

**The Bilingual World:
a study on
bilingualism and its
cognitive effects**

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Seminari 101: English language

Curs 2016-2017

Abstract

Bilingualism has recently become a common condition, rather than an exception, that has impacted the world in various ways. The present research was designed to deeply analyze the effects of bilingualism on the contexts of linguistics, politics, and neurolinguistics. Collecting the substantial literature on this issue will permit us to contrast perspectives in order to obtain a wider understanding of the field of bilingualism. The research includes an introductory section covering the most important aspects regarding bilingualism and aims to define this linguistic condition, by recognizing three different kinds of bilingualism and studying their pros and cons. After this part, I analyze the two kinds of policies that governments choose to address bilingualism in countries and how one of them increases the chances individuals residing in the relevant countries will be bilingual. Next, I cover the most recent observations and conclusions by neurolinguists concerning bilingualism, which explain the differences between the monolingual and the bilingual brain, the process that enables the choice between the two languages without confusion and the collateral consequences that bilingualism has. Finally, I present an empirical study that I conducted with bilinguals of an L1 language and English as an L2, who were asked to answer a survey based on the information gathered in the previous, theoretical sections. Overall, I cover the interferences that bilingualism has on the mother tongue, the effectiveness of the cross-language activation that the brain develops and the age issue in the acquisition of languages.

Keywords: Bilingualism, languages, language policies, bilingual societies, the brain, age of acquisition

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Introduction

For as long as I can remember, I have been using two languages in my daily life. I was born and raised as a bilingual in a region where this condition is by no means unique. Mostly everyone in my circle of friends is bilingual and thus it is something natural for us to have more than one language, although I have always had a deep admiration for languages. When I began with my studies of translation at the university, my interest for languages substantially increased. At this time, I speak fluently my two native languages, Spanish and Catalan, as well as English and German. I have been taking an undergraduate program that combines the four languages and the passion that I feel for languages broadens every day more. I have always felt that being bilingual has triggered me to be curious about other languages, but the path to acquire them has not always been easy. As any other foreign speaker, I have found difficulties when learning foreign languages, although I was never discouraged. Throughout these four years of hard work, I have wondered if my level in English and German could ever be that of a native speaker. Overall, my implication with languages inspired me to write this paper and to explore in depth the world of bilinguals (and multilinguals). More specifically, it pushed me to discover the extent to which people share the same condition as mine and how it affects us.

Writing this paper has provided me with knowledge on this linguistic condition. Nevertheless, my objective was to take bilingualism a step further from linguistics and discover what other implications bilingualism has, besides being a 'linguistic condition'. That is, I aimed to review the studies that have been conducted on bilingualism during the last decades in the different fields in which bilingualism is involved. My goal was to discover the theories that have been written on bilingualism, the myths that have been falsely attributed to bilingualism, and the opinions of those who have experienced bilingualism. As my knowledge on the issue was at the outset fairly vague, after finishing the paper I have come to be capable of discussing the topic from any of the perspectives described in this project. This includes the different contexts in which one can achieve bilingualism, the pros and cons of being bilingual, the language policies that the countries opt for when embracing more than one language, the neurological process involved in learning languages and the consequences that bilingualism has across one's lifespan. Therefore, I attempt to provide an overview

of the different aspects that bilingualism embraces in order to connect them and reach a common conclusion.

In order to successfully conduct this study, I first planned what I wanted to cover and divided it into three different blocks. The first block introduces the concept of bilingualism and covers general aspects of this condition, such as the context to acquire bilingualism and the pros and cons that bilinguals face. The second block explains bilingualism from a political point of view. This one encompasses the way that governments deal with bilingualism and what objectives do they seek to achieve when taking decisions regarding language policies. In the third block I will cover the neurological side of bilingualism. In other words, I explain the process in which bilinguals acquire languages, and the ways in which the brain is involved in this process of learning. Once I complete these three sections, I will conclude with a discussion of a study based on a survey that I conducted on bilinguals, in order to know their experience and finally draw a conclusion. I selected eleven bilingual subjects and I asked them questions regarding the age of acquisition, the means of acquisition and the code-switching process between languages, among other questions. Their answers brought me to contrast the theories explained throughout the three first blocks in order to reach a conclusion combining their experiences with the theoretical information.

1. THE BILINGUAL PERSON

In this section of the paper I am going to introduce the concept of *bilingualism* and specify what makes an individual bilingual. After this introduction, I will distinguish between three kinds of bilingualism: planned bilingualism, natural bilingualism and adult bilingualism. Next, I will explain how language choice is governed by different factors in some languages and cultures. Finally, I will conclude by presenting some arguments against bilingualism that have been given throughout the last century and compare them with the ones provided recently. With this section, I attempt to present a general overview about bilingualism that will lead us to the subsequent parts of the paper.

1.1. What kind of bilingualism

Bilingualism has been a subject of study for decades. The approaches, however, potentially differ. In this subsection, I introduce the concept of bilingualism and divide bilingualism in three different groups, depending on *how* the individuals achieved bilingualism.

Many linguists, such as Bloomfield or Thiery, state that “true” bilinguals are individuals who are able to communicate in two different linguistic contexts exactly the same way that a monolingual from each of those contexts would (Bloomfield, 1933, and Thiery, 1978). However, such definitions exclude a great part of the world’s population, who are, from my point of view, bilingual. Instead, Haugen proposes that a bilingual should be considered as such, if he or she is able to produce *complete, meaningful utterances* in the second language (Haugen, 1969) and Macnamara highlights that, together with Haugen’s notion, one should consider the four basic language skills: speaking, listening, reading and writing (Macnamara, 1967), though none of these definitions convinces me. In fact, bilingualism might be different for every individual due to many other factors. For example, one could think about all the immigrants in the United States who regularly use a second language aside from English, but do not know how to write it because they were not schooled in it. Wouldn’t they be considered bilingual? The answer would definitely vary depending on the linguist’s ideas we decide to stick to.

From my point of view, providing a wider idea of bilingualism might be the best option. For instance, “bilinguals are individuals who use two or more languages in their everyday lives, and they can be considered ‘bilinguals’ if they can speak two languages with a reasonable level of proficiency” (Grosjean, 1995, and Patten, 2002). This notion of bilingualism is neither strictly exclusive nor too vague. The word ‘bilingual’ is composed by the prefix ‘bi’ and the word ‘lingual’. Its etymology comes from Latin and means ‘two-tongued’ (Etymology Dictionary, 2017). That does not imply that a bilingual individual can be considered as two monolinguals in one (Grosjean, 1989), but as two languages in one single brain (Kroll *et al.* 2014).

Throughout the last decades, being bilingual has become a normal condition, whereas before it might have been an exception. The globalization that the world is experiencing nowadays has normalized people being fluent in more than one language. Nonetheless, to consider someone bilingual, one has to be proficient in both languages, as said some lines above. Thus, even a high level of training in a second language will not ensure proficiency. For instance, people who learn English as a second language, even if they have been many years learning it, might not be bilingual. A lot of countries around Europe start teaching English in school, around the ages of 5 to 10 years old. Some of these students might end up being proficient and, perhaps, working in an English-speaking country, which most probably will result in bilingualism. However, the vast majority will probably have a good level of English, but not be proficient enough to be considered bilingual, especially if they do not use it regularly. The same happens for citizens who move from a country to another: some of them might end up being bilingual and some of them, not. Nonetheless, migrating to another country usually makes it easier to achieve a proficiency level of the second language due to immersion. In fact, there are many ways to achieve bilingualism and in this paper I propose three different kinds of bilingualism depending on *how* the individual became bilingual: (1) planned bilingualism, (2) natural bilingualism and (3) adult bilingualism. Grosjean, in his book “Life with two languages”, proposes the first two groups as two different kinds of bilinguals within the chapter *The Bilingual Child*, and I myself proposed the third one based on his statements regarding bilingualism and adulthood throughout the whole book. As Grosjean states, although some myths have stated that *becoming* bilingual is not possible at a late age, I will show throughout this paper that ‘adult bilingualism’ is a common kind of bilingualism that we must bear in mind when studying it.

1.1.1. Planned bilingualism

As children, many individuals grow up in multilingual families, often because they belong to different cultures. Therefore, when children are raised in these families, parents take the decision to provide their children with one or two languages. The ‘planned bilingualism’ regards to those bilinguals who achieved their languages because of a planned strategy that normally parents decide. The strategy that they decide to follow can vary, but the more natural it is, the more successful the bilingualism will be. For example, Jules Ronejat was the first linguist to introduce the concept of one-person, one-language strategy. This means that parents decide to use different languages depending on the person the child is talking to. For instance, English is the language that the mother uses and German the one that the father uses. Another strategy would be to use the minor language at home and the major language in school and with friends. Other families opt to use a language during the first years of the child’s life and then, change to another one or even use one language depending on the moment of the day, e.g. mornings, English, afternoons, Spanish. Although some of these strategies might seem a bit disturbing, especially the last two, there are a lot of other factors that one must keep in mind in order to prove its success, such as the geographical location or the presence of the two languages. This means that, for instance, using a minor language at home in a place where it is hardly possible to find other speakers of it might result in an unsuccessful bilingualism: each situation should be analyzed under scrutiny. Nonetheless, as explained some lines above, the more natural the strategy sounds to the children, the higher the chances will be that they end up using both languages in the future (Grosjean, 2001).

