The Acquisition of Vocabulary in Natural Circumstances

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ABSTRACT
The field of vocabulary acquisition is very broad. Many studies look into how vocabulary is first acquired or how to learn vocabulary in a second language. However, the interest of this dissertation lies in exploring vocabulary acquisition in bilingual children. Few studies seem to take into account that bilinguals rarely have an equal grasp of both languages and that this has an effect on their acquisition of vocabulary. For this reason, this dissertation chooses to focus on the role of the dominant language in bilingual children in vocabulary acquisition. This study is centred around two English/Spanish bilingual children whose stronger language is English. By measuring the acquisition of vocabulary in a low frequency and in a relative high frequency input condition in both English and Spanish, we were able to determine whether greater strength in one of a bilinguals languages significantly improves the acquisition of vocabulary in that language or whether there is stability in the results in both languages. The data used in this dissertation is limited and we cannot generalise from so few data. With more time on our hands we would have to look into other factors other than frequency and conduct the study with a larger number of participants in order to produce more conclusive results. Nevertheless, the objectives set out in this dissertation were reached and have paved the way to an interesting area of bilingual vocabulary acquisition that is worth pursuing further in the future.

ABSTRACT
El campo de la adquisición de vocabulario es muy amplio. Muchos estudios se concentran en cómo los niños adquieren vocabulario o en cómo aprender vocabulario en una segunda lengua. Sin embargo, el interés de esta tesis es explorar la adquisición de vocabulario en niños bilingües. Pocos estudios tienen en cuenta que los bilingües rara vez dominan sus dos lenguas por igual y que este hecho afecta su adquisición de vocabulario. Por esta razón, esta tesis tiene como foco el papel de la lengua dominante en niños bilingües en la adquisición de vocabulario. El estudio se centra en dos niños bilingües inglés/español que tienen un mayor dominio del inglés. Mesurando la adquisición de vocabulario en condiciones de entrada de baja frecuencia y de frecuencia relativamente alta, tanto en inglés como en español, pudimos calcular si un mayor conocimiento de una de las lenguas de un bilingüe mejora substancialmente la adquisición de vocabulario en esa lengua o si los resultados en ambas lenguas son más cercanas. Los datos utilizados para esta tesis son limitados y no podemos hacer una generalización con tan poca información. Con más tiempo tendríamos que estudiar otros factores aparte del factor de frecuencia y hacer un estudio con un mayor
número de participantes para llegar a resultados más decisivos. Aun así, los objetivos de esta tesis se han conseguido y han abierto el camino hacia un campo interesante de la adquisición de vocabulario en bilingües que merece la pena ser más investigado en el futuro.
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1. INTRODUCTION

The acquisition of vocabulary by multilingual children is a subject that has always fascinated me, as I grew up learning three languages simultaneously. Having experienced what it is like first hand, I am still fascinated about how children come to acquire language skills. As you are growing up you do not ask yourself how you learn but simply take in that which is around you. Many people find themselves in a similar situation, growing up with more than one language. However, it was being involved in a Translation degree that gave me the tools to look more deeply into the subject and further sparked my interest in how one acquires languages and more specifically picks up certain vocabulary. I have always wondered why it is that certain words seem more “natural” to someone in one language than in another. As a child I never said backpack, the Catalan word motxilla defined that particular object for me even when I was using English. This phenomenon is referred to as language mixing or code-switching where, despite speaking in one language, words or expressions from another creep in.

The subject of language mixing will inevitably come into play in the present study, but the aim of this dissertation is to examine the acquisition of vocabulary in natural circumstances within the family in the case of two bilingual siblings. The main question I try to answer is whether, as a multilingual child growing up with more than one language, it is easier to learn new vocabulary in the stronger language rather than in the subordinate one or whether bilingualism allows a child to acquire vocabulary in both languages with similar ease. Therefore, the main focus of this study is to analyse to what extent two siblings — from the same background and of a similar age — acquire new vocabulary and whether acquisition is more successful in one language or equally successful in the two that are tested. My objectives are two-fold. On the one hand, to analyse whether language acquisition, in the case of vocabulary, is easier in the stronger language of a bilingual child and, on the other hand, to see how and why the second language encroaches on their daily communication.

Needless to say, a plethora of academic and theoretical studies have been conducted on this topic. The field of language acquisition is a very wide one, and one that has attracted a great deal of interest and analysis. The main problem is that, although there are universal rules that are common to all language acquisition, so many different aspects (age, disposition, social setting, etc.) are involved that no case is ever the same. The research of this dissertation has been carried out on two trilingual children who speak English, Spanish and Swedish, but the focus will be on the first two languages, as I cannot
judge their acquisition of the third. In order to carry out the research, time was spent with the subjects analysing their use of the mentioned languages. A test was also devised to determine how they acquire new vocabulary. Specifically, whether frequency helps the children retain those words they have heard more often or whether some other aspect influences their acquisition. The test was carried out in both English and Spanish to determine whether it was easier for the subjects to retain a higher percentage of vocabulary in their dominant language, in this case English, or not. The participants are two siblings, a boy and a girl, aged 6 and 4 respectively, living in the same household. I have had contact with the subjects over the years and can, therefore, analyse not only their current linguistic abilities over a short period, but I can also refer back to their development up to this point.

This dissertation is divided into two main parts. The first includes the background literature, which gives a brief overview of the issue on focus, individual bilingualism. There are three subsections within it: Language acquisition in natural circumstances. The case of a bilingual child, in which a general overview on the issue of acquiring languages in naturalistic contexts is offered; Child bilingualism and the acquisition of vocabulary, which focuses more specifically on the phenomenon under investigation: bilingualism, language mixing and the acquisition of vocabulary. Finally, the Research questions and hypothesis, explains the questions being addressed with respect to the phenomenon and issue examined in the present study. The second part is devoted to the presentation of the empirical study and is divided into three subsections: aim and objectives, methods and results and discussion. The first explained what the study is looking to achieve. The second deals with the structure of the study: its design, its participants, the treatments and the instruments used in these. The final section, gives the results obtained from the treatments and discusses them. Finally, there is one last section, the Conclusions and limitations of the study which summarises the dissertation and discusses possible future research.
2. BACKGROUND LITERATURE

The first section of this dissertation is divided into three subsections. The first one, under the heading Language acquisition in natural circumstances. The case of a bilingual child, offers a general overview of the field of language acquisition and the key terms used by experts in their studies of language acquisition. The second section, under the heading Child bilingualism and the acquisition of vocabulary focuses on the issues of bilingualism, language mixing and vocabulary acquisition, as these are the main topics dealt with in this dissertation. The information is organised following the conventional structure of scientific empirical studies. First, the general information is presented, as a framework for the reader, and then the more specific information is discussed. The last subsection deals with the Research questions and hypothesis, which are later addressed through the case studies.

2.1. Language acquisition in natural circumstances. The case of a bilingual child

This section of the dissertation is broken down into three subsections. The first is Linguistic development, which explores how children first acquire languages and how different influences and environments play a part in shaping someone’s language skills. The second, Key terms, definitions and principles in language acquisition research introduces key subjects such as naturalistic contexts and native languages which appear throughout this dissertation. The final subsection is Key concepts, definitions and principles in child bilingualism which deals with different types of child bilingualism and different approaches to bilingualism.

2.1.1. Linguistic development

This part of the study gives a quick overview of various aspects that play a part in language acquisition. From the moment they are born, children learn to listen to and later produce the sounds around them. At first, this simply translates into sounds and noises that, while unintelligible, are highly communicative. Slowly, they begin to acquire and form words in order to get their message across. As Lightbown and Spada (2006) report, by the age of four most children have a good grasp on language and can form structured speech. By then they have also acquired a significant bank of vocabulary and continue to learn new words at a fast rate. They acquire new vocabulary by being introduced into wider and more varied social environments and being frequently exposed to new words. Lightbown and Spada (2006) also point out that at that age they develop metalinguistic awareness and learn to be more critical of word choices. Each new situation that a child finds itself in opens doors to different and richer vocabulary. This is why during the school years we see a massive
growth in vocabulary due to the frequent exposure to new words (Lightbown and Spada 2006).

This subsection is divided into two parts: Exposure, input and interaction with the target language which explains the importance of these aspects in language acquisition and Learner needs and environment which takes a closer look on how someone’s needs and surroundings influence the way they learn a language.

