

Other researches are treated by Ping Li (2013: 220), and after some examples of experiments about the time that the switch model requires and the place of the brain where it is located, he exposed his conclusions:

> *"Language switching shares a common neural basis with general cognitive abilities, the "central executive control" abilities. Selecting among competing word forms, accessing corresponding word meanings in memory, and making linguistic responses all involve these control abilities. Thus, we can conclude that no single brain region is dedicated solely to language switching and that a neurophysiological language switch must be part of an interconnected cognitive executive control system."*

This author also suggests that a language cannot be totally disconnected when the other is connected, but both languages have to be connected at the same time in an interaction: "multiple language competition and interaction" (Ping Li, 2013: 220).

5.2. Simultaneous Acquisition of two Languages Process

As many authors say, bilingualism can be divided into two types: simultaneous and successive, depending on the manner and moment of acquisition of each language. For this reason, a clear difference between the two processes should be made. In this chapter, simultaneous acquisition should be treated, starting with a description of the different theories about language acquisition. Then, the process of simultaneous language acquisition together with all the stages of acquisition is explained, and finally, some problems of age in this type of language acquisition are highlighted.

In order not to confuse both simultaneous and successive acquisition, the second type is described in the next chapter (5.3).

5.2.1. Theories about Language Acquisition

In the last centuries, there have been many suggestions about the process of language acquisition in children, as monolingual as bilingual. According to Milagros Fernández (1999) there are three tendencies: behaviourist, innatist and interactionist.

The behaviourist approach consists on the development of linguistic abilities by means of learning through imitation, learning and reinforcement, so it is a formation process rather than a maturation process. Milagros Fernández (1999) explains this theory with words by J. Bohannon and A. Warren-Leubecker (1985: 183):

> "*Behaviourists typically do not credit the child with knowledge of rules, with intentions or meaning, or with the ability to abstract important properties from language environment. Rather, certain environmental stimuli evoke and strengthen certain responses in the child. The sequence of language acquisition, then, is determined primarily by the most salient environmental stimuli at any point in time and by the child's past experience with those stimuli."*

The innatist theory supports the idea that there are innate structures which process language acquisition and the existence of a device: Language Acquisition Device (LAD), which is also considered to be innate and that processes the language. Although the main supporter of this theory is Noam Chomsky (1965), here there is a description by J. Bohannon and A. Warren-Leubecker (1985: 185):

> *"Children are regarded as «little linguists», who must use their inherent knowledge of languages to decipher a new tongue. Just as trained linguists must construct formal grammars of languages from relatively limited samples of speech, children use their natural tendencies to search for important linguistic distinctions that will allow them to discover the grammar of their linguistic communities"*

And finally, the interactionist theory describes language acquisition as a result of the implication of different factors (social, biological or cognitive) which influence to each other and over linguistic ability, and at the same time, language function affects over those factors.

Those are theories about monolingual acquisition of the language, however, as Virginia Yip (2013:119) assumes:

> *"the same capacity which serves monolingual acquisition, whether it is innate or otherwise, underlies bilingual acquisition (...) and that in monolingual contexts, this capacity is not yet put to full use; it is only in bilingual contexts that the potential is realized"*

5.2.2. Simultaneous Acquisition of two Languages Process

5.2.2.1. Previous concepts

Nowadays, many children born under bilingualism conditions or during their childhood they are exposed to bilingual circumstances such as immigration or bilingual parents who use a different language at home. However, both monolingual and bilingual children follow the same pattern with similar stages during acquisition ages although is possible that in bilingual children the stages do not occur at the same time for both languages.

As Virginia Yip (2013: 119) says, childhood bilingualism has always been divided into two modes: *simultaneous and successive,* but differences are arbitrary and depend on the development of children. As there is no an exact description of simultaneous acquisition, some researchers created another term known as *"Bilingual First Language Acquisition"* (BFLA). Many authors have suggested definitions to this term. For instance, De Houwer (2009, 2) defined BFLA as *"the development of language in young children who hear two languages spoken to them from birth".* This definition would be rejected due to the fact that although it includes those children who only hear one of the language when is strictly

necessary, it only refers to those who are exposed from birth. After this definition, another authors made a less strict definition. As Virginia Yip (2013: 120) highlights, Deuchar and Quay (2000*) "use the term 'bilingual acquisition' for children who exposure to both languages begins within the first year of life"*. But the most appropriate definition, which is based on Grosjean definition of bilingualism (previously defined in 4.1), is that by Virginia Yip (2013: 120):

> *"BFLA is the concurrent acquisition of two languages in a child who is exposed to them from birth and uses both regularly in early childhood. This will exclude passive bilinguals who are exposed to two languages but produce only one. By 'early childhood' we mean the preschool years up to around age 5"*

Continuing with simultaneous acquisition, there is a problem of nomenclature. The question is: which of them is considered the first language and which the second? In situations of simultaneous acquisition, both 'first' and 'second' terms cannot be used, although sometimes one of them may be stronger than the other. Some other authors, used the terms 'language A' and 'language B' (Hulk & Müller, 2000), which is not correct because there is not one language (language A) influencing the other (language B), but both languages influence to each other. For these reasons, Virginia Yip (2013: 120) decides to use other terms which do not imply the influence of one language to another. These terms were created by Wölck (1987/1988) and De Houwer (2009): *Language A* and *Language α.*

Another clarification that should be made is the distinction between two types of childhood bilingualism. Virginia Yip (2013: 120) proposes the differentiation by Francis, (2011) to take into account:

> *"-Passive bilingualism, whereby a child understands more than one language but produces only one.*
> *-Replacive bilingualism, whereby a child begins to acquire a language A but subsequently acquires language α which replaces language A as the native language."*

The first type refers to those children who hear both languages since their birth or the first years but only need one of them to 'communicate', so they do not produce the other

language. The second type is very common in adopted children who start using their native language; they learn the language of their new home and adopt it as their native language.