Parents are usually the ones who decide how to *plan* bilingualism, however, education also plays an important role when analyzing planned bilingualism. The well known ‘bilinguals schools’ provide children with bilingualism through their education. This schools use a foreign language for most of the lectures, different to the local language. In this case the bilingualism is absolutely planned but instead of having one language per person, there is one language per environment: school vs. outside-school relations. Like the one-language, one-person strategy, it is quite natural for most children and is likely to result in bilingualism (Grosjean, 2001).

Nevertheless, these planned strategies are often put in practice due to a need of maintaining or providing a weak, minor language. For instance, when parents decide that their child will attend an English-speaking school in a non-English-speaking country, English takes the role of the minor language that these parents aim to reinforce. Whether the minor language will successfully be preserved or not, it is almost impossible to predict. It is commonly said that children have an evident facility for acquiring languages, but as quick as they obtain them, they might lose them (Grosjean, 2001). If the language is not frequently used, children might choose to abandon it at a later stage of their lives. This fact suggests a question regarding the effectiveness of bilingual schools: will they be bilinguals forever?

1.1.2. Natural bilingualism

For decades many societies worldwide have had two languages and nowadays still do. This group of bilingualism refers to that of individuals who were born in a place that naturally offers two languages. Some of these regions are a consequence of historical conflicts, most of the time, even connected to politics. For many years, the U.S.S.R. had Russian as a major language, although a lot of the countries that no longer depend on Russia had their own language, such as Latvia. Therefore the citizens in the Soviet Union were fluent in Russian and their own language and, consequently, bilingual. Another situation that commonly results in bilingualism is when all members of a family speak a language different than the local one. This mainly concerns families that migrate to other countries and whose first generations are not fluent in the local language. In the future, the next generation will grow up in a family that mostly every member speaks one language at home, and another one is used in the outside-family relations. In this case, bilingualism is considered natural since there is no choice to use one or the other.

The example of Russian in the U.S.S.R. might seem far away from the today's situation, but other regions all over the world experience this kind of bilingualism too. I consider myself a natural bilingual. I was born in a region of Spain, Catalonia, in which the predominant language is Catalan. However, Catalan has always been threatened by the power of Spanish and the Catalan authorities decided to create an educational system, the Catalan Immersion System, which offers all subjects in school in Catalan, except for

English and Spanish. This system aims to ensure the protection and preservation of the language among all citizens born or raised in the region. Although Catalan is the predominant language of the region and it is frequently used, not only in schools, but in many daily situations, there are families, whose first language is Spanish. Hence the Catalan educational system might result in ‘natural bilingualism’, for those who use Catalan and Spanish equally – like in my case –, or in ‘planned bilingualism’, for those who acquire Catalan through school but tend to use Spanish. From my point of view, those who use Spanish as first language will be more likely to gradually abandon Catalan and even lose their bilingualism. On the contrary, those who have Catalan as a first language will rarely forget Spanish and hence will preserve their bilingualism.

Despite the fact that natural bilinguals are exposed to two languages from the day they are born, normally, very young children are unable to distinguish the inputs in the two languages, even though they understand them. I remember a situation, in which I had the chance to interact with a three-year old, native Catalan speaker. This boy was totally exposed to Catalan and barely exposed to Spanish. While the strength of the major language was powerful enough to make him understand Spanish, it was only the TV and other media what connected him to Spanish. In kindergarten, he just had Catalan speaking teachers and a two-hour class of English per week. This situation is absolutely common and normal for Catalan children; I myself experienced the same.

One day, I told him to count in Spanish from 1 to 10, knowing beforehand that he would absolutely know the numbers in Spanish. To my surprise, he started singing “one, two, three” instead of “uno, dos, tres.” With this example, what I want to expose is that natural bilingualism is often difficult to deal with, especially at a young age. What happened to this boy is absolutely common with Catalan children: they use one of the two languages at home, being aware that another language exists and have inputs from it, but they cannot tell which one is which. Moreover, on top of that and as any other child in the country, they learn English as a foreign language, which increases the confusion of languages. In comparison to this case, his sister, a six-year-old girl, could already deal with the two languages with no problem. She was aware of what Catalan is and in what contexts she should use it, and the same for Spanish. Both languages are on a native level to her, while English still is a foreign language, in which she struggles to express herself. Accordingly, there is an specific moment in which natural bilinguals

begin to control their languages and are able to distinguish when to use which language, to whom, and when.

1.1.3. Adult bilinguals

One of the consequences of globalization is the increasing connection between countries all over the world. Nowadays companies are seeking the goal of having global impact and this fact has blended the boundaries worldwide. Thus, getting a job in your hometown no longer implies that you will always live there. Indeed, there are a lot of chances that we might end up living in different places or, at least, moving from one place to another. This last group of bilinguals includes all those people who need to move to a foreign country and learn a new language, be it for work or for any other reason, at a late stage of life. As Grosjean explains, many myths have been spread regarding bilingualism and that ‘adult bilingualism’ is not possible is one of them.

The *adult bilinguals*, as I will call them, are individuals who were not raised under a bilingual, planned education, whose parents were not bilingual and that have to deal with the language problem in a *later* stage of life. What I mean for ‘later’ is basically after school, not at a specific time or at a specific age. I feel that it just depends on the situation and context of every individual and hence I leave it to the reader to determine what ‘later’ implies. As you will see in the third part of this paper, the age of acquisition that makes someone be a ‘bilingual child’ or an ‘adult child’ is a problematic issue. A good example of an adult bilingual would be that of a person who moves to a country and creates a new life in the foreign culture. One of the most striking cases I have ever encountered was that of my high school German teacher. She was born in Ulm, Germany, all members of her family were German and in her twenties she decided to move to Spain because of her job and love for the country. She married a Spaniard and used Catalan and Spanish as much as any other citizen of the region. Now, she must be in her fifties and is totally proficient in both languages resulting in trilingualism, although German continues to be her mother tongue and first language.

1.2. The language choice

For any of the three groups, individuals will have to make the decision of which

language to use, depending on *who* and *when*. The language choice is a habit that monolinguals experience too. When speaking, all speakers of a language take unconscious decisions regarding their language, like their register. However, bilinguals have to add the difficulty of deciding whether to use the L1 or L2 as a communicative code. In any planned interaction between two individuals there will be determining factors that interfere in language choice: the setting (time and place) and the situation, the participants in the interaction, the topic, and the function of interaction (Grosjean, 2001).

Moreover bilinguals need to deal with the choice of either using L1 or L2 or both of them, mostly depending on the interlocutor. In some bilingual contexts the language choice is more specialized and static, while in others it is more flexible. If a bilingual has restricted situations, in which the usage of each language is very precise and has a specific function and hence the bilingual speaker has little leeway in deciding which one to use, then we are talking about ‘diglossia’ (Grosjean, 2001). For example, many Arabic countries use a dialect as a vernacular language and then Classical Arabic as a formal language. The former one is used at home and with friends and the latter one in schools and professional contexts. Hence, Arabic and its dialects are considered a ‘diglossic’ language. On the contrary, some other combinations of languages are more flexible. Bilingual combinations *often tend toward diglossia*, as Grosjean explains, since there is normally specific situations to use one language or the other. However, there are certain languages in contact that permit a wider range of choice. For instance, Mexican Americans in the Southwest of the United States experience diglossia in some contexts: they will use Spanish with family and friends and English at work or with the authorities. Nonetheless, they might switch indistinctly between Spanish and English in an ordinary conversation without it involving a specific situation or having a specific function (Grosjean, 2001).

1.3. Apparent drawbacks of bilingualism

Before the 60s, the common feeling towards bilingualism was substantially negative. The studies conducted decades ago suggested that bilingualism handicapped a child’s intelligence, among other disadvantages. Otto Jespersen, a famous linguist, stated in

1922 that a bilingual would hardly ever be proficient in the two languages and that the effort in the code-switching activity reduced the ability of learning other things (Jespersen, 1922). Moreover, other experts in the language development field found that bilingualism could result in stutter, hesitation, unusual word order, mistakes in morphology, and so on (Grosjean, 2001).

Nowadays, current studies have shown that bilingualism is indeed a great asset to the child (Grosjean, 2001). Most recent discoveries claim that the condition facilitates the learning of other languages and improves results in intelligence and cognitive tests (compared to monolinguals). Moreover, studies proved that bilinguals separate word sounds from word meaning earlier than monolingual children and hence bilinguals realize sooner the arbitrary nature of language (Grosjean, 2001).

