First language education provisions in a second language environment: The effects of learning L1 English as an L2 in Catalonia, Spain

Louisa Adcock, BA, MA

Ph.D in Applied Linguistics

University of East Anglia

Department of Politics, Philosophy, Language and Communication Studies

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ABSTRACT

In Catalonia, Spain, native English-speaking children attending state schools are not provided with native language classes, and consequently continue to develop their native language in *English as a Foreign Language* (EFL) classes. This poses the question: how is a child's first language (L1) affected if taught as a second language (L2)? This research examines the effects of language provision on the acquisition of the L1, with a hypothesis that one of the key factors in this process could be the teaching of L1 as an L2.

To examine the effects of the variability in L1 teaching provisions, this study uses the recordings of 26 child Frog Story (Mayer, 1969) narratives, a methodological tool attested in numerous studies of both first and second language acquisition (Frog Story narrative elicitation; Berman and Slobin, 1994). For the purpose of our central comparison, the narratives were provided by native English-speaking children who attend state schools, where no L1 instruction is offered, and private schools, where L1 instruction is offered. Monolingual data was taken from the CHILDES database (MacWhinney, 1984) for comparison with typically developing native English-speakers. Other factors of the children's home environment were also taken into consideration, for example the language(s) spoken at home, the age of acquisition and parent nationality.

The study examines the variability in performance in the linguistic domains of the lexicon and morphosyntax, and the semantic domain of lexicalisation patterns, and the results show that, when all other relevant factors are controlled, there is indeed a difference due to the nature of the L1 instruction received. This is apparent across all investigated domains. These results are further discussed in the context of the current research on multilingualism, language acquisition, cross-linguistic influence and the bilingual mind.

I dedicate this thesis to my family, with all my love.

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You'll always be in mine.

CONTENTS

ABBREVIATIONS

CALP	Cognitive Academic Language Proficiency
CHILDES	Child Language Data Exchange System
CLI	Cross-linguistic Influence
CPH	Critical Period Hypothesis
EFL	English as a Foreign Language
L1	First Language
L2	Second Language
L3	Third Language
MLU	Mean Length of Utterance
NL	Native language
RHM	Revised Hierarchical Model
TTR	Type Token Ration
STTR	Standardised Type Token Ratio
WR	Words and Rules

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CHAPTER I: INTRODUCTION

1.1 The Research Aim

How is a child's first language (L1) affected if taught as a second language (L2)? In this thesis I address the question of the difference in L1 attainment based on whether it is acquired in an L1 or an L2 classroom. The specific focus is on the effects of the Catalan Language Policy and its resultant language provision for first-language education (English) in a second-language-speaking environment (Catalan and Spanish), on the first language competence of native English-speakers living in Catalonia, Spain. The study examined the effects of the language provision on the acquisition of the first language by observing the variability in performance in various linguistic domains, with a hypothesis that one of the key factors in this process could be the teaching of a first language (L1) as a second language (L2).

1.2 The Research Problem

Every day throughout the world, children are arriving in a new linguistic environment where their native language is not the language of their broader social world. In order to integrate socially and succeed academically, immigrant children are pressured to learn the language of the environment whilst opportunities to maintain the L1 diminish, meaning that "the first language is weakened by the increasing frequency of use and function of the second language" (Seliger & Vago, 1991: 4). The majority of language education programmes do nothing to support minority language children to develop competence in their L1. Moreover, the language policies that inform these programmes devalue the cultural backgrounds and knowledge associated with minority children's L1. Low academic achievement among minority children stem in part from these language-in-education policies (UNESCO, 2000).

The *English Language Association of Catalonia*, founded in Catalonia, Spain, was formed by native English-speaking parents and guardians, and created out of concern for the lack of L1 support their native English-speaking children receive within the Catalan education system. The association, dedicated to the improvement of English language literacy for native speakers, was founded on the belief that the teaching of English in Catalan schools can be greatly improved, since the schools do not acknowledge students as native English-speakers. In fact, because English is already part of the curriculum for all students, all native English-speakers must further the development of their L1 in *English as a Foreign Language* (EFL) classes, alongside

non-native speakers. In contrast, native speakers of other languages such as Arabic and Dutch are supported in their L1 through native language programmes introduced by the Catalan government.