2.1.1. Exposure, input and interaction with the target language

Exposure, input and interaction with a language are key aspects in the study of language acquisition. Many studies have shown that the more exposure to a certain language a child receives, the more likely they are to attain a high level of proficiency (Laura Bosch, Carmen Muñoz, Carmen Pérez, APAC Monograph (2)). Taking into account that bilingual children are exposed to two languages, this is an extremely important factor. In many cases, one language has a higher level of exposure than the other and leads to what is known as unbalanced bilingualism whereby a bilingual has “superior competence in one language than in another” (Pérez Vidal, C. (1998). “I’m gonna make un gegan!” Infant bilingualism in a foreign language (p.27). In APAC Monographs (2) Laura Bosch, Carmen Muñoz, Carmen Pérez). Directly linked to the subject of exposure is that of input. How dominant a language is depends, in the first place, on the daily hours of input received in that language. Carmen Muñoz (1998. Age, exposure and foreign language learning. In APAC Monographs (2) Laura Bosch, Carmen Muñoz, Carmen Pérez) explains the relation between exposure and input:

The amount of exposure is determinant of the amount of input and, therefore, of the opportunities for intake learners have, that is, of finding input that is helpful for their learning. Closely linked to the amount of exposure appears the issue of ultimate attainment, or the level of proficiency that learners may achieve. In a context with very little exposure, no matter the age, ultimate attainment cannot be too high. (p. 19)

On the subject of exposure Carmen Muñoz (1998. Age, exposure and foreign language learning. In APAC Monographs (2) Laura Bosch, Carmen Muñoz, Carmen Pérez) also states that “The issue of the amount of exposure learners receive is essential. In this respect, naturalistic and instructed foreign language acquisition, in spite of their deep common nature, show an important difference.”. A child learning a language in naturalistic
circumstances will most likely be more exposed to the language than a child learning one in a formal context.

The main source of a child’s input comes from its parents. Parents can adopt various strategies when choosing the language they speak to their children in. They can opt for the one parent-one language strategy or choose to use more than one language (Pérez Vidal, 2006). The matter of parental discourse strategies will be discussed further in section 2.2.2. in relation to code-switching. If parents adopt the one parent-one language strategy then the child will have two separate sources of input, each parent corresponding to one language. In cases such as this, it is important to know which parent the child interacts with most, as they will receive more input and more exposure to that parent’s language. There are also many cases of bilingualism where the parents both speak the same language and the second one comes from outside the family environment. However, although many children in these situations acquire a proficient level of the home language, it is not always the case. Productive bilingualism in the family may be unsuccessful, even when receiving high input, if the language is a minority language and only one parent uses it with the child. Thordardottir (2011:428) states that “some groups of bilingual children are found to have less knowledge of their home (minority) language than would be expected based on the reported use of that language in their homes.”. There are many cases of bilingual children living in a country that “does not support their home language” (Thordardottir 2011:428) and who’s input of the family language is dependent on the family members only. Bilingual children who speak a minority language can show very different results in the proficiency of their home or minority language and in the majority language of the country they live in. The different factors that influence the acquisition of these languages will be discussed in section 2.2.1.

2.1.1.2. Learner needs and environment

A subject which many studies on linguistic development touch upon are the various individual factors that play a part in acquiring a language. One of these is age, as mentioned previously, and the pros and cons of acquiring a language as a child and as an adult. Others include aspects such as aptitude, motivation, personality, etc. (Saville-Troike 2012). Other than the individual differences, the context of acquisition has been seen to play an important role in linguistic development. Finally, communicative needs and the
environment\(^1\) in which someone learns a language also play a part in shaping a person’s language or languages.

When learning a language, whether it be as a child or as an adult, you learn to talk about what is around you, what interests you, or what you need to become part of a community. No one can learn the whole scope of a language’s vocabulary nor do they actually need to. As Grosjean (2008:23) states “the level of fluency attained in a language (more precisely, in a language skill) will depend on the need for that language and will often be domain specific.”. An adult learning a new language will learn the basic vocabulary required to communicate in that language and, depending on their needs, they might also learn more technical vocabulary. If an English engineer wanted to work in Germany, they would have to acquire the right vocabulary for everyday life and for the particular domain of engineering. However, they might never learn vocabulary related to religion if the situation never demands it. In the acquisition of first and second languages (L1s and L2s) people learn everyday vocabulary, the basics needed to be able to communicate effectively, whether it be to go to the hospital, to go shopping or to have a casual conversation at a bus stop. However, L2s will usually have more restricted needs (Saville-Troike, 2012:143) which is why academics often mention vocabulary acquisition being *context bound*. Learners also acquire more vocabulary in those fields that interest them the most. If they are interested in sports they will probably learn football vocabulary, if it is politics, they will find out about a country’s political system. The more they feel like they belong in a country, the larger the scope of vocabulary they will probably identify with and thus acquire (John Edwards in Bhatia and Ritchie, 2013).

This does not just affect people learning an L2. In the case of bilingualism, different situations, topics and interlocutors will influence the need to develop particular vocabulary in one language or in another (Grosjean, 2008:14). A bilingual child might grow up speaking of school subjects in one language, but have difficulty translating the terms because they are not used to hearing them in the other language. It may be because they have simply never needed to use them in the other or because the vocabulary is culturally

\(^1\) For the purposes of this study environment is defined by the following three categories. The home situation, if the subject is living with family or friends who speak predominantly L1; the school or work place, is the child at a local or international school, is the interaction with the workforce generally in L1 or L2 and, lastly, the wider social context, i.e. social and leisure activities, access and interest in the local media, etc. Grosjean (2008:23) mentions these environments when presenting his complementarity principle.
specific and cannot be as easily expressed in another language. In situations such as these, people tend to mix vocabulary from the various languages they know, whether it be because they have not acquired those words in the other language or because it seems more natural or they prefer to express it in one. Identity and identification with a particular culture can influence language choice. I will expand on the matter in 2.2.1. when speaking more specifically about bilingualism and biculturalism.

2.1.2. Key terms, definitions and principles in language acquisition research

The vast bulk of research which exists on the subject of language acquisition can be quite daunting when trying to define a particular aspect within the field. There are studies devoted to acquisition as an adult or as a child, to the acquisition of first languages or of second languages, to learning a language or teaching one, etc. To be able to tackle such a broad subject in a limited amount of space one must choose a very specific concept and try to shed some light on it through the existing body of research. This study, as the title suggests, focuses on language acquisition by bilingual children in natural circumstances. However, this is still a broad definition and can encompass many different aspects.

Saville-Troike (2012) uses the terms informal learning and naturalistic contexts when referring to languages being acquired outside of a classroom. It is widely thought that children can pick up a new language with greater ease than adults and there are many studies that support the assumption. Saville-Troike (2012:15) states that “Almost all children [...] acquire perfect fluency in any language to which they are adequately exposed, and in which they interact with others.”. She also mentions an innate capacity which all young children have to absorb a language and states that this capacity is lost at a certain age, although experts have not been able to agree on an exact cut-off point. However, some experts question that notion and argue that it may not be so clear-cut (Terence Odlin in Doughty and Long, 2003). Saville-Troike (2012:2) gives two hypothetical examples of the acquisition of a language in natural circumstances both as a child and in adulthood. One is that of a Japanese child who moves to the United States and learns English by interacting with native English-speakers at school. The other is a Guatemalan immigrant acquiring English in Canada through contact with speakers at work in the new country. In both these cases what is being learnt is an L2. There are numerous reasons why someone would learn a new language: it could be forced upon them, they could learn it to integrate into a new country, or for a job opportunity. Regardless of the reason, an L2 is always a language that has been acquired later, and not one spoken since birth or early childhood.
An L1 is what people generally call a native language or mother tongue. Saville-Troike (2012:4) defines an L1 as “languages that are acquired during early childhood — normally beginning before the age of about three years — and they are learned as part of growing up among people who speak them.”. Therefore, it is possible to have more than one native language — that is two first languages, or L1s. If we take the example of a child growing up with a Spanish mother and a British father who speak both languages at home and can communicate effectively in both, we would be speaking about a bilingual child. Bilingualism or multilingualism could define any of the cases mentioned above. To this issue we now turn in order to clarify what those two terms involve.

2.1.3. Key concepts, definitions and principles in child bilingualism

A person can either be born into multilingualism or develop a need later on in life to become so. Saville-Troike (2012) uses the term simultaneous multilingualism for the first case and sequential multilingualism for the second. Very similar terms can be found in Lightbown and Spada (2006) when talking about childhood bilingualism.. They differentiate between simultaneous bilinguals and sequential bilinguals. The first being children who learn more than one language from birth and the second being children who learn a new language in early childhood, usually through their schooling. In such a case, strictly speaking, we will be talking about an L2.

There has been much discussion about the advantages and disadvantages of learning two languages simultaneously. Many agree that, although certain limitations — such as minor early delays in linguistic development (Lightbown and Spada, 2006:25) — can arise in cases of bilingualism, these are few and can be overcome as a child progresses in its linguistic development. According to Lightbown and Spada (2006):

"Limitations that may be observed in the language of bilingual individuals are more likely to be related to the circumstances in which each language is learned than to any limitation in the human capacity to learn more than one language. (p. 26)"

Grosjean (2008) states that there are two views on bilingualism: the monolingual view and the bilingual view. The first believes that competences in the two languages are separate and correspond to the competences that two monolingual individuals would have in their own language. The second views bilinguals as a whole, as one individual with a single
language system which happens to be composed of more than one language.