However, not all the cons fall to the outdated studies of the 60s. Vildomec and Grosjean conducted two different surveys on the attitudes and feelings that bilinguals have towards bilingualism. In their studies they asked if bilinguals found any negative consequences of being bilingual and the major answer was that the majority of bilinguals felt positive about it. However, they both highlighted significant responses that betrayed negative feelings regarding bilingualism. Some of the interviewees claimed to have struggles in the following situations: (1) acting as a translator or interpreter, (2) mixing the two languages, (3) adjusting as a child, (4) expressing feelings in a particular subject in the two languages, (5) not belonging to one specific cultural group, (6) sometimes feeling like one does not know either of the two languages perfectly, and (7) differences between cultures (Grosjean, 2001). These were the main negative feelings reported by the groups that the two experts studied. Also, one of the interviewees on Vildomec's survey reported that bilingualism had led him to one of the worst experiences in his life: being multilingual in World War II led him, like other multilinguals caught up in the war, to be labeled as a potential spy and hence be dealt with more harshly. However, when these same subjects were asked to provide positive feelings on being bilingual, the outcome was extremely positive: (1) using a minor language as a secret code between friends, (2) broadening one's mind towards new cultures and language, (3) getting higher chances of having friends from different cultures, (4) offering more and better language skills when looking for a job, or (5) having the ability of reading literature in the original language.

2. THE BILINGUAL SOCIETY

Bilingualism is and has become a common condition worldwide, but why? If we take a look at the global language distribution, we will notice that there are about 3,000 languages in the world, which are spoken in about 150 countries. The direct consequence of this fact is bilingualism or multilingualism in many countries. There are, therefore, monolingual, bilingual and multilingual countries. While it should be logical that the monolingual countries have a lower number of bilingual citizens, the United States, for example, embraces 20 percent of bilinguals (Grosjean, 2012), while Canada, a nation considered to be bilingual in both French and English, only embraces about 13 percent of bilinguals (Grosjean, 2001). Most of the bilingual countries are considered as such because of historical and national reasons, not because the great majority of the population is bilingual. Frequently, there is a minority group that advocates for the maintenance, respect or even the revival of a language.

It is crucial to distinguish between countries in which the vast majority of citizens are bilingual and countries that are institutionally bilingual. On the one hand, *societal bilingualism* occurs in territories where there is more than one language spoken by a majority, like particular regions in the United States such as Arizona, New Mexico, Texas or California (Grosjean, 2012). On the other hand, *institutional bilingualism* refers to the institutions of a certain territory that legally ‘recognize’ the languages spoken in it, like Canada (Patten, 2002). Hence, a bilingual society could exist in a non-bilingual institutional territory, while a bilingual institution could exist in a non-bilingual society. For example, during Franco’s dictatorship, all bilingual parts of Spain (Catalonia, the Basque Country and Galicia) were socially bilingual, but not institutionally. On the contrary, Canadian institutions are labeled bilingual, although the vast majority of Canadian citizens are not bilingual. Therefore, bilingual societies and institutions might coexist or might not.

Nations that are institutionally bilingual tend to follow two different principles when recognizing two or more languages: the territoriality principle and the personality principle (Patten, 2002). In this part of the paper, I aim to compare and contrast this to principles in order to point out their strengths and weaknesses.

2.1. Territoriality principle

Let's imagine, for instance, a country where there is a clear division of Language 1 (L1) and Language 2 (L2). A clear line separates both of these regions and no one from L1 crosses the line to go to the L2 territory, although both territories belong to a central government. The central government recognizes both L1 and L2 as equal languages, although the languages are spoken in completely separated areas. Speakers from one area will probably have basic knowledge of the language spoken in the other area, but they will probably not be proficient in it, since the surroundings are strictly segregated. Hence, the society cannot be considered bilingual, even if their government and institutions are. Members of this country will hence belong to one of the areas depending on the language they speak. The positive side of this principle is that each part of the country will be integrated in their own culture and will be able to perform in the language spoken by each majority group. Thus, public institutions such as schools, courts or public hospitals will use L1 or L2 separately depending on their location. Therefore, citizens in each area will feel at 'home', and their language, culture and identity, as L1 or L2 citizens, will be safely preserved. This situation illustrates the *territoriality principle*. This principle states that language rights should vary from region to region according to local conditions. In other words, the territoriality principle states that each region should establish its own language policies. It is hence a division of monolingual regions within a bilingual nation.

However, the negative side of this principle is the obligation of national institutions to operate separately in each territory because of the monolingual demand. Thus, if L1 speakers attend L2 public institutions, will not be able to communicate. Providing bilingual public institutions in each territory would be nonsense if there were no demand on the second language. Moreover, the division between the two regions will be more likely to cause political instabilities between the L1 and L2 regions, and result in political conflicts.

Let's imagine now the same country although this time some citizens from one side have crossed the boundary to move to the other side. As said, minor speakers of each region that cross the boundary will face huge difficulties if the language policies are not flexible – which would be unfair since they are citizens of the same country. If L1 or L2

speakers move to the foreign region, they will not be able to comprehend and interact with most of the public institutions, aside from other daily situations – language will represent a crucial limitation. Consequently, the minority could be at risk of forming linguistic and cultural ghettos, and not getting involved with the major culture. Differences between the two sides of the country could be eased by providing educational programs in both languages; in other words, teaching the second language, so that both sides have at least a basic knowledge of each language.

It is often said that Switzerland is a good illustration of the territoriality principle (Patten, 2002). This country is organized into *cantons*. Each canton has its own right to decide most of important decisions concerning language policy, be it French, German, Italian or Romansh. However, it is the central government that takes the decisions affecting the whole country. This means that every region of the country can decide whether they opt for monolingual education or bilingual. The cantons that have significant linguistic minorities normally practice institutional bilingualism: three of the cantons are bilingual and one is multilingual (Patten, 2002). The other cantons have a great majority of monolinguals and thus practice monolingual language policies. The Swiss, as well as other nations that choose this principle, aim for the maintenance and protection of the native language and culture of each region (Grosjean, 2001).

To sum up, the territoriality principle has strengths and weaknesses. The problem that this principle encounters is basically the exclusiveness of one single language per region. For this reason, I feel that applying educational programs in both languages would provide bilingualism or at least knowledge in the other languages. This would result in a more linguistically homogeneous country, although it may affect the protection of the language and culture that the country pursues.

2.2. Personality principle

On the opposite side of the last principle there is the *personality principle*. This one proposes that citizens should enjoy the same set of language rights no matter where they are in the country (Patten, 2002). In contrast to the principle explained above, the personality principle provides rights to the citizens in both languages everywhere in the

country: bilingualism is the official policy throughout the country (Grosjean, 2001).

In comparison to the latter principle, the personality principle seems to ensure a better political unit and stability by accepting both languages across the country. Nonetheless, the protection of language and culture of each region will be mixed with the second language and hence less preserved. But, wherever the citizens of such a country opt to live, communication will be possible in either language. This distribution will satisfy the demands of both the minor and the dominant group. It is rare to find a nation where there is a clear 50/50 percent distribution of citizens who speak L1 and L2, respectively; it is rather more common to find a country in which there exist regions that have a higher percentage of L1 or L2. But the coexistence of both languages will enable the minor group to feel comfortable in an L2 dominant territory. An example of a nation organized with the personality principle is Canada. Canadians have the right to choose their education in English or French and to access public institutions in either language (Office of the Commissioner of Official Languages, 2016). Although Canada is not equally distributed (i.e., Quebec is a mostly French-speaking city while Vancouver is a major English-speaking city) the national institutions recognize both languages in these two cities. Hence, a citizen from Quebec should be able to communicate in English, and a citizen from Vancouver should be able to communicate in French, at least in national institutions.

Presumably, as far as the personality principle is concerned, the whole society should result in ‘societal bilingualism’: the constant contact with the two languages should make it easy for citizens to acquire both languages. By contrast to the latter principle, the need to include bilingual educational programs would hence not *necessarily* be essential. However, when analyzing how successful bilingualism is in Canada, the result is that only 13 percent of the population is actually bilingual. The explanation of this surprisingly low percentage depends on the country’s objective. In this case, Canada’s objective concerning language policies might not be ‘expanding’ bilingualism, but to content the needs of all citizens in every region. As explained earlier, bilingual and multilingual countries do not always contain higher numbers of bilinguals.

As a summary, both principles have their own pros and cons: the territoriality principle’s main problem is the country’s exclusiveness per region, while the

personality principle's main problem is the threat to the regional language and culture. From my point of view, the personality principle provides a higher stability for the country and meets the demands of all citizens all over the territory. Although territorial-organized nations seek the goal of protecting the language and culture of each territory, I feel that offering bilingual institutions helps ease possible tensions between the two different groups and also seems more likely to result in a bilingual society. Therefore, I think that the advantages of the personality principle overcome the territoriality principle. That does not mean though that this principle ensures a higher number of bilingual citizens, as I was expecting to find out; as we have seen, non of them actually results in societal bilingualism. Furthermore, every country or region should be carefully analyzed to determine which one of the two principles can work better – there is no formula that can guarantee a successful result. From a political point of view, countries usually opt for one or the other principle depending on the historical and national experiences, in order to enhance national security and stability (Grosjean, 2001).