This typology took some authors to think the relation between two linguistic systems while they are being developed. A possible option is the existence of a single system for the two languages, as proposed Volterra & Taeschner (1987). Some features to distinguish this single system are the following, according to Paradis and Genesee (1996):

> *"1. Delay, i.e., the acquisition of a property later than expected as a result of development in the other language;*
> *2. Acceleration, i.e., the acquisition of a property earlier than expected as a result of development in the other language;*
> *3. Transfer, i.e., 'incorporation of a grammatical property from one language into the other'."*

But this theory has been rejected after some studies, as some authors have discovered that even in the first year of life, children are able to distinguish between both languages. The second option is *The Separate Development Hypothesis* by De Houwer (1990, 2009), which support the idea that there are a different system for each language and even that those systems have their own development process.

And the last option consists on separate systems but the development of one of them may influence in the development of the other, as Döpke (2000) or Yip & Matthews (2001) proposed. This third option is commonly known as *cross-linguistic influence*, and may be better described with an example by Hulk & Müller (2000): *"a child's stronger language may influence the weaker language, and/or the two systems may influence each other where there is actual or perceived overlap between them"*.

Thus, cross-linguistic influence can be resumed as the effect of one language on the other. It has to be highlighted that cross-linguistic influence usually is more common between children with a dominant language but that it can occurs in some domains but not necessarily in others. Those domains can happen depending on two conditions proposed by Hulk and Müller (2000), as Virginia yip describes (2013: 131):

> *"(a) The structure in question involves an interface such as that between syntax and pragmatics.*

(c) There is surface overlap between the two languages, with language A allowing one option and language α allowing two (one of which overlaps with language A).”

This cross-influence derives in another important phenomenon in the simultaneous acquisition of two languages: the *code-mixing*, which has been previously treated in the point about Language Switch (5.1.3.).

5.2.2.2. Simultaneous Acquisition Stages

Bilingual children follow the same patterns and stages of language acquisition than monolingual children. Those stages show a gradual development, as a mixture of innate theories and cognitive maturity. Although most of authors start to study this development from the birth, Eva María Fernández and Helen Smith Caims (2011) started from explaining some facts that happen even after the birth.

5.2.2.2.1. Before the birth stage

They explained that children are hearing language even in the utero, where they start to hear since the fourth month. But what is even more brilliant is that the baby is able to respond to external sounds from the sixth month. Fernández and Smith (2011) gave an example of that using a research by Barbara Kisilevsky (2003): *“Full-term fetuses (38 weeks of gestation) have a preference for their own mother’s voice over that of a stranger, as indicated by increased fetal heart rate and body movements”*.

5.2.2.2.2 Babbling stage

Once the birth takes place, the most important ability of children is the identification of the phonemic system independently of the language they hear. Some studies have shown that young children are able to hear many sounds from their community and discriminate those sounds which are related with phonemic, just as vowels or consonants articulation or duration.

Pre-linguistically, children perceive that they and people around them start actions, and that these people and objects can be affected as a result of these actions. Children match the signification to the changes in the conditions of their environment and organize what is around them. They even have awareness of the space-time orientation of objects as well as the

locations of actions and entities. Children start to associate particular events to certain people, this categorical construction is previous to the linguistic representation that the child can do about the world around him.

Janet Werker (2002) and other authors have carried out some studies by which children are conditioned to turn their head toward a visual point in the moment in which they hear some external stimuli to them. Their conclusions were that *"infants aged 6 to 8 months can discriminate speech sounds that are nor phonemic in their language, even though older children and adult speakers of their language cannot"*. By the age of 12 months, children have a complete phonemic system established.

Although it has been explained from the monolingual point of view, this is something that happens exactly equal in bilingual cases. Children also are able to distinguish a phonemic system in a new language for them; they only have to hear that language around them to acquire that language. As Fernández and Smith (2011: 108) claims *"many babies grow up with two or more languages in their environment. Bilingual language acquires must, therefore, set two or more phonemic inventories".*

The only possible and important difference between monolingual and bilingual infants is that those who are exposed to bilingual environments will need more time to respond to stimulus in their native languages than in unknown languages. In the case of monolingual infants, it will not take more time to respond to an unknown language. This can be due to bilinguals need for time to recognize if the sound of information belongs to any of their native languages, while monolinguals only have to compare with one language.

Milagros Fernández (1999) distinguished four main phases or evolutionary stages. The first stage is called by Fernández (1999) as *'pre-linguistic'* phase. It goes from the birth to the first year approximately and is a preparatory stage. There are two periods in this stage which are the babbling phase and another phase when children start to produce some sounds and vocalizations that they hear from their community. Of this stage, Virginia Yip (2013:130) also wrote. She said that *"Given that babbling shows phonological features of the target language, it is possible to see language differentiation as early as the babbling stage, and even to identify a dominant language in bilingual infants' babbling".* Some studies have been carried out. For instance, the one by Maneva and Genesee (2002), who discovered that children, of

approximately 12 months, changed their type of babbling if adults who spoke to them used a different language.

Babbling can be defined, according to Fernández and Smith (2011: 209), as:

> *"Single syllables at first, always consisting of a consonant and a vowel. Usually the consonant is a stop consonant and the vowel is /a/. At first the babbles will be strings of similar syllables, like baba baba. Later, the babbles will become more varied, e.g., baga bada. This type of babbling is called segmental babbling because the vocalizations sound like phonemic segments. The vocalizations also have sentence-like intonation, so the strings of babbles might sound like declarative or interrogative sentences made up of nonsense words"*

This is a very important and curious period in the development of language acquisition process in children because as everybody knows, babbles have not any meaning but it is like if babies want to tell something although they are just playing, more frequently alone than with more people around them, with different sounds of the language systems that they are exposed.