Not every multilingual speaker has an equal grasp of their various languages. In many studies we see terms such as ideal or real — bilinguals who have an equal ability in all their languages — and dominant, alingual or semilingual — to say that they really only speak one of their languages at native-speaker level or that they cannot form either language perfectly, without interference from the other —. Grosjean (2008:13) states that bilinguals have a “unique and specific linguistic configuration” which is made up of the two languages they speak. It is very hard to categorise different bilingual individuals because they can vary significantly on their understanding of and dominance in their languages. However, can we really say that someone is only semilingual or “less bilingual”? Or can we argue that a bilingual person can have a higher command of one language than the other and still be labelled as such? According to Grosjean (2008:14), “the bilingual is rarely equally or completely fluent in the two languages.”

2.2. Child bilingualism and the acquisition of vocabulary

The current section of this dissertation is divided into five subsections. The first is *The importance of the environment* which looks at how family and culture influence language acquisition. The second is *Code-switching* which looks at how bilinguals sometimes mix both their languages when communicating. Thirdly we have the subsection *Bilingual children and memory* which explores the internal factors involved in language acquisition. The fourth subsection is *Vocabulary learning* which deals with knowledge of vocabulary and the factors to be taken into account in vocabulary acquisition. Finally, a *Summary* of the background literature closes this section.

2.2.1. The importance of the environment

Much has been written on the linguistic competences of bilinguals and just what defines a bilingual person. A question that seems to be frequently asked is whether bilinguals are people with two or more separate language systems or whether it is more appropriate to speak of a single language system which includes more than one language (Grosjean, 2008). What is also often questioned is whether someone has to have equal competences in each language to be labelled as bilingual. By competences I mean written and spoken command of the languages.

Children learn languages by listening to what is around them and reproducing it. Bilingual children grow up hearing more than one language and acquiring the different
ones around them. Some authors have raised concerns as to whether children can cope in these situations and therefore may not learn any language “properly”, but this view has been mostly discredited in more recent years. “Today we know that bilingualism is by no means harmful, and that, by and large, it can be said that it favours intellectual, cognitive development.” (Pérez-Vidal, 2006). What some authors express concern about is what Wallace Lambert (1987 in Lightbown and Spada, 2006) calls subtractive bilingualism, the fact that by learning one language the child loses another. Subtractive bilingualism can take place if one of the languages is not properly reinforced by those who should speak it to the child. An example would be parents who move to a new country and decide to speak to their child in the language of their new location rather than in their native language. What many experts, such as Lightbown and Spada (2006) defend is additive bilingualism, where a child learns one language at school and another at home. By maintaining both languages and being exposed to them on a daily basis, a child can easily pick up both. Different languages answer to different social functions, one or another will be used depending on the topic, the situation and the interlocutor, as has been discussed above (see section 2.1.1.2.) A child might learn specific vocabulary in one language but have a hard time translating it into the other, even though they are fluent in both their languages.

As we have seen, the language environment is a key aspect in the acquisition of languages and parents and teachers must be actively involved in exposing children to new vocabulary. As Grosjean (2008:20) suggests “It is clearly up to the school system and the adult environment to motivate language acquisition and to create the opportunity for a child to learn the new language or language variety.”. Bilingual children have acquired two languages since birth and therefore have two native languages. However, there are also cases of children who have learnt a new language from a very early age and therefore have two first languages. These are what Silvina Montrul (in Bhatia and Ritchie, 2013) calls heritage speakers whom she defines as “individuals who have been exposed to an immigrant or minority language since childhood and are also very proficient in the majority language spoken in the wider speech community.”. They can also be labelled as bilinguals, but unlike those who speak two languages at home which are also spoken in the environment, heritage speakers speak one language at home but are exposed to another which belongs to the country where they reside. In the case of heritage speakers, the environment is an especially interesting aspect of their acquisition. If a child feels that their heritage language — the language spoken by their parents but not the language of the country they live in — is only spoken by a minority group and are surrounded at school, in the media, etc., by the
majority language — the official language of the country they live in — they sometimes reach a higher level of proficiency in the majority language than in their minority language. This can additionally often be linked to how much they identify with the minority or majority culture.

As we are dealing with bilingualism, we also have to mention biculturalism, as the two interrelated. Grosjean (2008) dedicates a chapter of his book to this phenomenon. Biculturals are people who belong to more than one culture, such as the Chinese community in the United States, and who often identify, to a greater or lesser degree, with both cultures. Biculturals tend to blend aspects of both cultures in their everyday life but mostly adapt to one or the other depending on the situation they are in. It is especially interesting to see how biculturalism affects children and influences their language acquisition. When growing up with two or more different cultures, children have to decide which one they identify with most or whether they identify equally with all of them. Many aspects come into play in this decision, such as which culture is dominant in the country they live in, under what light their culture is viewed in by others, which culture plays a bigger role in their day-to-day lives, etc. If they identify more with one particular culture, they are likely to acquire a wider scope of vocabulary in the corresponding language. If they identify with both or all their cultures they are more likely to have richer and more varied vocabulary across their corresponding languages. We have seen just how much one’s environment influences the acquisition of a language — and therefore the vocabulary of a particular language — and leads to one usually being stronger than the other or others.

2.2.2. Code-switching

Up until this point, this section has dealt with what constitutes a bilingual person and what the various influences on their languages are. However, it was mentioned in the introduction to this dissertation that language mixing would inevitably come into play. Given the profile of the participants and the parental strategies which will be described in section 3.2.2. — when explaining the family context — code-switching is relevant to this dissertation.

How a bilingual child acquires languages and what influences shape them cannot be discussed without explaining what this very often leads to, which is language mixing and code-switching in the input they are exposed to, that is, in the target language exposure available to them. Pérez-Vidal (2006:142) suggests that two factors must be taken into account when investigating the bilingual child’s environmental exposure to the target
language, and its impact on code-switching: the language option adopted by the parents, i.e. the one-parent-one-language option (Pérez Vidal, 2006), and the discourse patterns parents adopt. Concerning the discourse patterns adopted by parents, they correspond to how parents operate in order to establish the pragmatic rule of “use the language of your interlocutor” when raising children bilingually. In relation to this Grosjean (2008) refers to the bilingual’s speech modes and explains that there are two: the monolingual speech mode and the bilingual speech mode (these would be the two endpoints of a variable continuum).

If a bilingual is speaking to a monolingual they usually do not code-switch, as they are aware that their interlocutor would not understand them otherwise. However, if a bilingual is speaking to people who share the same languages they may well switch or mix languages. This is where parents can be an intervening factor, and discourage such a reaction, while encouraging the child to use the language they are addressed to, in spite of knowing that the interlocutor speaks their other language. Consequently, the biggest influence on a child’s language active use of the target language, particularly in the case that it is the minority language, will be the child’s parents. Lanza (1992 in Juan-Garau and Pérez-Vidal, 2001) came up with a coding scheme showing five strategies bilingual parents can adopt ranging from a monolingual context to a bilingual one.

**Figure 1. Parental strategies towards child language mixing**

<table>
<thead>
<tr>
<th>Monolingual context</th>
<th>Bilingual context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal Grasp (MGS)</td>
<td>Expressed Guess (EG)</td>
</tr>
<tr>
<td>Adult Repetition (AR)</td>
<td>Move on Strategy (MOS)</td>
</tr>
<tr>
<td>Code-Switching (CS)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Lanza’s Fig. II (1992 in Juan-Garau and Pérez-Vidal, 2001)

Some parents opt for a monolingual environment for their child (using Grosjean’s terminology). In these cases they either pretend not to have understood the child in one language or prompt them to use the other by asking them yes-or-no questions (Minimal Grasp and Expressed Guess). They can also choose to repeat what the child has said in the appropriate language and get the child to say it again in the correct language (Adult Repetition). Other parents, however, opt for a bilingual environment. In this case, they would employ the Move on Strategy — whereby the parents move on with the conversation without pointing out that languages have been mixed — or Code Switching — whereby the parents would switch codes in answer to the language the child has used—.

In sum, the strategies adopted by parents have a great influence on just how much
someone mixes languages in later life. Some people use their different languages for separate purposes and never or very rarely mix languages. Others frequently mix them, either consciously or unconsciously. This can depend on how they have acquired their languages. If parents also switch codes when talking to their child or do not correct the child for doing so, the child will see code-switching as a natural way of communicating.

In answer to the question of why bilinguals mix languages, Grosjean (2008) simply states that bilinguals are human communicators and as such will use their languages, separately or together, as they deem fit. They will communicate in the way they feel is most effective for the situation, the topic or the interlocutor. Grosjean (2008) also explains how a bilingual mixes languages. He states that “Once a particular language has been chosen as the base language, they bring in the other language in various ways.”. He also mentions a couple of ways of code-mixing. Sometimes a bilingual will shift from the language they are speaking into another language. If they switch languages for a whole utterance, they would be code-switching but if they mix words and expressions in two languages they would be code-mixing. In a sentence uttered by the boy, the younger of the two children studied in this dissertation, we see two Spanish words being borrowed while speaking in English “Mamá, can I have my milk templada?” [Mum, can I have my milk lukewarm?]. Another way of code-mixing would be adapting a word phonologically and morphologically from one language into another. An example would be transforming the English word struggle into Catalan by saying estruggleig. In language mixing we once again see just how much a child’s environment and the level of contact between its languages shapes its speech.