3. THE BILINGUAL BRAIN

In the previous sections, I introduced the conditions that enable one to become bilingual, the kinds of bilingual speaker that are there, as well as the differences between societal and institutional bilingualism, but now we should move onto the next section. In this part of the paper I attempt to present bilingualism from another perspective: the neurolinguistic perspective. One might think that a monolingual's brain should be the same as a bilingual's, since we all are human beings and there is a clear resemblance among ourselves, in terms of anatomy. Numerous studies have attempted to discover *how* and *when* the brain acquires languages. In this section, I aim to briefly introduce the structure of the brain in order to explain how languages are learned in the case of monolinguals and bilinguals. After this section, I expose the mechanisms that make a bilingual have successful interactions in both languages. That is, the mechanisms that enable the choice of one language and not the other. Finally, I will finish this part by explaining other implications that have been said to be a result of bilingualism.

3.1. The brain

In the mid 90s there was a wave of new studies on bilinguals, especially in the field of neurolinguistics. This scientific discipline investigates the neural mechanisms in the human brain that control comprehension, production, and acquisition of languages. Therefore, this perspective is of great interest to totally comprehend, not only what it is to be a bilingual individual, but also what the brain of a bilingual individual is like. The literature reviewed in this section is based on the book *The bilingual brain* written in 2013 by Arturo E. Hernandez, professor at the University of Houston, which helped me understand the basic aspects of the brain functioning regarding languages.

The brain is said to develop its parts in different periods of time. There are four lobes, three of which are involved in sensory processing: in the back part of the brain there is the *occipital lobe*, which enables visual processing; beneath the ears, there is the *temporal lobe*, devoted to sound processing; in the upper middle portion of the brain, there is the *parietal lobe*, which is interconnected with other sensory areas of the brain

and it serves as a transfer point for the streams of information that bombard our senses (Hernandez, 2013). So, basically, the organs perceive inputs from the exterior and the neurons 'send' this information to the part of the brain responsible 'to make us understand' what it is that we see, hear or perceive. These three parts develop at an earlier stage of life. It begins with the occipital lobe in the back of the brain and continues until it gets to the *frontal lobe*, which is the last one to develop. The first months of life are crucial for the brain's successful development. Early learned inputs have the benefit of arriving first into the system and 'settling' there. As Ribot's theory of regression states: things learned earlier have strong memory and hence are easy to remember (Ribot, 1881). As the structure gets built, there is less flexibility in the brain for late learned inputs to influence it (Hernandez, 2013).

In the acquisition of languages this pattern is similar to the one explained above. From our first months of life we learn new words. First, we identify them by the way they sound, linguistically speaking, through *prosody*. It is said that children are able to distinguish the prosody of a language with a month of life (Hernandez, 2013). The next step is grammar. Approximately at the age of two, children begin to identify and recognize grammatical structures, such as placing the verb in its correct position. The Wernicke area of the brain, an area responsible for language comprehension, enables prosodic distinction, whereas grammar is processed by the Broca area, an area responsible for language production. In the brain, the Wernicke area is placed in the middle back part, and the Broca area, in the middle front part. This is why the former one is developed first and the latter one, second. When these two parts are fully developed we are able to hear, understand and produce a language (Hernandez, 2013).

Bilinguals experience the same development as monolinguals, although their language processing involves a higher neuronal activity. Bosch and Sebastian Gallés conducted a study to discover when Catalan-Spanish bilinguals start distinguishing the two languages. Catalan and Spanish are two romance languages with similar prosody, similar words and sounds. Hence, for these children, who are exposed to these two languages from their first day of life, it is a great challenge to recognize these two similar languages. But, when do they begin distinguishing one from the other? The two researchers found out that by the fourth month of life the children's brains already differentiate the prosody of the two languages. These children develop means to

recognize not only the prosody, which in this case is quite similar, but also the phonology, that is, the inner sound of the phonemes (Hernandez, 2013). Spanish, in comparison to Catalan, has five vocalic sounds, while Catalan has eight. Of course, it will take them a few more years to fully comprehend and produce both languages. Therefore, bilingualism for children born into a bilingual environment is a process that begins at a really early stage of life and coincides with the full development of the brain.

Consequently, it is more difficult for adults to acquire a second language. In 1989 Newport and Johnson conducted a study on English monolinguals and Korean-English bilinguals, who had acquired the second language in different periods of life. The subjects were given a set of sentences in English, some of which were correct and some others were not. The results showed that all of the Korean-English speaking subjects who had moved to an English-speaking country before the age of seven had the exact same result as English monolinguals. The other outcomes were exponential; individuals who had migrated between the ages of 8 and 10 had a few errors; individuals who had moved between the ages of 11 and 15 had more mistakes; and finally, those who had moved between the ages of 17 and 39 scored the worst results. This last group was however homogeneous (Hernandez, 2003).

Johnson and Newport concluded that their results support a maturational account of language acquisition. Age matters during a time of great biological change. However, once a person enters into a mature state then ability plateaus and is no longer driven by the age of at which the second language was learned (Hernandez, 2003).

Thus, when arriving at a certain age, in which the language system is already fixed, it is difficult to acquire native proficiency of the second language. Positron emission tomography (PET) experiments have shown that the neural activity of adult bilinguals when performing their second language builds its own space in an area adjacent to the area involved in the performance of the mother tongue. On the contrary, bilinguals who acquired the second language at an early stage of life do not show two different areas, but one single area responsible for the activation of both languages (Hernandez, 2013).

Now, this statement raises an important question regarding the age of acquisition: *when* is it the best time to acquire the second language? Based on Johnson and Newport study, the most important period of age is before the first eight years of life. However, other studies have shown different outcomes and hence there is no clear consensus on when is the perfect age to acquire a native-like ability (Hernandez, 2013).

From my point of view, these experiments miss a great, variable factor: the human factor. I feel that each individual is unique and hence it will be highly difficult to reach a common decision on the perfect age to acquire a second language. However, it seems legitimate that the brain is more flexible at earlier stages of life and thus it can be a crucial factor when learning a new language.

3.2. Two languages in mind

In the previous section, I explained how languages are processed in the brain and how age can be a determining factor. In this section I aim to present how these languages manage to coexist in one single brain and which mechanisms exist to activate the language that we plan to use, the ‘target language’, and inhibit the language that we do not want to use, the ‘non-target language’.

As I presented in the preceding section, the brain has certain parts that are responsible for language, such as the Broca and Wernicke areas. When achieving a second language, the brain does not develop a separate second language area, but manages to make both languages coexist. The areas responsible for the two languages either overlap, if the second language is achieved during childhood, or the second language area is stuck around the native-language area, if the second language is achieved during adulthood, thus, in this case, the language area slightly expands (Hernandez, 2013, and Kroll *et al.*, 2002). However, in both cases, the areas affecting language processing are always active. In other words, both languages are active all the time. The process of choosing the target language and blocking the non-target one is called *cross-language activation*. That is, it is all about inhibiting one language and activating the other one. This *cross-language activation* occurs in both directions. Thus, even if a conversation is

planned in the second language (L2), the activation will be present for the native language (L1), and the brain must develop a high-level means of control to enable the activation of L2, and inhibit L1. The more cross-language activation there is, the more bilinguals differ from monolinguals, when performing the same language (Kroll *et al.*, 2002).

However, it can occur that when L2 is spoken and active for a long period of time, the cross-language activation can suffer from asymmetry, resulting in a degradation of L1 (Kroll *et al.* 2014). Although these mechanisms seem entrenched, the brain is permeable. Bilingual individuals usually have a strong native language (L1) and a second language (L2), which they might feel comfortable with, but not as much as with their L1. A direct consequence of acquiring the second language is the impact it has on the native one: the more proficient a speaker becomes in the second language, the more permeability exists in his native one. Thus, the native language can suffer from suppressions when a speaker is learning the second one (Kroll *et al.*, 2002).

Consequently, it would be normal for a speaker, who is used to switching from one language to another, to have linguistic features from both languages when using them. To be more precise, the knowledge of the native language is not intact and the language system is highly adaptive (Kroll *et al.*, 2002). In the paper “The effect of exposure on syntactic parsing in Spanish-English bilinguals,” written by Dussias and Sagarra in 2007, there is a clear example to understand this. They used the sentence *El policía arrestó a la hermana del criado que estaba enferma desde hacía tiempo* (The police officer arrested the sister of the young man who was ill for some time) to analyze the grammatical differences between Spanish monolinguals and Spanish-English bilinguals:

The results showed that whereas the Spanish monolingual speakers and the Spanish–English bilinguals with limited exposure to Spanish reliably attached the relative clause to the first noun [the sister], the Spanish–English bilingual with extensive exposure attached the relative to the second noun [the young man].
(Dussias and Sagarra 2007)

Thus, when reading the sentence, Spanish monolinguals would say that it was the ‘sister’ who had been ill, but the Spanish-English bilinguals with extensive exposure to

English would say that it was the ‘young man’ who had been ill. Hence, the Spanish-English bilinguals are more likely to have interferences, not only of the English lexicon, but also of the English grammatical structure, as well as other levels of language use. This means that there is a clear interaction between languages: the aspects of grammar are shared across the two languages and the whole acquisition of a second language can change the language system (Kroll *et al.*, 2002).