In the stage which starts in the eighth month more or less, children without limitations are able to produce the phonetic dimensions and intonation that learn from the adults. Fernández (1999) gave important information about this topic which was written by B. Boysson-Bardies (1982: 334):

> *"The maturity of the child do not just reflect the emergency of what is joined to the specie, but also specific aspects of structures and linguistic performances, as adults can recognize some of their own language patterns"*
>
> (My own translation)

5.2.2.2.3. Holophrastic stage

Although children from 9 months are able to recognize simple words which are part of a speech, they are not able to produce their first word until they are between 12 and 18 months. Sometimes occurs that the first words that children produce are not too different from

babbling, but in this case, the word has a referent. This period when children only say isolated words but within complex messages is commonly known by linguists as holophrastic period.

For example, a simple word as bread will have few meanings. Children can refer to bread, can ask for bread, may observe bread in the hands of other child or in any bakery and so on. It is remarkable to say that in this stage, children only use very easy vocabulary, as everyday objects, food, toys or clothes, and those words are usually nouns, except some prepositions.

In this stage the child discovers that the combinations of words express more than the meaning of only one word. They understand concepts of agent, action, object, location, possession, rejection or denial. Words start to be understood outside of routine games but children still need contextual support for lexical comprehension. At 18 months, children have an average of 50-100 words in their vocabulary.

This phase changes from one child to another, as they elaborate their own lexicon gradually. Those differences are assigned to three facts, according to David Ingram (1989). The first one is the '*variety of performance'*, as each individual has different preferences referring to particular linguistic systems. The second one is the *'variety of the environment'*; it depends on the influences or general context that the child receives. And lastly, the *'linguistic variety'* which depends on the features of the language that children are acquiring.

At this stage, there are two features that must be considered. Those terms, proposed by Fernández and Smith (2011: 111), are underextension and overextension. Underextension occurs in cases which *"the child will acquire a word for a particular thing and fail to extend it to other objects in the same category"*. For instance, a case of underextension would be the one in which a child use the word *tree* to refer to a pine and does not use the meaning of the word to other types of trees.

On the other hand, overextension, which is more common, is *"when a child will extend a word incorrectly to other similar things"*. For example, when a child calls 'car' to all means of transports with four wheels. This feature occurs because children do not have a wide variety of vocabulary.

Another interesting question is if bilingual children have two different lexicons. To this question, Deuchar & Quay (2000) gave an answer:

> *"A child developing a single lexicon incorporating words from both languages is not expected to have translation equivalents, but studies have shown that children do have translation equivalents from the earliest stages"*

These lexicons grow and when they get about 50 words, children start to construct simple sentences. From this moment, children have a faster acquisition of new words, what is commonly called as *vocabulary spurt*. During this stage, children achieve a high level of vocabulary; for instance, at the age of 6, they have learnt between 8,000 and 15,000 words, which means that children learn about 6 new words every day since they are only 1 year.

In the case of bilingual children, vocabulary spurt takes place later in the weaker language. As Virginia Yip highlighted in her work, *"as in monolinguals, the vocabulary spurt is subject to individual variation, occurring at a similar rate in both monolingual and bilingual children"* (Pearson & Fernández, 1994).

In both, monolingual and bilingual children, there are different moments during this phase in all phonic, lexicon or grammar components. Those moments are, according to Ingram (1989: 35): the continuous stage, the plateau stage (or relaxed stage), the transition stage and acceleration stage.

One of the features of that vocabulary spurt is *fast mapping* (Carey 1978). This fact happens when, according to Fernández and Smith (2011: 11),

> *"A child hears a word once or twice, learns its grammatical class, but has only vague sense of what it means. The child will then use the word in sentences, while gradually acquiring the full meaning of the word."*

That means that children often learn a word, but not the full-meaning. Instead of that, they acquire the full meaning gradually without the necessity of anybody teaches them, but they are able to acquire this full meaning by their own communicative experience, not by instructions.

5.2.2.2.4. Preschool years

This stage goes from two to five years and is mainly characterized for vocabulary development and the progress in the creation of syntactic structures. These syntactic structures

are simple but with complex meanings. Step by step, children go gradually constructing more complex structures.

At this stage the knowledge of letter names, sound, numbers and counting emerges. Children start to use 'when' and 'how' questions, as well as some conjunctions, and their vocabulary about size and shapes increases (circle, triangle, big, small…).

Referring to word order, bilingual children do not always respect it, depending of the language that they are using and sometimes, as adults as children, tend to mix or switch from one language to another, which has been previously defined as language switching or code-switching.

At this stage, there is a process that should be described. This process is called *'Mean Length of Utterance'* (MLU) and according to R. Brown (1973: 53-54), it can be defined as:

> *"The mean length of utterance (MLU) is an excellent simple index of grammatical development because almost every new kind of knowledge increases length: the number of semantic roles expressed in a sentence, the addition of obligatory morphemes, coding modulations of meaning, the addition of negative forms and auxiliaries used in interrogative and negative modalities, and, of course, embedding and coordinating. All alike have the common effect on the surface form of the sentence of increasing length (especially if measured in morphemes, which includes bound forms like inflections rather than words)".*

It has to be pointed out that, at this stage, there is an important development in comprehension skills if we compare it with production skills. The average of new words is about 22, while the average of emitted words is about 10.

The figure 1.3 (Appendix) is extracted from Fernández and Smith Caims (2011: 118) but based on Owens (2001: 308) and Brown (1973), shows the mean length of utterance in children who are learning English simultaneously with another one.

In terms of vocabulary, bilingual children use to have a less rich lexicon in both of their languages while monolingual children have a wider one. But, according to some studies, bilinguals have a wider number of words in their lexicons than monolingual speakers, which means that "there is no deficit in lexical capacity" (Fernández and Smith Caims, 2011: 120)

and that bilingual receive a double input. However, bilinguals require a longer time of acquisition due to they hear the words less frequently than monolinguals.

5.2.2.2.5. Advanced stage

This stage starts when the children are 5 years old. From here, children are able to construct complex sentences and are able to introduce some pragmatic roles.