2.2.3. Bilingual children and memory

After reviewing the various factors affecting bilingual acquisition and what they lead to, another aspect which needs to be brought into a discussion of how bilingual children approach vocabulary learning is memory, dealt with in this subsection.

Paivio and Desrochers (1980 in Bhatia and Ritchie, 2013) put forward a model for describing how bilinguals deal with their two languages which they called the bilingual dual coding model. The reason for choosing to mention Paivio and Desrochers (1980) model is that it is one of the most simple and efficient models that exist and the one which most authors adhere to. According to this model, each of a bilingual’s languages is located in separate memory stores. They called the two language stores Verbal Systems (V1 and V2). However, they did not believe these were separate, they argued that they were “connected to a common Image System” (Heredia and Brown in Bhatia and Ritchie, 2013). This is
what generates images of the verbal notions in each Verbal System and allows us to associate a certain word with a certain object, or image. In the case of a bilingual’s mind, images are acquired in only one language or in both, depending on which languages the child chose when using a particular vocabulary item.

Other aspects related to bilingual memory which many experts analyse are concrete vs. abstract words and translation equivalents. A child learning a language — or indeed an adult learning one — is more likely to acquire and memorise concrete words with greater ease than abstract words because the mind can relate them to a specific image (De Groot 1992 in Bhatia and Ritchie, 2013). Therefore, it is arguable that if a child is able to see an image of the word they are trying to learn they are more likely to memorise that specific word. Abstract words only rely on the Verbal System, meaning they are represented by a word but not by an image.

When it comes to how a word in one language is associated with its equivalent in the other, different experts have different theories. Potter et al. (1984 in Bhatia and Ritchie, 2013) state that bilinguals do not directly associate words from one language to another, but rather through a “common conceptual store”. However, Kroll and Stewart (1994 in Bhatia and Ritchie, 2013) affirm that bilinguals do associate a word in one language and in another through translation equivalents. Whichever point of view one supports, it can be said that bilinguals associate words in different languages through translation equivalents (either directly or indirectly). Therefore, acquiring new vocabulary in both languages at once or relating a new word in one language with the already acquired equivalent in the other, can help reinforce the notion and enrich both language stores.

2.2.4. Vocabulary learning

This subsection is divided into two parts. The first is Vocabulary and touches very generally on the subject of vocabulary size and how much vocabulary knowledge is needed to communicate in a language. The second part, Vocabulary acquisition, deals with aspects related to the acquisition of vocabulary such as context, receptive vs. productive vocabulary and the factors involved in learning new words.

2.2.4.1. Vocabulary

The size of a language’s vocabulary is immense and while people can acquire larger or smaller amounts of vocabulary during their lives, no one ever acquires the whole scope of a language’s vocabulary. While it is true that greater vocabulary knowledge allows a broader
use of the language, it is not a prerequisite in being able to communicate in a language. As Nation (1993a in Schmitt and McCarthy, 1997) states:

Vocabulary knowledge is only one component of language skills such as reading and speaking. It should also not be assumed that substantial vocabulary knowledge is always a prerequisite to the performance of language skills. Vocabulary knowledge enables language use, language use enables the increase of vocabulary knowledge, knowledge of the world enables the increase of vocabulary knowledge and language use and so on. (p.6)

A question which researchers frequently ask is “How many words are needed to do the things a language user needs to do?” (Nation and Waring in Schmitt and McCarthy, 1997). Nation and Waring study this question in relation to L2 learning but their research is useful in this section of the dissertation. They argue, as do most, that the more frequent a word is, the more useful it will probably be. High-frequency words are the first to be learnt because we are more exposed to them and therefore pick them up easily. Nation and Waring (in Schmitt and McCarthy, 1997:9) also state that, in English, “with a vocabulary size of 2,000 words, a learner knows 80 per cent of the words in a text which means that one word in every five (approximately two words in every line) are unknown.”. Nation and Waring (in Schmitt and McCarthy, 1997:10) also state that “a larger vocabulary size is clearly better” but that once we have acquired a certain number of words families (3,000-5,000 in the case of English) we have a satisfactory comprehension of the language and can communicate effectively. Nation and Waring (in Schmitt and McCarthy, 1997:11) point out that “a way to manage the learning of huge amounts of vocabulary is through indirect or incidental learning”, i.e. learning from context.

2.2.4.2. Vocabulary acquisition

Vocabulary acquisition is a complex subject. Words are never simple or straightforward. A word can have more than one meaning, or more than one form, some can prove more difficult to learn than others, etc. Children do not learn every meaning of a word at once but slowly discover the different meanings and complexities behind a single word. As we have seen throughout this literature review and in the previous section, context is a vital part of language acquisition. Nagy (in Schmitt and McCarthy, 1997:68) explains that “people pick up much of their vocabulary knowledge from context, apart from explicit instruction.”. He also mentions that “how much vocabulary growth can be attributed to
picking up words from context, and how much is the result of instruction, depends on one’s estimate of the total number of words a person learns.”. Experts do not agree on the number of words-per-year that children acquire in their native language but they do agree that children are most receptive to new vocabulary.

It is also important to mention the distinction between receptive and productive vocabulary. Many studies have looked into the fact that sometimes words can be understood, are familiar to someone, and yet they would not be able to actually use the word, produce it in context. As Melka (in Schmitt and McCarthy, 1997) points out, it is not easy to determine the point where knowledge of a word is not receptive but productive. There are many steps between first encountering a word and being able to use it accurately and will not be discussed here as they could be the subject of a whole new dissertation. However, Melka (in Schmitt and McCarthy, 1997) mentions five phases: imitation, reproduction without assimilation, reproduction with assimilation, comprehension and production. These five stages can broadly identify the process that a word goes through to become a part of a person’s productive vocabulary. For a child, or indeed an adult, to acquire a new word it is not enough to merely encounter that word. They must also understand what it means and how to use it. Many factors play a part in acquiring new vocabulary.

Melka (in Schmitt and McCarthy, 1997) mentions a few linguistic and extra-linguistic factors that are often studied in relation to receptive and productive vocabulary: the type of word, the role of context, the role of cognates, etc. Bardel et al. (2012) also address different linguistic factors that affect vocabulary learning in infancy. They refer to word-external and word-internal factors, the first being aspects such as pronunciation, spelling or collocations (Laufer 1997 in Bardel et al., 2012) and the second being aspects such as the form of a word, cognateness or word length (Milton 2009 in Bardel et al., 2012). Bardel et al. (2012) state that these aspects tend to be overlooked in the study of vocabulary acquisition as most experts focus on frequency:

Many researchers take an approach to vocabulary learning that focuses mainly on the role of frequency in the input, and they thereby give less weight to other factors and claim that frequency is a particularly powerful factor in vocabulary learning. (p. 272)
What they argue is that word-external and word-internal factors also play a role in the acquisition of vocabulary. Milton (2007 in Bardel et al., 2012) also defends that other factors should be taken into account, while defending that frequency is still the most important one:

Frequency is the most powerful factor for vocabulary learning, at least when considering large groups of learners [...] it is likely that factors other than frequency are decisive when looking more closely at the vocabulary of individuals. (p. 273)

Cognateness is an especially interesting topic when studying bilingualism. Just because a child is acquiring vocabulary from two languages simultaneously does not mean that they have double the effort and can never catch up to a monolingual’s knowledge. Indeed the acquisition of two languages at the same time can often benefit the bilingual. Grosjean (2008) argues that a bilingual acquires one system that compromises their knowledge of both languages. Far from being separate, the knowledge of two languages can often complement one another. Through cognates, translation equivalents and other means a bilingual can feed their knowledge in one language to the other.

We will discuss the impact that these factors have on vocabulary acquisition when analysing the results of the case studies test.

2.2.5. Summary

This background literature review has touched upon the particular aspects of language acquisition and childhood bilingualism that are most important for the study at the core of this dissertation. We have looked at the various elements which shape people’s, specifically children’s, language development: how children come to acquire languages, how the context and environment influence them, views on bilingualism and bilingual linguistic development in childhood, etc. We have also focused on the phenomenon of language mixing and that of bilingual memory and dedicated a section to the acquisition of vocabulary as part of general linguistic development.

Every aspect examined in the previous literature review is relevant for the empirical study carried out in this dissertation and introduced in section 3 and has informed the presentation of the participants’ background, how they mix languages or why certain test instruments were used to help them acquire new words in each of their two languages.
Even though English is the dominant language of the participants, they are not English children who have subsequently started learning more languages. These are children who are growing up bilingual, who are used to hearing English and Spanish spoken at home, and can understand and communicate in both languages.