Consequently, the cross-language activation enables the brain to select the target language, even though both languages overlap in the same areas of the brain. The brain suffers from interferences when the second language achieves a high level of proficiency (bilingualism) and grammatical structures from both languages can be present in the target language. Thus, the fact that the two languages coexist in the same part of the brain and remain active all the time might be the reason why bilingual speakers have interferences from both languages; although the cross-language activation is effective when activating one language and inhibiting the other one, there will exist a minimum of permeability between the two languages, what creates these interferences.

3.3. Further consequences

As I introduced before, the neural tissue that supports the functioning of one language is the same that supports the other for people who become bilingual at an early age. But not only do these two areas overlap one with the other, they also coincide with areas of the brain that deal with cognitive functioning (Abutalebi *et al.*, 2005). Cognitive processing is responsible for the symbolic operations like perception, memory, creation of imagination, or thinking; processes by which we become aware of, perceive, or comprehend ideas (Mosby’s Medical Dictionary, 2009, and McGraw-Hill Concise Dictionary of Modern Medicine, 2002). The constant activity of switching from one language to the other enhances the performance of this area of the brain related to cognition. As a consequence, bilinguals develop a high-level of cognitive control and improve their performance in cognitive tasks (Kroll *et al.*, 2014, and Abutalebi *et al.*, 2005).

Because being bilingual does not only affect the language areas of the brain, but also

reorganizes some of the networks, there is another implication for bilinguals. As Woumans *et al.* suggest in their paper named “Bilingualism delays clinical manifestation of Alzheimer’s disease”, there is a real connection between the constant activity that a bilingual’s brain experiences and the likelihood of acquiring brain-related diseases, such as dementia or Alzheimer’s. Bilingualism shapes the structure and the function of the brain across lifespan (Kroll *et al.* 2014).

Before writing the paper “Bilingualism delays clinical manifestation of Alzheimer’s disease” (2014) the authors conducted a study to prove that bilingualism has a connection with mental health. This study was written by professors of the universities of Ghent, Antwerp and Brussels, in Belgium, who took 69 monolinguals and 65 bilinguals who lived in monolingual parts of Belgium. Belgium is a country with separated-speaking regions: the French-speaking part, Wallonia; the Dutch-speaking part, Flanders; and the capital of the country, Brussels, where both languages are recognized, although it has some areas which are clearly French and others which are clearly Dutch. This mixture of languages makes bilingualism a common condition of the country. Individuals examined in this study qualified as bilingual if they had a good level of the non-native language (L2) and used it at least weekly. Some of the monolinguals reported to have basic notions of L2, although the level was not high enough to be considered bilingual. The age of acquisition of the L2 for the bilingual group was different depending on the subject: some of them had L2-speaking parents and some others attended an L2 school. According to a group of neurologists from the University of Ghent, both monolinguals and bilinguals presented short-term memory, cognitive domain problems beyond age-related memory, or cognitive impairment, that were likely to result in Alzheimer’s disease. This study also included variables such as the gender, the age, the education (in number of years), and the level of occupation of the subjects. The last category was divided in low, medium or high, depending on whether they had been unemployed or unskilled workers, skilled workers, or managers, respectively.

The results showed that the clinical manifestation age of Alzheimer’s was 4.6 years later and the diagnosis age was 4.8 years later for bilinguals (Woumans *et al.*, 2015). In a previous study conducted in 2007, Brookmeyer *et al.* showed that a two-year delay in the onset of Alzheimer’s disease would decrease the prevalence of the disease by 22.8

million cases worldwide. However, in the Woumans *et al.* study (2015) there is a surprising outcome about a particular variable: the occupation. The 69 monolinguals and 65 bilinguals that participated in the study presented earlier manifestation of Alzheimer's if their occupation was in the 'high occupational group'. Hence, participants whose occupation had been strongly demanding were more likely to express earlier signs and symptoms of Alzheimer's. Although it may seem a contradiction, there are other factors that affect those who belong to the 'high occupation group':

[...] more demanding occupations may be associated with other factors, such as stress due to high job strain and sleep deprivation, which have been shown to speed up clinical Alzheimer's disease manifestation (Di Meco, Joshi & Praticò, 2014; Wang, Wahlberg, Karp, Winblad & Fratiglioni, 2012). (Adapted fragment from Woumans *et al.*, 2015)

Accordingly, being in the 'high' occupation category is a stronger predictor for Alzheimer's than being bilingual. The advantages that the bilinguals have regarding mental health would not manifest if the brain were exposed to an overstress throughout the occupational life.

At this point of the paper, we have examined the concept of bilingualism from many different perspectives. All of them were given by different authors and based on different studies. However, I feel that there is no better way to complement some of these statements, than by asking bilingual individuals how they feel about them. In the next section, I present a study that I myself organized to prove some of those and, thus, reach a conclusion considering the individuals' answers.

4. THE BILINGUAL EXPERIENCE

In the preceding sections of this paper, I have reviewed different perspectives on bilingualism: from the point of view of individuals, society and the brain. While creating the paper and analyzing the authors' statements, I unconsciously compared them to my own experience as a bilingual. I do agree with some of them, such as the fact that acquiring a second language does affect the native language, as Dussias and Sagarra proved in their study in 2007. However, some of them were surprising to me or unknown. For instance, I was not aware that bilingualism can be achieved during adulthood and that the direct consequence of achieving bilingualism was that individuals also experience suppressions in their mother tongue, even if they had been monolinguals for years.

Nonetheless, I truly think that there is no better way of concluding this paper than analyzing bilinguals' experiences. Observing what other individuals think about these statements will help me examine if these utterances are applicable to their particular experience.

4.1. Background

This study aims to investigate bilingualism between an L1 language and English as a second or third language. The reason why I wanted to focus on English as a second language is because of the empowerment that this language is experiencing. I feel that this combination is becoming more and more common every day. As Dewey states on his paper, it has for some time now been widely acknowledged in applied linguistics that non-native speakers have come to outnumber native speakers (of English), that in fact most interactions in English take place in the absence of the latter (Dewey, 2007). Thus, I aim to discover aspects regarding bilingualism among speakers of English as a second language.

While I was preparing this study, I thought that narrowing the variables would be of great interest to obtain reliable results. For this reason, finding people that have English as a second language narrowed down the possibilities of getting other variable factors. In this experimental part of the paper, I myself prepared a survey that aims to reflect

how bilingual subjects feel regarding the theories explained throughout the paper. The survey contains multiple choice questions and open questions, so that they have the opportunity to explain their experiences if they desire to.

4.2. Participants

For this study, I interviewed 11 bilinguals between the ages of 20 and 30 (approximately) and divided them into three different groups: *planned bilinguals* (5), *natural bilinguals* (2) and *adult bilinguals* (4). As said in the first section of this paper, ‘planned bilinguals’ are those individuals whose English has been acquired through external resources, such as school or parental decisions regarding language. The five participants in this group either had one English-speaking parent or attended an English-speaking school; hence, their English was planned, in these cases, by their parents. ‘Natural bilinguals’ refers to the individuals who obtained English in a natural, non-planned way, i.e., because their family speaks English or because they live in a country where English is a major language. It was difficult for me to find natural bilinguals, especially from a country where English is a major language, since it is not the condition in the location where the study took place. The two participants that take part in this group were raised as natural bilinguals for two different reasons: one of them is Canadian, and speaks English as well as French, and the other one has an English family, although they live in Spain. The latter one is placed in this group, and not as a ‘planned bilingual’, because his parents do not speak another language besides English. Therefore, these two subjects achieved a proficiency level in English in an early stage of life and in a natural, non-planned way. In the last place, I labeled ‘adult bilinguals’ all those subjects who moved to an English-speaking country as adults and achieved bilingualism when moving to another country. I myself chose the participants knowing beforehand that their proficiency in English is more than sufficient to be considered bilingual. Notice that because of the place of study, some of the individuals are not only bilingual, but also trilingual, such as, individuals from Catalonia who use Catalan, Spanish and English and thus this is a variable that we will need to consider when analyzing the results.

4.3. Method

To successfully conduct this study I followed the steps of the scientific method, which is divided in various analytical parts: the observation, the hypothesis, the prediction of results, the analysis, and the confirmation of the results. For the observational part, I planned the following questions, based on approaches that especially awoke my interest: (1) how has English affected their mother tongue? (2) Do bilinguals struggle when switching from one language to the other? (3) Is there a need for maintenance of their languages? (4) Can a monolingual *become* bilingual? (5) Is there a difference in code-switching between natural or planned bilinguals vs. adult bilinguals?

Inspired by these questions, I planned the following hypotheses. As you will notice, some of them are addressed to a specific group and some of them to bilinguals as a whole:

1. When bilingualism is achieved, both languages manifest suppressions.
2. The cross-language activation is effective; bilinguals manage to code-switch between languages with no problem.
3. Cross-language activation becomes a problem when the subjects experience a long-period of immersion in one language, which might result in regression.
4. Bilinguals do not always acquire their two languages during childhood.
5. Adult bilinguals struggle more when code-switching than natural or planned bilinguals.