The issue of learning an L1 as an L2 is a fundamental one when we consider that a reduction in exposure to a child's L1 within an L2 environment can cause the grammatical system of the L1 to be dramatically compromised. As Montrul (2008: 136) states, "the ability of language minority children to acquire an L2 and maintain proficiency in their L1 is in part related to the type of support the minority language receives in the school environment (…) when the minority language is not fully supported at school, it runs the risk of being lost". Many of the parents belonging to the association have observed their children failing to develop age-appropriate levels of grammar in their native language, demonstrating hesitant, non-native-like English which is prone to lexical borrowing, combined with weak reading and writing skills. Key questions are arising as to the pedagogical approaches to teaching native English-speakers within Catalan schools, and their contribution to these delayed and underdeveloped grammatical systems.

1.3 The Research Background

Catalonia is an autonomous region located in northeast Spain and has two official languages: the language of the state, Spanish, and the region's own language, Catalan. Catalan is a Romance language closely related to Occitan, French, Italian and Spanish, and native to a geographical area divided among four states: Spain, France, Andorra and Italy. Within Spain, the Catalan language is spoken in Catalonia; most of Valencia; the Balearic Islands; part of Aragon on the border with Catalonia, also known as La Franja; and a handful of small populations in the Murcia region known as Carche. Following the Spanish military dictatorships of Miguel Primo de Rivera (1923-1929) and Francisco Franco (1936/9-1975), which were particularly severe in prohibiting the use of the Catalan language (Vila-i-Moreno, 2008), Spain has seen significant changes in language policies (Strubell & Boix-Fuster, 2011; Vila-i-Moreno, 2008). Spain became a constitutional, parliamentary monarchy with a semi-federal structure known as the 'State of Autonomies', which allows every autonomous community to develop its own language-in-education policies, including the three largest Catalan-speaking societies (Catalonia, Valencia and the Balearic Islands). The Spanish Constitution, enacted in 1978, granted regional languages a co-official status alongside Spanish in the territories

where the languages are spoken. The 1979 Statute of Autonomy established the official status of Catalan and Spanish and stipulated that both languages would be taught to the school-going population. To begin with, each educational institution could choose the language of instruction, however the redefining of the language-in-education model in Catalonia towards introducing and extending the position of Catalan was initially based in Catalonia's 1983 Linguistic Normalisation Act, and its derivate Decree 75/1992, generalised the use of Catalan as the medium of instruction in pre-school, primary and secondary education.

Since the late 1980s, language policies have been distributed among the central and the autonomous authorities, and each autonomous government has developed its own language policy. Therefore, Catalonia has a unitary linguistic model that has Catalan as its principal language, whereby the Catalan language "has to be used normally as a vehicular and learning language in university and non-university teaching" (art. 35, Statute of Catalonia, 2006). The importance and prestige associated with the Catalan language means that as soon as a child starts their state education in Catalonia, regardless of their nationality, they receive schooling in Catalan, and both Spanish and Catalan after the age of six.

However, in the early 2000s, more than two million foreign immigrants arrived in Catalonia in less than a decade, attracted by its thriving construction industry. Their arrival had a clear impact on education: "while foreign students represented 0.58% in Catalan classrooms in 1999, by the 2007-2008 academic year they represented 12.9%, more than 90% being children of economic immigrants" (Arnau, 2013: 3). This increase in immigrant students was present across all educational levels and called for a new education model to be developed in Catalonia, and therefore, the Generalitat de Catalunya (2004) drafted and implemented the *Pla per a la Llengua, la Interculturalitat i la Cohesió Social* (Plan for Language, Interculturality and Social Cohesion), to cater for the linguistic needs of immigrant children. The new model means that each institution must draft its own *pla d'acollida* (reception plan), an action protocol for newly arrived immigrant students that includes "organisational strategies and methodologies, procedures for encouraging the participants of families and actions to create awareness for cultural diversity among the whole student body" (Arnau, 2013: 6). Part of this new support for immigrant students has been the introduction of native language programmes to teach languages of origin after school hours and during weekends. These programmes are designed to promote the maintenance of minority