2.3. Research questions and hypothesis

On the basis of the review of the literature presented above, the following research question — with its two subquestions — was established regarding the issue of how language dominance has a bearing on the acquisition of vocabulary in the case of two siblings growing up bilingually in English and Spanish.

**RQ1**: Does dominance in one of the two languages (English/Spanish) of a bilingual child, ease the retention of new words in that language in two different frequency conditions?:

**RQ1.1**: In a low frequency (reading aloud once) in the input condition?

**RQ1.2**: In a relative high frequency (reading aloud four times) in the input condition?

A hypothesis was formulated for each of the previous subquestions:

**H1.1**: Retention of new vocabulary in the stronger language will be higher in low frequency conditions.

**H1.2**: Retention of new vocabulary in the stronger language will be higher in relative high frequency conditions.

These two hypotheses can be generalised into one:

**H**: Retention of new vocabulary in the stronger language will be higher in both frequency conditions.

The ultimate aim of the questions and hypotheses is to determine whether dominance of one language (English) over the another (Spanish) in a bilingual strengthens vocabulary acquisition in the dominant language or whether bilinguals are equally receptive in both their languages. In order to verify whether the hypothesis was correct, the empirical study presented in detail below has been carried out.
3. THE STUDY

This section presents the empirical study conducted — the central part of the dissertation — the methodology adopted to carry it out and its results. The first subsection, under the heading Aim and objective expands on the objectives that were briefly mentioned in the Introduction. The second, Methods, presents the participants of the study and their linguistic situation as well as the instruments used to carry out the test. It also details the process, from start to finish, of the testing and explains how the data resulting from the testing is analysed. The third and final section is the Results and discussion in which the results of the testing are revealed and their relation to the study’s research question and hypothesis are discussed.

3.1. Aim and objective

The aim of this empirical study is to address the issue of how unbalanced bilinguals acquire new vocabulary in each of their languages, in the case of two children who are trilingual in English/Spanish/Swedish\(^2\). More specifically, how they speak, what language dominates their speech or how often they switch languages.

I mean to add further insight by analysing a new case of bilingual child vocabulary acquisition. As case studies can vary greatly depending on the individual and offer a vast array of different results, every contribution helps form the larger picture. This empirical study reports on two case studies, dealing with the acquisition of vocabulary of two children in their two family languages, for which an experiment with vocabulary acquisition in each language is carried out over the course of five days.

3.2. Methods

This section details the whole process of the study. It is divided into four subsections. The first is Design, which gives a general overview of the structure and process of the study. The second deals with presenting the Participants and explaining the children’s background, how they acquired their languages and the difference in terms of proficiency in Spanish and English. Afterwards, Treatments and data collection details what instruments were used to conduct the study and how the treatments was carried out. The fourth and final part is the Analysis in which the methods used to analyse the results are presented.

\(^2\) The children’s languages are English, Spanish and Swedish. This study will compare the acquisition of new vocabulary in the first two. Their level of Swedish is not judged in this dissertation as I have an insufficient knowledge of the language.
3.2.1. Design

Under this heading I give an overview of the study design, the experimental treatment administered to the participants, and the testing process. I chose to carry out case studies because it was the design that could best answer my questions. It was also going to provide me with multiple sources of data (tests, speech analysis, etc.), all of which should ultimately contribute to the findings.

Two treatments were conducted for this study, one in English and one in Spanish which were in turn followed by the administration of an oral test. The purpose was to measure the intake of vocabulary in each language. They were administered separately but both of them over a span of four days. The English treatment was applied from the 20th to the 24th of April. During these four days, an analysis of the way the two children spoke was also carried out. There was a two-week gap between the English and the Spanish treatment. The Spanish treatment was applied from the 7th to the 10th of May, which was the time most convenient for the person applying the treatment. Given the young age of the participants — 6- and 4-years old — the test involved a set of short stories which included 14 English words and 14 Spanish words which the children did not previously know. It also involved a set of pictures of the objects behind those words to aid the acquisition of the new words.

Once the participants had been chosen and the testing had been completed, the results were analysed and discussed to answer the research question and hypothesis. Each of these aspects will compromise the remaining parts of this study.

3.2.2. Participants

In this section I present the participants studied in this dissertation. I examine the settings in which they speak each language and the factors at play in the acquisition of their languages. I also discuss the level of proficiency of the participants’ languages. For the purposes of this study, the two children will be referred to as G6 and B4.

The two case studies were carried out on trilingual children. They are siblings — therefore share the same family background — and are of a similar age. One is a girl aged 6 years and 9 months (G6) and the other is a boy aged 4 years and 10 months (B4). Both were born in Sweden to an English father and a Spanish mother. They are the second- and third-born as they have an older brother. As this dissertation focuses on acquisition in

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3 To report on their pattern of exposure to their languages I have counted on the family’s reports, and my own observations, as I am related to the participants through family bonds.
natural circumstances, the environment I will be focusing on most is the family one. However, one important matter regarding the siblings’ schooling must be mentioned. The G6 attended a Swedish-speaking pre-school until July 2015. As of September 2015 she has been at an International School and has therefore been in an English-speaking environment. The G6 does 3 hours a week of Spanish at her school but the rest of the time is taught in English. The B4, however, still attends Swedish pre-school and is therefore in a Swedish-speaking environment and does not speak English or Spanish at school.

The languages spoken at home have always been English and Spanish. The parents spoke to each other in both English and Spanish, being fluent in both. They also spoke both languages to the participants. However, the participants rarely spoke in Spanish with their father, only ever if the mother was also part of the conversation. It is important to mention that the father passed away in 2015. When speaking to the mother, they were more likely to switch between English and Spanish. In one-on-one conversations with the mother they would speak in Spanish. If the conversation took place not just with the mother but also with the siblings and father, the language was usually English. The linguistic situation has stayed the same even after the passing of the father. The reason English became the main household language, despite the parents’ fluency in both languages, is most likely due to the eldest sibling’s upbringing. The participants’ older brother, aged 13, was in more frequent contact with English than with Spanish. The mother worked long hours away from home during that period whereas the father, who worked as a translator from home, spent most time with the first-born. This meant that, by the time the participants were born, English had been established as the home language, despite the mother spending more time at home during their upbringing.

In the current home situation, the siblings speak English to each other, to their older brother, to the Italian PHD student living with the family and, sometimes, to their mother. They still mostly speak English to the mother when they are all together and Spanish when it is one-on-one. The mother, therefore, is the only daily source of Spanish. They speak in Spanish to their maternal grandparents, but are not in daily contact with them. Another environment which should be briefly mentioned, as it also has an influence on their languages, is the wider social circle. Friends of the family are mostly foreigners living in Sweden who use English as their language of communication. Therefore, in social situations the language is always English. In the following table we see a tentative percentage of hours of exposure to each language on a daily basis. The percentages were drawn based on the mother’s calculations of the participants exposure to English and
Spanish. The hours they spent speaking English or Spanish in each environment were multiplied by 100 and then divided by the total number of hours they spend in that environment. Therefore, if the G6 spends 8 hours at school and 7 of them are in English we divide 700 by 8.

<table>
<thead>
<tr>
<th>Table 1. Daily hours of exposure to languages</th>
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<tbody>
<tr>
<td><strong>Environments</strong></td>
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<td></td>
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<tr>
<td><strong>Home</strong></td>
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<tr>
<td><strong>School</strong></td>
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<tr>
<td><strong>Social circle</strong></td>
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<tr>
<td><strong>Mother</strong></td>
</tr>
<tr>
<td>English 67%</td>
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<tr>
<td>Spanish 33%</td>
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<tr>
<td><strong>Other family members</strong></td>
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<tr>
<td>English 67%</td>
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<tr>
<td>Spanish 33%</td>
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<tr>
<td><strong>G6</strong></td>
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<td><strong>B4</strong></td>
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<td></td>
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<tr>
<td><strong>Mother</strong></td>
</tr>
<tr>
<td>English 67%</td>
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<tr>
<td><strong>Other family members</strong></td>
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<tr>
<td>English 67%</td>
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<tr>
<td>Spanish 33%</td>
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</tbody>
</table>

In order to give more precise information on the participants’ linguistic development and their language skills I will be answering some of the questions found in Grosjean (2008:244).

❖ **What is the bilingual’s proficiency in each of the four skills in each language?**

➢ The participants have acquired the listening and speaking skills through daily contact with the languages. However, they have not yet fully acquired the reading and writing skills. The B4 has not started learning these skills in any language yet and the G6 is currently learning to read and write in English at the International School. She is also learning to read and write in Spanish at school but the input is significantly less as she only has 3 hours a week of classes in Spanish. At home, most of the books that are read to the children are English and, occasionally, the mother reads to them in Spanish. We can see the level of each participant’s language skills in the table below.
### Table 2. Overview of participants’ language skills

<table>
<thead>
<tr>
<th></th>
<th>G6</th>
<th>B4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaking</td>
<td>English</td>
<td>Spanish</td>
</tr>
<tr>
<td></td>
<td>Native speaker</td>
<td>Near native</td>
</tr>
<tr>
<td>Listening</td>
<td>Native speaker</td>
<td>Near native</td>
</tr>
<tr>
<td>Reading</td>
<td>Very good command</td>
<td>Working knowledge</td>
</tr>
<tr>
<td>Writing</td>
<td>Good command</td>
<td>Working knowledge</td>
</tr>
</tbody>
</table>

✉️ Was the cultural context the same or different?