Children between 5 and 9 years reorganize their lexical knowledge form episodic to semantic networks. The number of words in their vocabulary increases to more than 5,000 words as the school introduces new words, some of them with multiple meanings. Words definitions include synonyms and categories. Children capacities for production of figurative language increase and they understand the concept of 'word' separate from its referent.

Finally, between 9 and 18 years, children and teenagers can explain relationships between meanings of multiple-meaning words; they understand most common idioms and can explain meaning of proverbs in context. Their school years make that they acquire more abstract and specific vocabulary and the average of vocabulary increase to 10,000 words. They use a more complex language in written language than in spoken language and reach full adult range of syntactic constructions.

After all those stages, it is possible to say that a totally case of bilingualism has been achieved.

5.2.3. Problems of age and simultaneous acquisition of two languages

Nowadays everybody talks about the importance of learning a second language since childhood or the importance of a bilingual education at schools. Everybody thinks that children should start to learn a second language since childhood because they require less effort and do it better than when adults, and even children get higher control of the language. But many studies have proved that it is not totally correct.

Some of the conclusions of these studies have been described by Appel and Muysken (1987: 94) into three propositions. The first one affirms: *"There is no conclusive evidence for a critical period for second-language acquisition"*. Some authors thought that there is an exact period which has the perfect features to learn a second language and that after that, the process of learning a language can never be completed. This period was sometimes related

with the lateralization of the brain, but nowadays studies have shown that there is neither a special moment for lateralization of the brain nor an exact period to get a perfect language acquisition, *"perhaps only a sensitive or optimal period for the acquisition of certain second-language skills, especially pronunciation, can be established"* (Appel and Muysken, 1987: 95).

A second proposition is that by which *"A difference must be made between rate of acquisition and level of proficiency attained"* (Appel and Muysken, 1987: 95). It means that although adults are faster than children when they have to learn a second-language, children get higher levels of proficiency.

The third proposition makes reference to some aspects that have to be with the age on second-language acquisition. In first studies, authors only made reference to the biological factor, because of the lateralization. However, in some recent studies, there are three aspects to take into account. The first one is the cognitive factor, which means that each learner, of any age, may use a different strategy to learn a second language. There must also be an affective factor, which shows the differences between the learner and the target society. And lastly, a social factor, which consists on the native speakers' regulation to the necessities of learners depending on their ages.

From those propositions, Appel and Muysken (1987: 95) conclude saying that children are faster than adults in the learning process, but that "they also seem to be able to acquire two languages simultaneously without any special difficulties".

5.3. Successive Acquisition of two Languages

If simultaneous language acquisition of two languages takes place from the birth or during the first year of life, successive language acquisition may take place at any moment during the life: childhood, adolescence or adulthood.

As has been told before, simultaneous acquisition takes place in the first months of childhood, so that is the reason why this acquisition process is very similar to the first language acquisition process. Due to that fact, the successive acquisition process is linked with second language acquisition. As Ping Li (2013: 145) highlights, "*the first language is the native language, the dominant, more frequently used, and stronger language, whereas the*

second language is nonnative language, less dominant, less frequently used, and weaker language".

But, the theoretical issue that has been an interesting point for many authors is the age of acquisition and how it impacts on second language learning process, mainly in speech learning.

It is known by anyone that there is a clear difference in the process of second language learning depending on if the learner is an adult or a child. It is said that children have facilities to acquire more than one language at the same time or one after another and that adults usually have difficulties even after many years learning a language. This fact has been object of discussion for some authors during decades.

One of the theories that has been the basis for future studies is the critical period hypothesis (CPH), which was formulated by Lenneberg (1967) and that Ping Li (2013) explains as:

> *"The automatic acquisition of a language in the natural setting (e.g., from mere exposure to a given language) takes place only during a critical period (age 2 to puberty), after which language learning proceeds more slowly, and ultimately proves less successful."*

This theory is related with the lateralization of the brain previously discussed and with a pretended period of language acquisition supported by many theories and authors. Due to the interest that was generated on this issue, there are many experimental studies.

To start with, some authors decided to change the term "*critical period*" to "*sensitive period*" or, in last years, "*age of acquisition*". This last term makes reference to "*age-related differences in language acquisition including effects of critical or sensitive periods*" (Ping Li, 2013: 147). After that, many experiments were done with second language learners and some conclusions should be taken into account.

Firstly, learning process also depends on motivation, cultural influences and cognitive factors. Another conclusion is that late learners use strategies comparing the first language with the second, which helps to understand the new language better. Early leaners may use two methods for learning according to Ping Li (2013: 149): "*early learners, depending on the age of L2 acquisition, showed either backward transfer (using L2 strategies for L1*

comprehension) or differentiation (distinct patterns for L1 versus L2)". Other authors related the learning process with neural and cognitive aspects, for instance Johnson and Newport (1989) create the "*less is more*" hypothesis, which is formulated by Ping Li (2013: 149) as:

> *"The less well developed cognitive capacity in children actually confers learning advantages: young learners tend to be engaged in piecemeal, gradual, and implicit learning whereas adults, because of formal operational abilities, tend to use explicit analytic procedures in dealing with complex aspects of language".*

Other hypothesis was the one by MacWhinney (2012), that is, the Unified Competition Model (UCM), which exposes that both first and second language acquisition processes are not different but that there are some risk factors, as negative transfer from the first language or negative social influences for the learner, and protective factors, such as positive transfer, cultural influences or immersion. Thus, as a conclusion of the UCM, *"successive learners who are able to maximize the benefits of these protective factors will show better and faster learning than learners who are highly susceptible to the risk factors"* (Ping Li, 2013: 150).