What I wanted to analyze is whether, as Kroll *et al.* stated, achieving the second language has consequences for both languages as far as grammatical uses are concerned. That is, both languages experience interferences from the other one in some grammatical uses. The second hypothesis refers to the effectiveness of the cross-language activation. This means that the subjects do not face problems when code-switching and hence the brain has developed successful means of control to make both languages coexist. The third one concerns to the possibility of suffering from asymmetry in one language. Although cross-language activation is effective, subjects who spend a long period of time in a place where only one language is used, face important regressions on their language skills that might even result in monolingualism. The next hypothesis is mostly addressed to adult bilinguals. As said throughout the paper, the age of acquisition of a language is a significant factor for bilingualism,

although I believe it is possible to acquire a proficient level in later stages of life. The fifth one is also addressed to the group of adult bilinguals. Code-switching from one language to another might be easier for those who grow up with this habit than for those who have to get use to it.

The performance of this empirical study was conducted through a survey of ten questions. In order to confirm the hypothesis above I began by asking some contextualizing questions (see Annex 1 with the full questionnaire). Then I asked for the age of acquisition of the language, for which they could choose between ‘childhood’, ‘high school’ or ‘adulthood’. After this, they were supposed to specify *how* they acquired English (e.g., through school, through a family member, etc.); it was through this question that I could divide them into the three different groups: planned, natural or adult bilinguals. Finally, in the last set of questions, they had to explain *how* do they managed to combine the two languages and *how* does English affected their mother tongue, if it did. It is through these questions that I aim to confirm or deny the three first hypotheses.

Predictably, what I attempt to obtain is, in first place, to find individuals who fit the description of one of the three different groups that I defined. Once I had these groups established, I had some expectations for each of them and then general predictions regarding bilingualism as a whole. For the ‘planned bilinguals’ group, I predicted that there had never been difficulty when code-switching between languages, although interferences might be palpable in both directions when speaking. For the ‘natural bilinguals’, I forecasted a similar situation as for the ‘planned bilinguals’, aside from expecting their English to be even more active in their daily lives. That is, code-switching for ‘natural bilinguals’ should be even more natural than that for the planned bilinguals and have less interferences, since the two languages should be in an equal state. The last group should provide the evidential contrast. I expected from the adult bilinguals to have a proficient level, since what I aim to prove is that bilingualism *can* result during adulthood. Probably, this group faced difficulties when moving to the English-speaking country for a while, but I predicted that the code-switching would have gotten better across time.

4.4. Analyzing the results

Because this study has focused on five different hypotheses, I will review the responses from the first one to the fifth, in order to cover all the statements. After reviewing the five statements and confirming or denying them, I will go on to discuss other unexpected answers that some of the subjects voluntarily provided and that are worthy to highlight. Finally, I will put all the information together to finish this paper with a general conclusion on bilingualism.

As far as the first hypothesis is concerned, the outcomes were appreciably homogeneous. Ten participants recognized having strong interferences from their mother tongue when interacting in English. Some of the interviewees reported to struggle with a specific part of the grammar and some other said to have problems with various aspects of grammar. Eight of them reported to struggle with lexical items, especially because finding equivalents between languages was often difficult or because they unconsciously mixed words from the two languages. Three out of eleven reported to have problems with English syntax, due to interferences that their first language imposes. Additionally, some of them reported to struggle with other grammatical uses, such as finding equivalents of particular expressions or using a correct spelling. There was only one participant (Subject 7 in Annex 2) who reported to have no influence at all in his other languages. This subject was listed in the group of ‘planned bilinguals’ and acquired English at a really young age because one of his parents spoke to him in English since he was a child. He reported to have three first languages: English, Catalan and Spanish. Perhaps, the fact of growing up in an equally trilingual context has provided him with the advantage of differentiating the three languages perfectly. Accordingly, his brain might have been highly flexible when acquiring languages and has no ‘overlapping effect’.

The second hypothesis aimed to confirm if the cross-language activation is successful or not. Thus, if participants reported being able to switch with no problem (or with minimum difficulties) from one language to another, this meant that cross-language activation is effective and that their brain has developed means to inhibit the non-target language and activate the target one. For this hypothesis there were three different groups of answers: seven participants, which represents 64 percent of the participants,

reported that it was not a problem to switch from their mother tongue to English and vice versa; two of them, subjects from the ‘adult bilinguals’ group, reported that it was not a problem *at this moment*, yet it had been at the beginning of the acquisition of the language; finally, two of them admit struggling when code-switching but only in certain contexts, such as acting as an interpreter in situations where both languages are spoken simultaneously, or having been immersed in one culture for a long time. Consequently, we can firmly state that bilinguals develop this cross-language activation, in order to control their two languages.

To find out the answer to the third hypothesis, the participants were asked if, after being immersed in an English-speaking environment for a relatively long period of time, confusions in their mother tongue were more pronounced. Seven of the interviewees reported that it takes some time to be comfortable again with their mother tongue, whereas four of them reported it was not a problem to switch anytime back and forth, even immersed in an English-speaking context. Strikingly, all ‘adult bilinguals’ reported to struggle with their mother tongue after intensive periods of using English, which is as well of great importance to defend hypothesis number five. As a consequence, we could state that time does negatively affect the cross-language activation, especially, for those who did not grow up switching between English and their L1.

The next two hypotheses, number four and five, are especially focused on the group of ‘adult bilinguals’. The fourth hypothesis aims to defend that bilingualism can be achieved during adulthood, and not only during childhood. To my surprise, all of the ‘adult bilinguals’ reported to have had basic knowledge of English during their childhood and to have achieved a proficient level of English during high school (between the ages of 12 and 18), and not adulthood. This fact would hence alter the results, since, regarding to some linguists childhood bilingualism can be achieved during high school. This would mean that the ‘adult bilinguals’ are actually ‘planned bilinguals’ who achieved English as a second language through education. However, if we stick to Newport and Johnson’s study that reported that childhood bilingualism can *only* be achieved before the age of 8, then these subjects can actually be considered ‘adult bilinguals’, since they achieved proficiency in English after the age of 8. As a result, this hypothesis would be confirmed only if we stick to Newport and Johnson’s

study, but it would have failed if we consider that these subjects were already bilingual as teenagers.

To analyze the fifth hypotheses, we will stick to Newport and Johnson's study and consider that 'adult bilinguals' acquired bilingualism in a later stage of life, in which natural or planned bilingualism is no longer possible to achieve. In this specific hypothesis (adult bilinguals struggle more when code-switching than natural or planned bilinguals), we will need to compare the planned and natural bilinguals with the adult bilinguals. As stated in the second hypotheses, switching between languages was easy for seven of the subjects, but it was a problem for four of them, three of which were 'adult bilinguals'. Moreover, after a long period of time immersed in an English-speaking environment all four adult bilinguals reported to struggle when performing in their mother tongue. Hence, it is a tangible fact that individuals who did not learn English at an early stage of life struggle more than those who had English as children.

Lastly, I will comment on two experiences that two subjects volunteered to write regarding their experience. In the first place, there was one of the subjects that described a surprising situation she often encounters due to her bilingualism. This girl (Subject 6 in Annex 2) belongs to the group of 'planned bilinguals'. She was raised in France and French is the language that she would consider her L1, although her father is American and has always used English when talking to her. She was raised bilingual because of her American father and explains that she has trouble when pronouncing English words that come from French. Originally, English is a Germanic language, although French has influenced some of its lexicon, especially for upscale vocabulary. Consequently, this subject has found it extremely difficult not to mix the pronunciation of lexicon that both languages share, even though both English and French were learnt from a young age. For example, the word *démarche* in English is often used in politics and is an equivalent of 'political move', and is pronounced as /'deɪ.mɑːʃ/ or /deɪ'mɑːɪʃ/. Whereas in French this word takes more than one meaning, like 'move', 'gait' or 'process', and is not strictly involved in politics, and is pronounced as /demaʁʃ/. Hence, as this subject explains, she would often wrongly use French words in English contexts and pronounce them in French, as it is her strong language, resulting in a confusing conversation for English receptors.

Another subject explained her experience with bilingualism from a different perspective. This girl (Subject 10 in Annex 2) has been now living in the United Kingdom for about 5 or 6 years but is originally from Catalonia. She visits her hometown in Catalonia during summertime and Christmas. This girl explicitly reports to acquire different personalities when using Catalan and English. While reviewing the literature necessary for this paper, I noticed that some authors stated that there are many ‘fake myths’ regarding bilingualism, especially before the 60s, and that bilinguals have two different personalities is one of them. The changing personality, as Grosjean argues, it is not something that bilinguals experience because of being bilingual (Grosjean, 2012). However, it is true that people adapt their behavior depending on the situation in which they are. Therefore, what this girl experiences is not a ‘double personality’ issue, but she knows how to adapt in each situation that she encounters in the Catalan environment and in the English environment.

5. CONCLUSIONS

Looking back at the arguments of the preceding four blocks has led us obtain various conclusions regarding bilingualism. To conclude this study I will review the most important arguments worthy to highlight, from the first section to the third, and I will combine these arguments with the personal experience from the interviewed subject, in order to cover the objectives I mentioned in the introduction.