➢ The cultural context is interesting in this case. Neither language corresponds to the culture of the country that the participants live in. However, while Spanish is spoken by few in Sweden, English is not only widely-spoken, but is frequently used in Swedish media and is highly regarded in the country. They visit England once a year only and Spain usually twice a year. However, only one of their yearly visits to Spain are spent around native Spanish speakers as on the other visit they spend the whole time with their English-speaking family in Spain.

 بتاريخ التي كانت السياق الثقافي مماثلًا أو مختلفًا؟

➢ المؤهل اللغوي يثير المثير للإهتمام في هذه الحالة. لن يترجم اللغتين إلى الثقافة التي يسكنونها في بلدانهم. ومع ذلك، بينما يتحدث الإسبانيات في محدودة عددًا في السويد، إلا أن الإنجليزية هي لغة تتحدث في السويد بشكل واسع، وتستخدم بشكل كبير في الإعلام السويدي، وتُعَرَّف عاليًا في البلدان. يزورون إنجلترا مرة واحدة كل عام فقط وسوايتيان عادة طوال العام في إسبانيا. ومع ذلك، فإنهم يقضون وقتًا فقط حولًا الأ-Language الإسبانية في إسبانيا على الزيارة الأخرى.

✉️ Has a certain language stability been reached?

➢ Yes. They can understand and communicate effectively in both languages, although they find it harder in Spanish and tend to hesitate more when speaking it.

✓ لقد وصلت إلى مواعيد معينة لغوية؟

➢ نعم. يمكنهم comprender y comunicarse de manera efectiva en ambos idiomas, aunque encuentran más difícil el español y tienden a vacilar más cuando hablan.

✉️ How often and for how long is the bilingual in a monolingual mode (i.e. when only one language is active) and in a bilingual mode (i.e. when both languages are active)? When in a bilingual mode, how much code-switching and borrowing is taking place?

➢ At school and in interactions with non-family members, the children are usually in a monolingual mode. At home, they are usually in a bilingual mode. A great deal of code-switching takes place, usually in the form of a word or in a sudden change of the language they are speaking in. They often borrow Spanish words if they speak in English to the mother, such as “Mamá [Mum], look I’ve got a manta [blanket]. Borrowings and code-switching in the other direction, from English into Spanish, are even more frequent “Mamá, no, no quiero [Mum, no, I don’t want to]. I don’t want to make my bed”.

✓ كم مرة وكم وقتًا يتحدث المحترف اللغوي في وضع لغوي ملائم (عندما يكون فقط لغة واحدة فعالة) واللغوي بilingual (عندما يكون كلاً من اللغتين فعالين)؟ عندما يكونما في وضع لغوي بilingual، كم المعدل للمفردات التصعيدية والاقتراض؟

➢ في المدارس والتفاعلات مع الأفراد الذين ليسوا أعضاء عائلة، فإن الأطفال عادة ما يكونوا في وضع لغوي ملائم. في المنزل، عادة ما يكونون في وضع لغوي بilingual. يحدث الكثير من التبديل بين المفردات، عادة في شكل كلمة أو في تغيير�ة لغية فجائي. غالبًا ما يقتراضون من الإسبانية إذا كانوا يتحدثون بالإنجليزية إلى الأم، مثلًا “Mamá [Mum], look I’ve got a manta [blanket]. المفردات والتبادل اللغوي في الاتجاه الآخر، من الإسبانية إلى الإنجليزية، أكثر شيوعًا “Mamá, no, no quiero [Mum, no, I don’t want to]. I don’t want to make my bed”.
Below I add another question that was not found in (2008:244) but is important given the previous literature review.

- **Which discourse strategy did the parents adopt? Which one does the mother use now?**

  - The parents always opted for a bilingual environment. Before the father passed away, both parents would code-switch to the language the children addressed them in. They usually addressed the father in English but he would switch to Spanish if they did speak Spanish to him. The mother code-switched much more often as the children would address her in both languages. Since the father passed away, the mother often opts for the Move On strategy when she is alone with the participants as she is aware they have minimal exposure to Spanish. If they address her in English she will carry on the conversation in Spanish so that the participants will switch to that language.

This presentation on the participants’ background, paired with the answers to the previous questions was aimed at giving the reader a good idea of the participants’ level of Spanish and English and of why the latter is the dominant language.

### 3.2.3. Treatment and data collection

This section is divided into two subsections: *Instruments* and *Treatments*. The first presents the instruments used for the treatments and the second explains how they were administered.

#### 3.2.3.1. Instruments

For the English vocabulary acquisition treatment, the instruments used were the story of *The Rum Tum Tugger* from T. S. Eliot’s *Old Possum’s Book of Practical Cats* — which we will refer to in this dissertation as S1 — and *The Pobble Who Has No Toes* by Edward Lear in *The Owl and the Pussycat and other Nonsense Verse* — which we will refer to in this dissertation as S2. From these stories, 14 words were chosen (7 from each one) which the participants were not familiar with (see Table 3). All 14 words were put into a made-up short story called *Rabbit visits Sweden* — referred to as SS1 in this dissertation — to contextualise the words before coming into contact with them in the S1 and S2. A set of images of the words were also used in order to aid the retention of vocabulary, as discussed when speaking about bilingual memory in section 2.2.3.
**Instruments:** *The Rum Tum Tugger* (S1), *The Pobble Who Has No Toes* (s2), *Rabbit visits Sweden* (SS1) and 14 images corresponding to the 14 words chosen.

The Spanish treatment used the same type of instruments. For this second vocabulary acquisition treatment, the book that was used was *¡Uno más, por favor! Cuentos cortos a la carta* by Steffi Kammermeier, Michaela Rudolph and Anna K. Birkenstock. Once again, 14 words from two stories within the book. Two stories were chosen: *¡Perdido!* — or S3 — and *La asamblea de los sueños* — or S4—. Once again, 14 words were chosen. 6 words were taken from the S3 and 8 words were taken from the S4 (see Table 3). The 14 Spanish words were also put into a made up short story *Un día en el parque* —referred to as SS2 in this dissertation — to contextualise them. Images corresponding to these 14 words were also used.

**Instruments:** *¡Perdido!* (S3), *La asamblea de los sueños* (S4), *Un día en el parque* (SS2) and 14 images corresponding to 14 words chosen.

The made up short stories, as well as the images, can be found in the *Annex* section at the end of the dissertation.

<table>
<thead>
<tr>
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<th>S1</th>
<th>S2</th>
<th>S3</th>
<th>S4</th>
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<tbody>
<tr>
<td>1</td>
<td>Feast</td>
<td>Bark</td>
<td>Abeto</td>
<td>Columpio</td>
</tr>
<tr>
<td>2</td>
<td>Grouse</td>
<td>Buttercup</td>
<td>Claro</td>
<td>Disfrazarse</td>
</tr>
<tr>
<td>3</td>
<td>Larder</td>
<td>Channel</td>
<td>Elfo</td>
<td>Edredón</td>
</tr>
<tr>
<td>4</td>
<td>Pheasant</td>
<td>Crimson</td>
<td>Hormiga</td>
<td>Gnomo</td>
</tr>
<tr>
<td>5</td>
<td><em>Rum Tum Tugger</em></td>
<td>Pobble</td>
<td>Morera</td>
<td>Hechicera</td>
</tr>
<tr>
<td>6</td>
<td>Shrimp</td>
<td>Porpoise</td>
<td>Trono</td>
<td>Malabarismo</td>
</tr>
<tr>
<td>7</td>
<td>Sneer</td>
<td>Shore</td>
<td></td>
<td>Seña</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td>Vaquero</td>
</tr>
</tbody>
</table>

Although the treatments were the main instruments for the studies, as they were aimed at verifying or refuting the hypothesis, the way in which the participants spoke was also analysed. This was an essential instrument as it provided other information needed to carry out the study and analyse the results. This served to determine what the participants’ dominant language was, how much they mixed languages, how they interacted with their languages, etc.
3.2.3.1. Treatments

ENGLISH TREATMENT

14 words were chosen from two stories: 7 from one story (the S1) and 7 from another story (the S2). Images of the meaning behind these words were also chosen. All 14 words were put into a made up short story (the SS1) to contextualise them. Once all the material was ready, the treatment began.

The treatment was administered over a period of four days. On the first day, the SS1 was read while showing the participants the images of the 14 words. Then, the S1 and the S2 were read once, also accompanied by the images. On the second, third and fourth days the S2 was read once a day, with the images being shown at every reading (see Table 4).