An interest point of discussion here is how the age of acquisition influences in speech learning. After many experiments with successive bilinguals, specifically native Spanish and English learners, the conclusions were that:

> *"Only the early learners performed similarly to native monolingual English speakers, not only in perceiving the different categories associated with different syllables, but also in ignoring the variability (e.g., intonation) of the different tokens of the same syllable".* (Ping Li, 2013: 154)

Therefore, if learners have good phonetic abilities in their mother tongue, they will probably have facilities to learn the differences with the second language. As well as if they have good acoustic abilities, they will achieve faster speech learning. Those abilities require the implication of some brain areas such as the parieto-occipital area and the superior temporal gyrus.

5.4. Bilingualism effects

Nowadays, bilingualism does not have always a positive view. In some countries, bilingualism is the result of, for example, immigration, and people usually think that those

people who speak several languages in the same territorial area, are not bilingual. They think that they only have a mix of all the languages that they have learnt since they abandoned their countries and that they are not able to correctly speak more than their native language.

But, fortunately, in most of countries, bilingualism is considered to have many positive aspects, as for example, the capacity to communicate with other language speakers, the opportunity to know other cultures, better listening skills, and many others. In many countries of Africa or Asia, all the population speaks, at least, two languages, as a norm. So, they cannot understand the negative aspects of bilingualism proposed by other societies.

Before discussing the effects of bilingualism, there is a differentiation that has to be taken into account and that is made by Appel and Muysken (1987: 102). This distinction is the one between *'additive'* and *'subtractive'* bilingualism.

On the one hand, additive bilingualism takes place when a speaker adds *"a second, socially relevant language to [his/her] repertory of skills"* (Lambert, 1978: 217). In this case, the first language does not run risks because is stronger and used in the society or media. An example of this type of bilingualism would be the case of Americans speaking English who add Spanish to their skills. English will not be in danger as it is the main language use in media and in society.

On the other hand, subtractive bilingualism takes place *"when second-language leaning is part of a process of language shift away from the first or the 'home' language"* (Appel and Muysken (1987: 102). For example, all the people from many countries that immigrate to Great Britain get a high level of English while they forget their native language.

Hence, after this clarification, the effects of bilingualism can be discussed. It is important to take into account that those effects are analyzed in the educational and social context.

5.3.1. Effects on Linguistic skills

Bilingualism is considered to be a good experience in children for almost all parents today, and for that reason, many parents try to encourage their children to develop their bilingual system. But some many years ago, it was not the case. Bilingualism was considered to have negative effects on linguistic skills. According to some investigations, bilingualism

supposed a problem when children had to acquire new vocabulary, which implied a lack of lexicon and problems to create complex sentences or problems with the word order.

Although there were many theories against bilingualism, one of the most important was the one created by Macnamara (1966). The theory was called '*balance hypothesis'* and according to Appel and Muysken (1987: 104) it consisted on:

> *"Human beings have a certain potential, or perhaps neural and physiological capacity for language learning. If an individual learns more than one language, knowing one language restricts the possibilities for learning other languages. More proficiency in one language implies fewer skills in the other ones"*

That means that if someone learns a language when he or she already knows one, it implies more proficiency in one language but negative effects on the other language, idea that was obviously rejected by many authors.

In response to this type of theories, many authors formulated more logical arguments in favor of bilingualism. For instance, James Cummins (1979: 222) pointed out some benefits of bilingualism. One of them was:

> *"a home-school language switch results in high levels of functional bilingualism and academic achievement in middle-class majority-language children, yet to leads to inadequate command of both first (L1) and second (L2) languages and poor academic achievement in many minority-language children"*

What Cummins means here is that children achieve positive results in both languages (L1 and L2) if they are immersed in both languages, that is, they have a bilingual education system, while children with only one language learning process do not achieve high levels of proficiency.

In spite of that, there are as positive as negative effects of bilingualism. Here, there is a short resume of conclusions about effects of bilingualism which includes both positive and negative effects, as well as some advices to achieve bilingualism.

Firstly, Cummin claimed that children who belong to small ethnic groups have to receive early instructions in their native language, because if not, there will be lack of

proficiency in their language skills. In this way, they will be able to achieve proficiency in both languages and bilingualism will be good for them. On the other hand, children who belong to majority groups, should receive the second language since they are very young to achieve bilingualism, because first language is already worked at home. Apart from that, it is obvious that there are social and psychological aspects that can influence in the process.

Some of the negative effects can be the following. Firstly, if the skills in the first language are not developed enough and children receive a bilingual education from the early years, there will be a delay in the development of the first language. Another possible negative effect is that some researchers have highlighted that bilingual children do not achieve a complete use of the morphological system in the same way that not bilingual children do.

About positive effects, is possible to conclude that a high level in one language makes easier a high level in the other language, not depending if the influence is from first to second language or backwards. Another positive effect can be the one proposed by Appel and Muysken (1987: 105):

> *"Children from majority groups have a high level of first-language proficiency, especially in certain aspects relevant to the classroom, and therefore they can follow a complete second-language curriculum without negative effects"*

5.4.2. Cognitive effects

As well as linguistic effects, the first theories about cognitive effects concluded with negative results. One of them, by Natalie Darcy (1953: 50) concluded that *"bilinguists suffer from a language handicap when measured by verbal test of intelligence"*.

Authors like Peal and Lambert tried to explain those negative effects through the lack of a complete methodology. Some of the tests carried out with children to control their intelligence did not often control age, sex, socio-economic status, degree of bilingualism and so on. Appel and Muysken (1987: 109) proposed a possible explanation:

> *"children who were tested via their second language, while not speaking that language well, performed poorly. Bilingual children from lower socio-*

economic classes scored lower on the tests than monolingual children from higher socio-economic classes, not necessarily because of their bilingualism".

Other researchers tried to find the relation between the cognitive ability and the degree of bilingualism. For instance, Hakuta and Díaz (1985), whose results concluded that there was a positive result from this relation after submitting children to some tests.