First of all, there exist three kinds of bilingualism: natural, planned and adult bilingualism. These three different groups correspond to the three different contexts in which one acquires bilingualism. Being bilingual has for long time been considered as a drawback, as studies before the 60s said, but at this time it is well known that learning languages is nothing but an advantage. It offers you a second way to express yourself in two different cultures, it widens up your vision towards cultures, it provides you with good skills when looking for a job, and it leads to positive consequences regarding mental health, for instance, it delays Alzheimer's disease or it enhances the performance of cognitive tasks..

When analyzing how bilingual countries managed bilingualism, I found unexpected information: I thought that analyzing the two principles, the territoriality and personality principle, would reflect a successful example of how to obtain two languages naturally. In the first place, I was surprised by the fact that institutionally bilingual countries do not necessarily (and do not often) have a majority of bilingual citizens. The thing is that both the 'personality principle' and the 'territoriality principle' are normally put in practice because of historical and cultural reason of each country, but do not aim to 'spread' bilingualism. Both principles operate at an institutional level, but do not affect the society. Hence, the result is that there is only a minority of bilinguals in bilingual countries. However, if I were to take sides with either of the two, I would say that the personality principle seems to offer a greater stability for the country and higher chances of 'getting in touch' with the second language and, consequently, have (at least) a basic knowledge on it, while with the territoriality principle, chances seem lower. In the surveys, one of the participants was a Canadian citizen (Subject 2 in Annex 2), specifically from Ottawa. She reported to use both English and French regularly in her everyday live. Both languages are equally in contact in Ottawa and this might be why

this girl uses the two languages equally as any other natural bilingual. However, while I first thought that this girl would reflect the common situation in Canada, other studies prove that only 13 percent of Canadian citizens are bilingual.

In the third part of this paper, we analyzed how a bilingual brains and monolingual brains differ. The structure and functions are the same when analyzing the language related parts, but bilinguals need to deal with an extra challenge: choosing between their L1 and L2. This choice of languages is enabled by the cross-language activation, what permits to speak in each language without mixing them, although there exist minimal interferences. When interviewing the eleven subjects, they stated that *lexicon* is the part of grammar that poses the biggest challenge for bilinguals. A great majority of them struggle to not mix the lexicon from both languages. This might be caused by the overlapping of the area of languages inside the brain or because of a lack of practice when code-switching. For example, two of the ‘adult bilinguals’ that participated in the survey stated how difficult it was at the beginning for them to switch from one language to another, although practice has enhanced their code-switching activity.

Another important finding regarding the acquisition of languages is that they can be lost. This means that there is a need of maintenance for both languages, if bilinguals pretend to remain as such. As Grosjean states, bilingualism is not permanent and just as a language can be learnt, it can be forgotten. When analyzing the answers on the survey, I realized how some of the groups might end up experiencing what Grosjean proposes, especially those who barely use English in their everyday lives. For instance, bilinguals who explained to have learnt English in a bilingual English school, admitted to barely have contact with English, since they do not attend school anymore. Hence, this case could result in monolingualism, if these subjects do not aim to maintain their English. On the contrary, ‘adult bilinguals’ who moved to an English speaking country are more likely to experience a loss, though with the mother tongue. One of the interviewees, a Catalan girl living in the United Kingdom (Subject 10 in Annex 2), admitted to have difficulty with general words in her mother tongue, such as ‘shoes’, because she did not use her mother tongue on her daily life. Thus, time made it easy for her to forget basic parts of the lexicon. Also, as said in Hernandez’s book “The bilingual brain”: the best age of acquiring a language depends on the brain’s maturation. Once the brain is fully

developed, it will be more difficult to acquire new information, especially as vast as a new language.

As a final summary, I feel that the objectives for this paper have been fully completed and I would like to conclude the paper by expressing my own feelings towards it. Bilingualism has been studied from different fields and the literature written about it is endlessly large. Putting all the information together to obtain a meaningful result was by no means easy. However, I feel that I was able to cover the most important outcomes from the field and to get to know different perspectives related to bilingualism, such as neurolinguistics, psycholinguistics, and a side of politics connected to languages. As far as the survey is concerned, having the opportunity to obtain firsthand assessments has helped me combine personal opinions from bilingual subjects with theories from books and articles. The personal experiences offered me the chance to get to know new perspectives of bilingualism, which I could as well contrast with my own experience. As a bilingual, I feel that bilinguals share common features, affirming many statements that have been proved by empirical backing, but differ on certain individual variables, for instance, the two languages in use, the culture, the personal experiences, the geographical situation, level of education or, each individual's genetic makeup. In other words, any statement concerning bilingualism should be closely scrutinized to determine if it can be applied to all bilinguals or to particular individuals. In any case, I feel that globalization and new technologies will provide new generations with more and more languages and the number of bilingual or multilingual individuals will substantially increase, and thus, the demand on new studies on bilingualism will increasingly grow for as long as globalization continues expanding.

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Annex 1

The survey

A study on bilingualism

Bilingualism is a linguistic condition, in which there is an equal (or almost equal) proficiency in two languages. In this survey I attempt to discover if achieving a proficient level in English has affected the use of your native language. Also, I aim to investigate whether the age of acquisition is correlated with the level of "bilingualism". For these reasons some of the interviewees were raised in English environments and some of them were not. Any questions or suggestions regarding the survey are more than welcome. You can reach me anytime at mariona.serras01@estudiant.upf.edu. Thanks for collaborating with me!!

1. What is your mother tongue?

- Catalan
- Spanish
- French
- Italian
- English
- Other:

2. Is there any other language you are proficient in?

- Catalan
- Spanish
- French
- Italian
- English
- Other:

3. When did you start learning English?

- During my childhood (1-12 years old)

- During high school (13-18 years old)
- During my adulthood (19 or later)
- Other:

4. When did you start feeling comfortable in English-speaking contexts?

- During my childhood (1-12 years old)
- During high school (13-18 years old)
- During my adulthood (19 or later)
- Other:

5. How did you learn English?

- Through a family member
- Through school, in language classes
- Through school. English was the primary language of instruction
- Living abroad
- English is an official language in the country where I live
- Other:

5.1. On the last question, if you answered "through a family member", please specify the relation:

5.2. If you answered "living abroad", please specify where:

6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)

7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- It does not matter which language I use, everyone in my surroundings would understand both of them.
- Depending on whom I am talking to, I will use one or the other.
- Other:

8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).

9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- Yes, it takes a few minute/hours/days to be comfortable with my mother tongue.
- No, I can immediately switch whenever I want without confusions.
- Other:

Annex 2

The answers

Subject 1

8. What is your mother tongue?

- *English*

9. Is there any other language you are proficient in?

- *Catalan*
- *Spanish*

10. When did you start learning English?

- *During my childhood (1-12 years old)*

11. When did you start feeling comfortable in English-speaking contexts?

- *During my childhood (1-12 years old)*

12. How did you learn English?

- *Through a family member*

12.1. On the last question, if you answered "through a family member", please specify the relation:

Both my parents are from England

13. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)

40% English, 40% Catalan, 20% Spanish

14. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *Depending on whom I am talking to, I will use one or the other.*

8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).

It used to be difficult because I got languages mixed up. Now I switch naturally.

9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).

Yes, I had trouble with Spanish and Catalan vocabulary as well as grammatical structures.

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *No, I can immediately switch whenever I want without confusions.*

Subject 2

1. What is your mother tongue?
 - *French*
2. Is there any other language you are proficient in?
 - *English*
3. When did you start learning English?
 - *During my childhood (1-12 years old)*
4. When did you start feeling comfortable in English-speaking contexts?
 - *During my childhood (1-12 years old)*
5. How did you learn English?
 - *English is an official language in the country where I live*
6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)
50% French, 50% English
7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *Depending on whom I am talking to, I will use one or the other.*
8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).
No
9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).
Yes. My French influences my English and vice versa, even though I speak both of them fluently. Syntax, mostly.
10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *Yes, it takes a few minute/hours/days to be comfortable with my mother*

Subject 3

1. What is your mother tongue?
 - *French*
2. Is there any other language you are proficient in?
 - *English*
3. When did you start learning English?
 - *During high school (13-18 years old)*
4. When did you start feeling comfortable in English-speaking contexts?
 - *During high school (13-18 years old)*
5. How did you learn English?
 - *Through school. English was the primary language of instruction*
6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)
90% French, 10% English
7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *It does not matter which language I use, everyone in my surroundings would understand both of them.*
 - *Depending on whom I am talking to, I will use one or the other.*
8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).
No
9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).
Yes. Vocabulary, using English words in French sentences.
10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose)

- *No, I can immediately switch whenever I want without confusion.*

Subject 4

1. What is your mother tongue?

- *Catalan*
- *Spanish*

2. Is there any other language you are proficient in?

- *French*
- *Italian*
- *English*
- *Other: German*

3. When did you start learning English?

- *During high school (13-18 years old)*

4. When did you start feeling comfortable in English-speaking contexts?

- *During high school (13-18 years old)*

5. How did you learn English?

- *Through school, in language classes*
- *Living abroad*

5b. On the last question, if you answered "living abroad", please specify where:

An international school in Germany.