<table>
<thead>
<tr>
<th>Table 4. English treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day 1</strong></td>
</tr>
<tr>
<td>SS1 - read once</td>
</tr>
<tr>
<td>S1- read once</td>
</tr>
<tr>
<td>S2 - read once</td>
</tr>
<tr>
<td>Images</td>
</tr>
<tr>
<td>accompanied each reading.</td>
</tr>
</tbody>
</table>

SPANISH TREATMENT

The Spanish treatment was conducted two weeks later exactly the same way. 14 words were chosen from two stories: 6 from one story (the S3) and 8 from another (the S4). Images of the meaning behind these words were also chosen. All 14 words were put into a made up short story (the SS2) to contextualise them. Once all the material was ready, the treatment began.

The treatment was administered in the same way as the English one. On the first day the SS2, S3 and S4 were all read and on the second, third and fourth days only the S4 was read (see Table 5).
Table 5. Spanish treatment

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS2 - read once</td>
<td>S4 - read once</td>
<td>S4 - read once</td>
<td>S4 - read once</td>
</tr>
<tr>
<td>S3 - read once</td>
<td>Images</td>
<td>Images</td>
<td>Images</td>
</tr>
<tr>
<td>S4 - read once</td>
<td>accompanied</td>
<td>accompanied</td>
<td>accompanied</td>
</tr>
<tr>
<td>Images</td>
<td>the reading.</td>
<td>the reading.</td>
<td>the reading.</td>
</tr>
<tr>
<td>accompanied</td>
<td>each reading.</td>
<td>each reading.</td>
<td>each reading.</td>
</tr>
</tbody>
</table>

Following the treatment during which new words were presented to the participants, on the fifth day following each treatment they were asked to name what they saw in the images. Each participant, separately, was shown the images of the new words used during the treatment and was asked to give aloud the word representing the image shown, one after the other. This researcher took note of the words elicited, in the case of the English treatment. The Spanish treatment was carried out by their mother, as they associate her with that language and would therefore be in a Spanish mindset, following Grosjean (2008) who states that it is important, when conducting tests in a specific language, that the participants are in monolingual mode to reduce the interference of other languages.

3.2.4. Analysis

Before presenting the results I will first discuss how I proceeded to analyse the data collected for the case studies. Since the tests were fairly straightforward, so was the analysis, which was based on comparisons. I wanted to compare the amount of words the participants had acquired from each story — i.e. the impact of frequency on acquisition —, the amount of words acquired in each language and the amount of words acquired by each child.

The first step was to draw a table depicting how many of the 14 English words and 14 Spanish words each participant had elicited. The next step was to calculate the percentage of words elicited from the low frequency input condition (story read aloud once) and from the relative high frequency input condition (story read aloud four times). The percentages were calculated by multiplying the number of words that a participant elicited by 100 and then dividing it by the total number of words available. This allowed us to compare not only the acquisition of words in different frequency conditions within one
language, but also the acquisition of words in one same frequency condition between two different language, a stronger and a weaker one. Through these comparisons the answers to the research question were obtained.

3.3. Results and discussion

This section reports on the results obtained and addresses the research questions and hypotheses presented in section 2.3. of this dissertation.

3.3.1. Results

ENGLISH VOCABULARY

The first results procured from the analysis of the data collected from the English test show that the participants acquired more words from the S2, which was read four times. The difference is one item. There were 7 new words from each story for the participants to acquire. The G6 elicited 57% of the words from the S1 and 71% of the words from the S2. The B4 elicited 29% of the words from the S1 and 43% of the words from the S2. The results of the English treatment for each participant are shown in the tables and figures below. The tables show the number of words elicited from each story and the figures compare the low frequency input and the relative high frequency input.

<table>
<thead>
<tr>
<th>S1</th>
<th>S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feast</td>
<td>Bark</td>
</tr>
<tr>
<td>Grouse</td>
<td>Buttercup</td>
</tr>
<tr>
<td>Larder</td>
<td>Channel</td>
</tr>
<tr>
<td>Pheasant</td>
<td>Crimson</td>
</tr>
<tr>
<td>Rum Tum Tugger</td>
<td>Pobble</td>
</tr>
<tr>
<td>Shrimp</td>
<td>Porpoise</td>
</tr>
<tr>
<td>Sneer</td>
<td>Shore</td>
</tr>
</tbody>
</table>

**Table 6. English test - G6**

ELICITED: 4 WORDS  ELICITED: 5 WORDS
Figure 2. G6 - English treatment - Low frequency vs. relative high frequency

### Table 7. English test - B4

<table>
<thead>
<tr>
<th></th>
<th>S1</th>
<th>S2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feast</td>
<td>Grouse</td>
<td>Bark</td>
</tr>
<tr>
<td></td>
<td>Buttercup</td>
<td></td>
</tr>
<tr>
<td>Grouse</td>
<td>Larder</td>
<td>Channel</td>
</tr>
<tr>
<td></td>
<td>Pheasant</td>
<td>Crimson</td>
</tr>
<tr>
<td>Rum Tum Tugger</td>
<td>Shrimp</td>
<td>Pobble</td>
</tr>
<tr>
<td></td>
<td>Sneeer</td>
<td>Porpoise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shore</td>
</tr>
<tr>
<td></td>
<td>ELICITED: 2 WORDS</td>
<td>ELICITED: 3 WORDS</td>
</tr>
</tbody>
</table>

- **S1 - Low frequency input**
  - Percentage of words elicited: 57%
  - Percentage of words not elicited: 43%
- **S2 - Relative high frequency input**
  - Percentage of words elicited: 71%
  - Percentage of words not elicited: 29%
Figure 3. B4 - English treatment - Low frequency vs. relative high frequency

In the case of English (see tables 6 and 7), there is actually only a difference of 1 word in both cases. The G6 acquired more vocabulary than her younger sibling but that can be put down to age. The B4 is still in pre-school and the G6 is now in primary school. Therefore, she has developed more advanced language skills and has already been exposed to English schooling, where she has rapidly been acquiring new English vocabulary.

While frequency is an important factor in acquisition, it is clear that other factors also come into play. These will be mentioned in section 3.3.2.

SPANISH VOCABULARY

Again, in the case of Spanish, we see that the participants acquired more words from the S4, read four times. The difference in Spanish was of 2 items. There were 8 new words for the participants to acquire from the S4 and 6 new words from the S3. The G6 elicited 17% of the words from the S3 and 38% of the words from the S4. The B4 elicited 0% of the words from the S3 and 25% of the words from the S4. The results of the Spanish test are shown in the tables and figures below. The tables show the number of words elicited from
each story and the figures compare the low frequency input and the relative high frequency input.

Table 8. Spanish test - G6

<table>
<thead>
<tr>
<th></th>
<th>S3</th>
<th>S4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abeto</td>
<td>Columpio</td>
<td></td>
</tr>
<tr>
<td>Claro</td>
<td>Disfrazarse</td>
<td></td>
</tr>
<tr>
<td>Elfo</td>
<td>Edredón</td>
<td></td>
</tr>
<tr>
<td>Hormiga</td>
<td></td>
<td>Gnomo</td>
</tr>
<tr>
<td>Morera</td>
<td>Hechicera</td>
<td></td>
</tr>
<tr>
<td>Trono</td>
<td>Malabarismo</td>
<td></td>
</tr>
<tr>
<td>Seña</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaquero</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ELICITED: 1 WORD          ELICITED: 3 WORDS

Figure 4. G6 - Spanish treatment - Low frequency vs. relative high frequency

S3 - Low frequency input

- Percentage of words elicited - 17%
- Percentage of words not elicited - 83%

S4 - Relative high frequency input

- Percentage of words elicited - 38%
- Percentage of words not elicited - 62%
In the case of Spanish (see tables 8 and 9), there is a difference of 2 words in both stories. Again, the G6 elicited more vocabulary than the B4, but both participants showed a lower percentage of acquisition in Spanish compared to English.
ENGLISH VS. SPANISH VOCABULARY

If we compare the total number of words that the participants elicited, out of the 14 new words that were available in each language, we see a clear distinction. The G6 acquired 64% of the English words vs. 29% of the Spanish ones. The B4 acquired 36% of the English vocabulary vs. 14% Spanish vocabulary. This is shown in the three figures below (Figures 2, 3, 4). The first shows the percentage of words acquired in English, the second the percentage acquired in Spanish and the third compares the two.