Kessler and Quinn (1980) made a study with some students, both monolingual and English-Spanish bilingual. This study consisted in some sessions of science films and some other sessions discussing the films. After the study, they concluded that bilinguals made better discussion and hypotheses than the monolinguals. One of the reasons may be that bilinguals are able to use the linguistic rules of two systems.

Appel and Muysken (1987: 111) also proposed the opinion of Peal and Lambert: *"bilingual children may show cognitive advantages because they are better able to dissociate concepts from the words with which they are verbalized"*. Also Segalowitz (1977: 131) gave an opinion about the topic saying that bilinguals suffer an earlier emancipation, intellectually talking.

To conclude is possible to say that bilingualism is not a problem for the development of cognitive elements but that there are some external factors that can influence. For instance, the economic and social status, the importance of the two languages or educational systems.

Another issue that is clear after many studies is that bilingual programs in education usually achieve not only high proficiency of languages but also a faster development of the cognitive aspects together with higher results in academic issues.

5.4.3. Effects on the development of personality

It has already mentioned that some years ago, bilingualism was seen as something negative and the same happened if we talk about the effects in the personality of the speaker. It was believed that bilinguals always suffer problems of identity of personality but it is often based in some speakers experienced, not real studies.

But sometimes, those negative effects can be possible, especially in some social conditions, conditions that are not favorable at all. Social factors are very important, as Diebold (1968: 239) suggested that there was:

> *"Basically a crisis in social and personal identity engendered by antagonistic accumulative pressures on a bicultural community by a sociologically dominant monolingual society within which the bicultural community is stigmatized as socially inferior"*

Both adults and children may suffer social conditions which affect their personality development. Adults usually suffer psychosomatic illnesses due to social conflicts. Children usually have problems at school if they belong to a minority group, which provoke aggressive behavior of some children and discrimination.

As Appel and Muysken (1987: 115) highlighted *"the relation between language and culture does not seem to be as strong and fixed as is often assumed. It is not true that speaking a certain language inevitably leads to holding certain cultural values".*

To sum up, bilingualism is not a problem for the development of personality. Problems are social context or emotional problems mainly caused by discriminatory behaviors of the society to minority groups that continue happening in the 21th century and that should be penalized.

6. Conclusions

Once the different objectives set at the beginning of the project have been developed, we can observe several conclusions. Concerning language proficiency, a speaker does not need a high domain in each of the four skills of a language to be considered bilingual. The level of fluency in each skill will depend on the necessity and the use of that language.

In regard to the concept of lateralization, it has been shown that both cerebral hemispheres have a crucial role in the process of acquisition of bilingualism. Moreover, there is not a specific brain area dedicated to language switching, but both languages are steadily active due to an interconnected cognitive system.

About the simultaneous acquisition process we can conclude that a speaker who is exposed to two languages from the birth gets a state of complete bilingualism at about the age of five, when he or she is able to produce complex sentences and has a wide variety of vocabulary. In the case of successive acquisition of two languages, we must mention the existence of a critical or sensitive period for automatic acquisition of a second language. That period starts at the age of two and goes until puberty, after this period the acquisition process will be slower and even less successful.

With regard to the effects of bilingualism, we can get both positive and negative effects. In the case of linguistic skills, we can conclude, on the one hand, that children achieve positive results in both languages if they are in a situation of immersion, as for example bilingual education. On the other hand, it can be consider as negative if children have not sufficiently developed their native language, as it will cause a delay in the development of the first language. In spite of this, results will be positive once children have finished the acquisition process of both languages, although it will be slower.

Regarding the cognitive effects, we can say that bilingual children not only achieve proficiency in the two languages but also a faster development of cognitive aspects and higher academic results. Finally, there are also effects on the development of personality. Both children and adults can be negatively affected due to they can develop emotional problems as a consequence of discriminatory behaviour in monolingual communities or in communities where a language is dominant over the other. However, there are more positive than negative effects, because of bilingualism provides an open mind and a wider view of the world. All these effects will depend on external factors such as social and economic status of the speaker or the education system.

Due to the main effects of bilingualism are positive, I think that a bilingual education of quality is convenient and even necessary in our education system, not only for the academic benefits that it involves, as the domain of several languages which is so valuable in the children's future, but also for the variety of psycholinguistic and cognitive effects that bilingualism provides in children and adults.

Conclusiones

Tras desarrollar cada uno de los diferentes objetivos propuestos al inicio del proyecto, podemos observar varias conclusiones. En cuanto al dominio de un idioma, un hablante no necesita un gran dominio de las cuatro destrezas de un idioma para ser considerado bilingüe. El nivel de fluidez en cada destreza dependerá de la necesidad y uso de dicho idioma.

Con respecto al concepto de laterización, se ha demostrado que ambos hemisferios cerebrales tienen un papel crucial en el proceso de adquisición del bilingüismo. Además, no existe una región cerebral específica dedicada a cambiar de idioma dependiendo del que queramos usar, sino que ambas lenguas están continuamente activos gracias a un sistema cognitivo interconectado.

Sobre el proceso de adquisición simultáneo podemos concluir que un hablante expuesto a dos idiomas desde el nacimiento consigue el estado de bilingüismo total aproximadamente a la edad de cinco años, cuando es capaz de construir frases complejas y dispone de un amplio vocabulario. En el caso de la adquisición sucesiva de dos idiomas, hay que destacar la existencia de un período crítico o sensible para la adquisición automática de una segunda lengua. Dicho período transcurre desde los dos años hasta la pubertad, después de este período el proceso de adquisición será más lento e incluso con menos éxito.