6. In your everyday life, how would you label the use of your languages in percentages?

(For instance, 10% French, 90% English)

65% English, 30% Spanish, 5% Catalan

7. Are there specific contexts in which you are unable to use one language or the other?

(Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *Depending on whom I am talking to, I will use one or the other.*
- *Other: The majority of my surrounding will have difficulty understanding both my native languages.*

8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).

No, the brain ends up doing it automatically. When I'm tired there is no difference between one language and the other so I subconsciously default to Spanish, specially with close friends

9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).

Yes, in writing, sentence structure, slang and vocabulary.

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *Yes, it takes a few minute/hours/days to be comfortable with my mother tongue.*

Subject 5

1. What is your mother tongue?
 - *Spanish*
2. Is there any other language you are proficient in?
 - *English*
3. When did you start learning English?
 - *During my childhood (1-12 years old)*
4. When did you start feeling comfortable in English-speaking contexts?
 - *During my childhood (1-12 years old)*
5. How did you learn English?
 - *Through school. English was the primary language of instruction*
6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)
Spanish 60%, English 30%, Catalan 10%
7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *Depending on whom I am talking to, I will use one or the other.*
8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).
No
9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).
There are times in which I translate expressions from language A to language B but the expression does not exist in language B.
10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *No, I can immediately switch whenever I want without confusions.*

Subject 6

1. What is your mother tongue?

- *French*

2. Is there any other language you are proficient in?

- *English*

3. When did you start learning English?

- During my childhood (1-12 years old)

4. When did you start feeling comfortable in English-speaking contexts?

- *During my childhood (1-12 years old)*

5. How did you learn English?

- Through a family member

- a. On the last question, if you answered "through a family member", please specify the relation:

My father

6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)

In France 80% French, 20% English. In the US, 99% English, 1% French.

7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *Depending on whom I am talking to, I will use one or the other.*

8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).

It is difficult to add French words in an English sentence and vice versa. It also gets confusing when some people in the room understand one language and not the other. Then going from one to the other to explain what is happening is also complicated.

9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).

I have trouble pronouncing English words correctly when they come from French. I will tend to use the French pronunciation. (The word Mediterranean for example is really

hard for me too pronounce properly). French also helps in understanding more upscale, fancy English words, as half of the English language comes from French. Something I have noticed is that I will use an English word as if it was French, being convinced that it was correct when it was not. This has happened multiple times to me and is very disturbing.

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *Yes, it takes a few minute/hours/days to be comfortable with my mother tongue.*

Subject 7

1. What is your mother tongue?
 - *Catalan*
 - *Spanish*
 - *English*
2. Is there any other language you are proficient in?
 - *French*
 - *Other: German*
3. When did you start learning English?
 - *During my childhood (1-12 years old)*
4. When did you start feeling comfortable in English-speaking contexts?
 - *During my childhood (1-12 years old)*
5. How did you learn English?
 - *Through a family member*
 - a. On the last question, if you answered "through a family member", please specify the relation:

My mother taught me the language from a very early age. She is from England.
6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)

Because of my job, it is probably 65% English, 20% German, 10% Spanish, 5% Catalan
7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *Depending on whom I am talking to, I will use one or the other.*
8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).

Most of the time, it isn't a problem. However, I some times may not speak the same way a person that is born and bred in the UK would. Amongst other things, how I arrange sentences and how I use words in specific contexts.

9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).

No. I feel it hasn't hindered the way I spoke in the other languages.

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *No, I can immediately switch whenever I want without confusions.*

Subject 8

1. What is your mother tongue?
 - *Catalan*
 - *Spanish*
2. Is there any other language you are proficient in?
 - *English*
 - *French*
3. When did you start learning English?
 - *During my childhood (1-12 years old)*
4. When did you start feeling comfortable in English-speaking contexts?
 - *During high school (13-18 years old)*
5. How did you learn English?
 - *Through school, in language classes*
 - *Living abroad*
 - *Other: watching films or series, reading books.*

5b.If you answered "living abroad", please specify where: *USA*
6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)
60% English, 35% Catalan, 5% Spanish.
7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *Depending on whom I am talking to, I will use one or the other.*
8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).
Not really but it takes practice.
9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).
Sometimes I might use English words when speaking in Catalan, especially when there isn't a word in Catalan for that concept (i.e. "awareness")

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *Yes, it takes a few minute/hours/days to be comfortable with my mother tongue.*

Subject 9

1. What is your mother tongue?
 - *Catalan*
2. Is there any other language you are proficient in?
 - *Spanish*
 - *English*
3. When did you start learning English?
 - *During my childhood (1-12 years old)*
4. When did you start feeling comfortable in English-speaking contexts?
 - *During high school (13-18 years old)*
5. How did you learn English?
 - *Other: Through an English Academy*
6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)
English 80%, Catalan 15%, and Spanish 5%
7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *Depending on whom I am talking to, I will use one or the other.*
8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).
No. It was at the beginning, but after a few years of being exposed to this situation, it is like changing from Catalan to Spanish.
9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).
Yes. Sometimes I forget how to say words in Catalan because I have the English version in my head.
10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more

pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- Other: *Yes and no. I can immediately switch because I work in a company where 80% of the employees speak Catalan. Otherwise, it would take a few minutes to get used.*

Subject 10

1. What is your mother tongue?
 - *Catalan*
2. Is there any other language you are proficient in?
 - *Spanish*
 - *English*
3. When did you start learning English?
 - *During my childhood (1-12 years old)*
4. When did you start feeling comfortable in English-speaking contexts?
 - *During high school (13-18 years old)*
5. How did you learn English?
 - *Through school, in language classes*
 - *Through school. English was the primary language of instruction*
 - *Living abroad*
 - *English is an official language in the country where I live*

5b. If you answered "living abroad", please specify where:

Dublin, London, and Chicago.
6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)

95% English, 4% Catalan and 1% Spanish.
7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).
 - *Depending on whom I am talking to, I will use one or the other.*
 - *Other: Depending on the country. When I go back home for the holidays, I'll switch to Catalan and vice versa!*
8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).

When I spend long periods of time without going back home, from September to December or from January to July - it'll often take a couple of days or even weeks for me to stop mistranslating mannerisms, such as using "like" as a sentence connector or "yeah" or "but". I will also make strange grammar constructions in Catalan, especially

when phrasing questions. I often forget very simply vocabulary, usually food vocabulary or other mundane stuff, like how to say 'shoes'. Face times with my family every couple of weeks which are a sudden switch are noticeably hard, and my mum always comments on my weird tones and 'cantarelles'.

9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical structures, vocabulary, etc. You are welcome to provide any examples you can think of).

I have definitely found new ways to express feelings and situations, which I feel where necessary in order to convey what I experienced in each particular culture. In England for instance, the word 'awkward' became very handy and I have found no way to translate it into Catalan - but I have never needed it in Barcelona, because it is not a common feeling. I can honestly say, that I acquire a different personality speaking English, which I thought, developed separate/alongside my unchanging Catalan personality - but it has recently blended together, as I spend more time abroad. I also think my Catalan hasn't got worse, because after long periods at home (summer) I recover it fully - but it takes longer and longer every time.

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- Other: *I think it's a correlation, the more you're away, the longer it takes to jump back into Catalan.*

Subject 11

1. What is your mother tongue?

- *French*

2. Is there any other language you are proficient in?

- *English*
- *Other: Dutch, and basic knowledge in Spanish.*

3. When did you start learning English?

- *During high school (13-18 years old)*

4. When did you start feeling comfortable in English-speaking contexts?

- *During high school (13-18 years old)*

5. How did you learn English?

- *Through school, in language classes*
- *Through school. English was the primary language of instruction*
- *Living abroad*

5b. If you answered "living abroad", please specify where:

When I was 16 I went to an international boarding school in the Netherlands where the primary language of instruction was English and I learned a lot then.

6. In your everyday life, how would you label the use of your languages in percentages? (For instance, 10% French, 90% English)

French 45%, English 50%, German 5%

7. Are there specific contexts in which you are unable to use one language or the other? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- *Depending on whom I am talking to, I will use one or the other.*

8. Is it difficult for you to switch from English to your native/other language, and vice versa? (Please, feel free to provide examples or explanations).

No, although I sometimes use english words when speaking French and french words when speaking English. It gets difficult when I speak German because it is very similar to English and Dutch so I tend to mix them up.

9. Have you ever felt that your proficiency in English has affected the way you use your mother tongue? If yes, in what ways? (For instance, pronunciation, grammatical

structures, vocabulary, etc. You are welcome to provide any examples you can think of).

Yes, absolutely. I have been living in english speaking environments (international school, then the UK, then the US) for 5 years now and though I still speak French with my family and some friends, I write and read less in French. This seems to impact mostly my spelling and vocabulary. I sometimes struggle to find the right word or remember exactly what a specific word means.

10. Do you feel that when you've been immersed in an English-speaking environment for a long time the influence of English in your native/other language is more pronounced? (Please, feel free to elaborate another answer if neither of them suits you or you feel like giving more details on the one you chose).

- Other: *I can switch pretty much without confusion but I think that living in an English-speaking environment has a long term impact on my ability to speak French (see question 9)*