Figure 6. Percentage of vocabulary acquired in English

Figure 7. Percentage of vocabulary acquired in Spanish
Figure 8. Comparison of vocabulary acquired in English and Spanish

3.3.2. Discussion

With the results having been presented in the previous section we now turn to discussing them in relation to the research questions and their hypotheses. The focus of the questions was language dominance and the frequency factor. As we saw in section 2.2.4.2., Bardel et al. (2012) gave a list of factors that influenced vocabulary acquisition such as cognateness, abstractness or the form of a word. As the many factors related to vocabulary acquisition are not the main focus of this dissertation and the research questions focus on the frequency factor, we will not go into detail here. However, it is interesting to mention that, in English, both children remembered the words *Rum Tum Tugger, Pobble, porpoise, buttercup* and *shrimp*. These words are all very precise and have a very clear meaning. They were also the words that the children found funniest. Other more abstract words, words with a more complicated meaning for the two children, such as *shore* and *channel* were not retained by either participant. In the Spanish treatment, the words that were acquired also have a very clear image and meaning behind them: *columpio* [swing], *hormiga* [ant], *gnomo* [gnome]. In the case of *gnomo*, which was the only Spanish word that both children remembered, it could be argued that cognateness plays a part as it is similar in English and Spanish. We will not discuss these factors any further, however, it is interesting to note that future studies could look more closely at these other factors as they definitely play a part in vocabulary acquisition.

The first research question asked whether dominance in a language eased the retention of new words in a low frequency input condition:
RQ1: Does dominance in one of the two languages (English/Spanish) of a bilingual child, ease the retention of new words in that language in two different frequency conditions?

RQ1.1: In a low frequency (reading aloud once) in the input condition?

If we vary the figures we saw in the previous section we can clearly see that in a low frequency input condition, both participants retained more vocabulary in their dominant language.

Figure 9. G6 - Low frequency (English/Spanish)

<table>
<thead>
<tr>
<th>English - Low frequency input</th>
<th>Spanish - Low frequency input</th>
</tr>
</thead>
<tbody>
<tr>
<td>43%</td>
<td>83%</td>
</tr>
<tr>
<td>57%</td>
<td>17%</td>
</tr>
</tbody>
</table>

Therefore the following hypothesis was confirmed:

H1.1: Retention of new vocabulary in the stronger language will be higher in low frequency conditions.

The same question was asked regarding relative high frequency in the input condition:

RQ1: Does dominance in one of the two languages (English/Spanish) of a bilingual child, ease the retention of new words in that language in two different frequency conditions?
RQ1.2: In a relative high frequency (reading aloud four times) in the input condition?

By varying the figures we saw in the previous section we see once again that in a high frequency input condition, both participants also retained more vocabulary in their dominant language.

Figure 11. G6 - High frequency (English/Spanish)

![Graph showing percentage of words elicited and not elicited in English and Spanish with high frequency input.]

Figure 12. B4 - High frequency (English/Spanish)

![Graph showing percentage of words elicited and not elicited in English and Spanish with high frequency input.]

Therefore the following hypothesis was also confirmed:

H1.2: Retention of new vocabulary in the stronger language will be higher in relative high frequency conditions.

With these two research questions and their hypotheses answered we were able to confirm that the hypothesis was correct:

H: Retention of new vocabulary in the stronger language will be higher in both frequency conditions.

Dominance in a particular language does ease a bilingual child’s vocabulary acquisition. Although it was a small-scale treatment — with a list of 14 words in each language to be
acquired — with the results converted into percentages we see that there is a higher level of acquisition in English.

The literature reviewed how children learn languages and how important exposure to each language is, as dominance in a particular language is primarily decided by the linguistic environment which children grow up in — especially where the parents are concerned. Having seen these issues applied to the participants and taking into account the difference in terms of the participants’ daily exposure to English (around 90%) and to Spanish (around 10%) — which has lead to English definitely being their dominant language — it is no surprise that the participants are more receptive to new vocabulary in English. However, before conducting the treatment, there were several possible outcomes: the participants could have retained more English than Spanish vocabulary in low frequency input but demonstrated a similar acquisition in both languages in high frequency. They could have also — although it would have been contradictory with the literature research conducted — have retained more English than Spanish vocabulary in high frequency input but demonstrated a similar acquisition in both languages in low frequency. Or, as they did, they could have retained more English vocabulary no matter the frequency condition. Being aware of the fact that the English dominated the participants’ environment, this last possibility was the one that was hypothesised. As this was a small scale experiment with just two participants, there would have to be further research with a greater number of participants with more varied backgrounds.

4. CONCLUSIONS AND LIMITATIONS OF THE STUDY

This study compares the acquisition of English and Spanish vocabulary by two bilingual children to determine whether dominance in a language is an influential factor in vocabulary acquisition. What lead to questioning the role of the dominant language was the fact that bilinguals grow up with more than one language. Does the fact the bilingual children command more than one language mean that they are equally receptive to both? Or is there a language which dominates when dealing with new vocabulary in experimental conditions? As we have seen through the results of the treatments, bilingual children are more likely to remember vocabulary in their dominant language. The background literature showed that a key aspect is a child’s environment, as it determines exactly which language will be the dominant one. This, in turn, enables a greater ease in vocabulary acquisition and leads to one language being richer vocabulary-wise than the other. This dissertation has looked at many different factors concerning bilingualism and vocabulary acquisition: the
importance of the environment, different types of bilinguals and bilingualism, factors involved in vocabulary acquisition, etc. These aspects have been approached from both a theoretical and a practical point of view. It was important to give a wide view of the subject that would enable the reader to understand how this dissertation fits into the study of vocabulary acquisition.

Due to the time constraints of a dissertation like the present one, the amount of data used for the study is small, and it is difficult to generalise from so few data. The dissertation should also, in principle, have used statistical analyses but they were not included due to lack of knowledge in this area. However, the results obtained in this dissertation point to a direction worth pursuing with more participants and more data.

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1. **Rabbit visits Sweden**

Rabbit was bored and wanted a new adventure. He told his Mum he was going to visit his friends in Sweden. His Mum went to the larder and took out some carrot cake, carrot biscuits and a can of carrot soup. She made some sandwiches and found a bottle of carrot juice in the fridge. There, she said, now you have enough for a feast.

He set off with his rabbit friend. Once they reached a beach they walked onto the shore and took a bark across the channel. A friendly porpoise kept jumping up out of the water to wave to them. The porpoise was a bit silly he wore a big hat, sang songs and ate a bucketful of shrimp.

When they got to the other side he said “Goodbye! And be sure to say hello to my friends, the Rum Tum Tugger and the Pobble”. The rabbits looked at each other and said “We don’t know your friends”. The porpoise laughed and said “Well the Pobble has no toes and the Rum Tum Tugger is a curious cat so I am sure you will know them when you see them”.

The rabbits set off through the forest and sat down under a tree for a picnic. They sat on a crimson towel and ate their food. They decided to have a rest before going through the town. When they woke up they found a pheasant and a grouse staring at them as if they had never seen a rabbit before. “What’s the matter?” said the rabbits. The pheasant hopped about and said “We have to take you to the Rum Tum Tugger’s house, he is such a curious cat he wants to meet you. The porpoise said he was your friend”. Off they went to the Rum Tum Tugger’s house and found a big ginger cat sniffing at a piece of chicken and then he turned his back, sneered at them and went off with his tail in the air. “What’s the matter with him?” asked the grouse. A funny looking creature with no toes said “Oh he doesn’t want chicken, he prefers salmon today, tomorrow he will want something else entirely”.

They stayed at the Rum Tum Tugger’s house for a cup of tea and then asked whether he knew the quickest way to Sweden. The cat answered that it was only a few hours walk away. The two rabbits thanked their new friends and headed off. Surely enough, after just 3 hours they saw a big blue house and a garden full of buttercups and knew they had reached their friends’ house.
2. **Un día en el parque**

Erase una vez dos hermanos que cada día, al salir del colegio, iban a jugar a un claro que había a las afueras de su pueblo. Era un sitio precioso, rodeado de abetos y moreras y, en verano, cuando hacía calor, pasaban horas allí jugando. Siempre estaban solos y era su lugar secreto. Pero un buen día, cuando llegaron al claro, vieron que había otra gente allí. Parecía un circo, había un payaso haciendo malabarismos y un conejo disfrazado de vaquero. También vieron una gata disfrazada de hechicera. Una hormiga se acercó hacia los niños y les preguntó si querían jugar con ellos. El claro siempre había estado vacío pero ahora había un tobogán, unos columpios e incluso un trono. La hormiga, los dos hermanos, un elfo y un gnomó jugaron durante horas al escondite. Se escondían detrás de los árboles o del tobogán y hacían señas para indicar dónde se escondían los otros. Cuando empezó a oscurecer, los hermanos tuvieron que irse a casa. Esa noche, cuando se metieron en la cama debajo del edredón antes de dormir, hablaron de sus nuevos amigos y esperaban que volvieran a estar allí mañana cuando salieran del colegio.
3. English treatment - Images

Bark

Buttercup

Channel
Crimson

Feast

Grouse

Larder
4. Spanish treatment - Images

Abeto [Fir]

Claro [Clearing]

Columpio [Swing]
Disfrazarse [To dress up]

Edredón [Eiderdown]

Elfo [Elf]

Gnomo [Gnome]
Hechicera [Sorceress]  

Hormiga [Ant]  

Malabarismo [Juggling]  

Morera [Mulberry tree]
Seña [Sign]

Trono [Throne]

Vaquero [Cowboy]