En cuanto a los efectos del bilingüismo podemos obtener efectos tanto positivos como negativos. En el caso de las habilidades lingüísticas, podemos concluir, por un lado, que los niños logran resultados positivos en ambos idiomas si se encuentran en una situación de inmersión como puede ser la educación bilingüe. Por otro lado, los efectos pueden considerarse negativos si los niños no han desarrollado su lengua materna lo suficiente, ya que provocará un retraso en el desarrollo de la primera lengua. A pesar de esto, los resultados serán positivos una vez que los niños hayan completado el proceso de adquisición de ambas lenguas aunque éste sea algo más lento. Respecto a los efectos cognitivos podemos decir que los niños bilingües no sólo consiguen un buen nivel en las dos lenguas sino también un desarrollo más rápido de aspectos cognitivos y mejores resultados académicos. Por último también existen efectos en el desarrollo de la personalidad. Tanto niños como adultos se

pueden ver afectados negativamente, ya que se pueden desarrollar problemas emocionales causados por comportamientos discriminatorios en comunidades monolingües o donde predomina una lengua sobre otra. Sin embargo, serán más los efectos positivos, ya que el bilingüismo proporciona una perspectiva y una visión del mundo más amplia. Todos estos efectos dependerán de factores externos como el estado social y económico del hablante o el sistema educativo.

Puesto que los principales efectos del bilingüismo son positivos, creo que es conveniente y hasta necesaria una enseñanza bilingüe de calidad en nuestro sistema educativo, no solo por los beneficios de carácter académico que conlleva, como pueden ser el dominio de varias lenguas que tan valioso puede resultar en el futuro de esos niños, sino también por los numerosos beneficios psicolingüísticos y cognitivos que el bilingüismo aporta ya se trate de niños o adultos.

7. References

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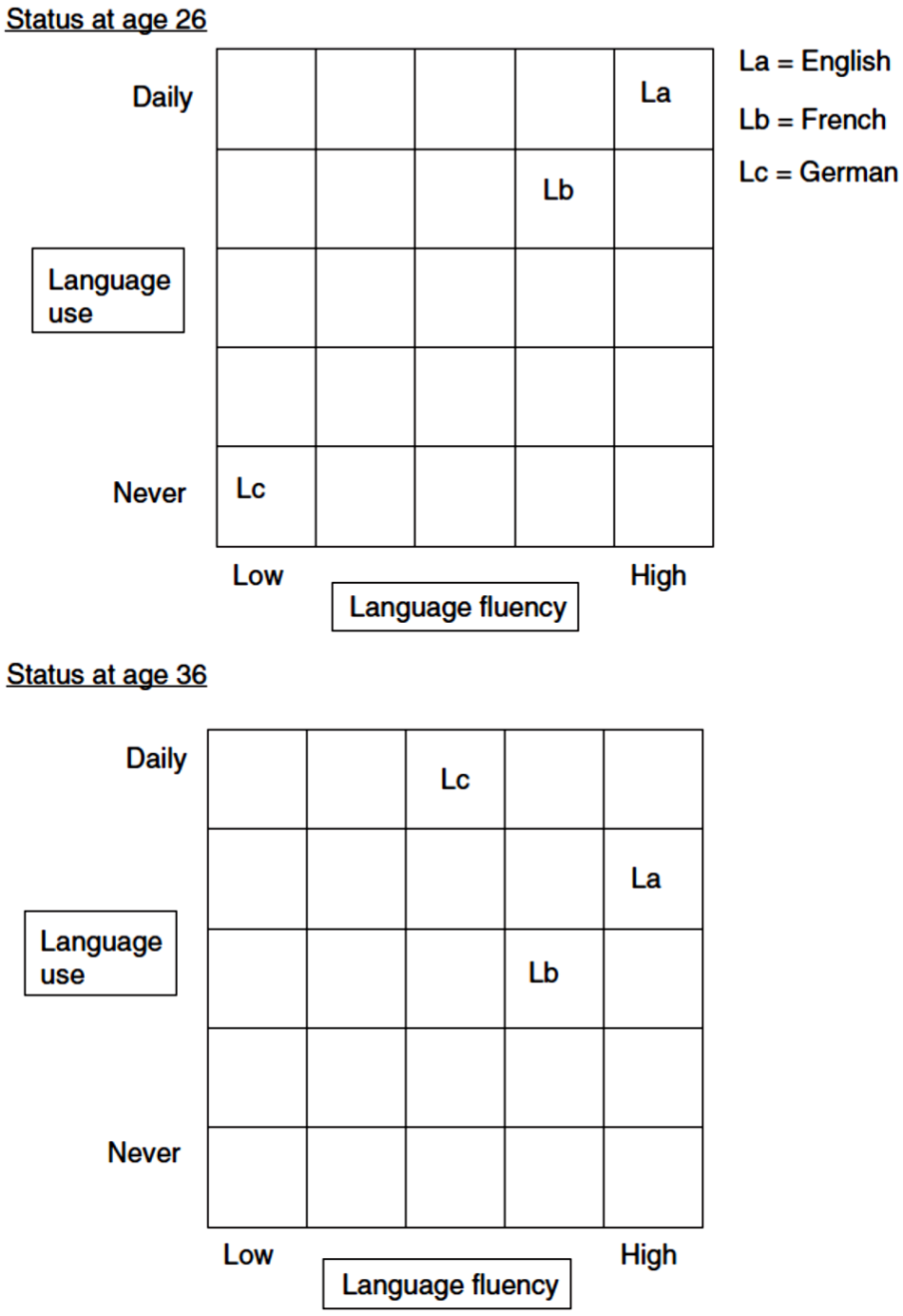
8. Appendix

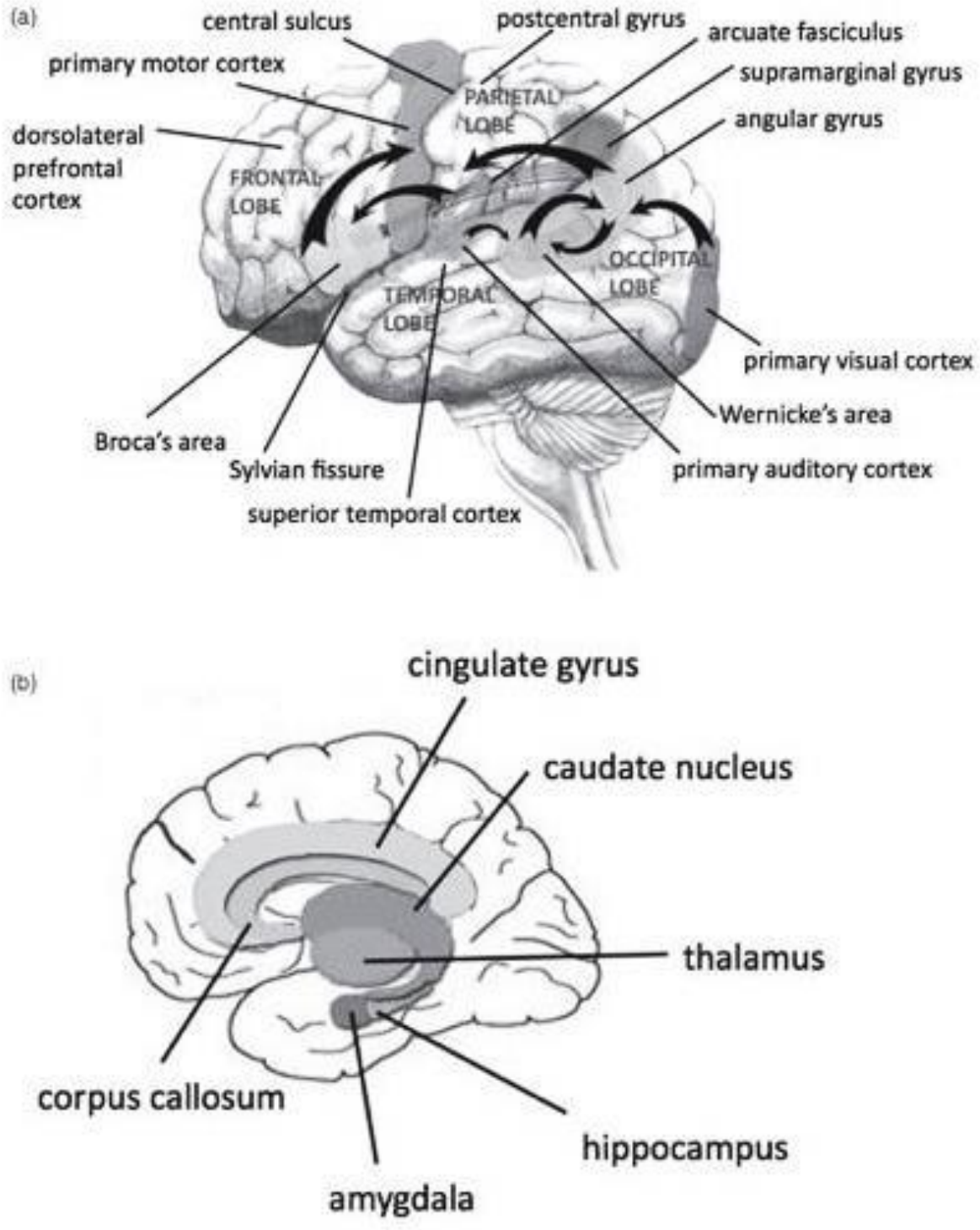
Figure 1.1

Bilingualism: A Short Introduction



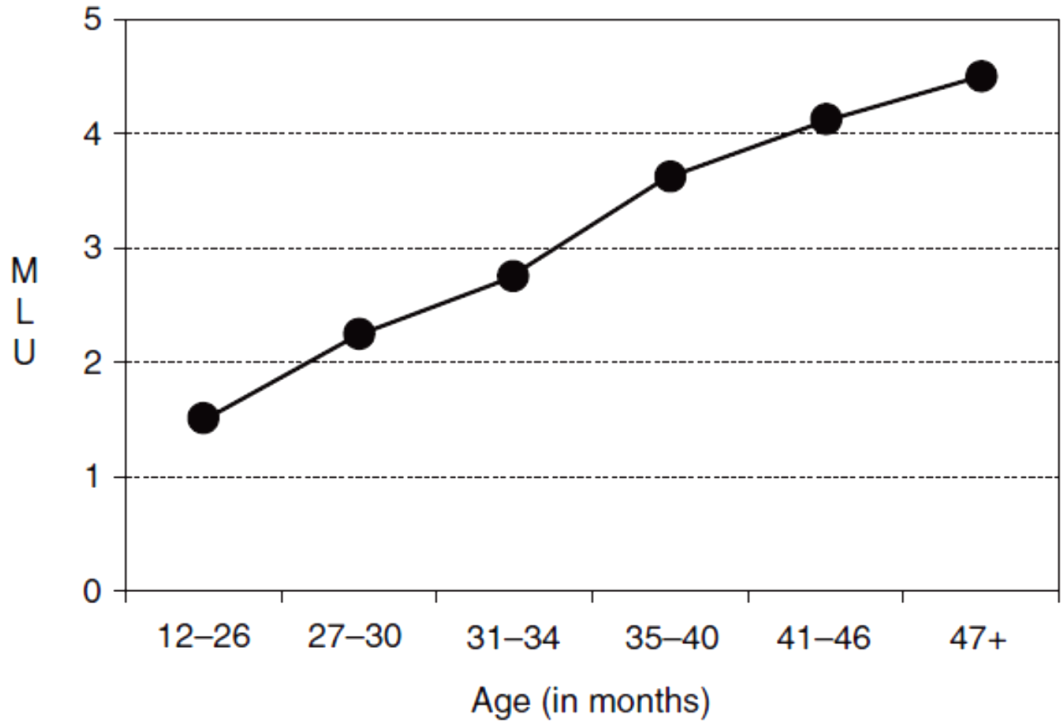
Bilinguals' fluency depending on the age of people

Figure 1.2



Localization of language skills in brain areas

Figure 1.3.



Length of utterance in children learning English simultaneously