languages, giving them access to native language classes taught by trained, native speakers, where oral skills are developed into literacy skills. The programmes are available to speakers of 10 languages: Arabic, Bengali, Berber, Chinese, Dutch, Portuguese, Quechua, Romanian, Ukrainian and Urdu. However, the Catalan government has no protocols or policies in place for native English-speaking children.

Aside from the issue of increased immigration, the issue of globalisation in Catalonia has created an increased pressure to significantly improve the students' level of English. Education in Catalonia aims, as a primary objective, to provide good competence in at least one foreign language, with parents, teachers and society in general considering that this language must be English, a language which has displaced French as the top foreign language studied in schools in the course of a few decades. Therefore, the Catalan Ministry of Education updated the curriculum to include three hours of compulsory *English as a Foreign Language* (EFL) classes per week, with the intention that "the next generation of students be fluent in both Catalan and Spanish and proficient in a foreign language, mostly English" (Arnau, 2013: 22).

Catalonia's determination to preserve its unique language whilst playing an active role in the accommodation and development of immigrant native languages, along with promoting the need for a population that speaks a high level of English, mean that the region is an extremely interesting case involving the co-existence of language policies aiming at opposing targets: promoting a vehicular language and adopting global policies. However, native English-speaking children are a population which is neither considered nor represented: as English is already being supported and encouraged as part of the curriculum as an L2, the government insists that introducing a native language programme for native English-speaking children would provide them with an unfair advantage. Furthermore, the fact that native English-speakers are not heavily concentrated in one or two neighbourhoods means that individual schools will never have enough native or heritage speakers to justify setting up a special stream, even though there are at least 33,000 nationals of English-speaking countries in Catalonia, over 11,000 in Barcelona alone. Therefore, unless parents can afford the 10,000 euro per year private school fees, (which offer teaching of English as an L1), the children must continue their L1 development in EFL classes, classes which are not designed for them and can be of little use to them. Information gathered from parents, teachers and school directors in Table 1 presents the significant differences between the EFL classes offered in state schools, and the native language (NL) classes offered in private schools.

Table 1: Differences between English language classes[1]

	State Schools	**Private Schools**
Type of Provision	*English as a Foreign Language* (EFL) Classes	Native Language (NL) Classes
Average Hours of English per Week	3	3
Class Content	-The focus of the classes is basic level conversation. -Dialogues are practiced containing commonly used everyday expressions and basic structures of high frequency. -Vocabulary is kept to a minimum so that students can concentrate on structure. -Very low-level grammar revolving around the present simple and present continuous tenses. -Reading and writing practice is infrequent and the level of the texts is too low for native speakers.	-Classes implement integrated practice between speaking, reading, writing and listening, although the focus of the classes is to develop and improve literacy skills through reading and writing exercises. -Texts used are selected in accordance with the level of the students. -Vocabulary learning focuses on academic vocabulary, and other subject areas such as science, physical education or music are sometimes taught in English to increase vocabulary knowledge.
Language of Instruction for English Classes	Catalan	English
Teacher Ability	Teachers often demonstrate a lower, less advanced level of English.	Teachers generally have an advanced level of English.
Teacher Nationality	Non-native English speaker.	Non-native English speaker, although some classes have a native English-speaking teaching assistant (usually an Erasmus student) to assist in teaching the classes.
Homework Set	Some classes offer slightly more advanced homework for the native speakers, however the level is still too basic.	Twice weekly, usually involving a reading or writing task.
Additional Support	No additional support for native speakers.	Advanced materials are often provided for students with a high level of English.

[1] The information presented in the table was collected from various school directors, heads of department, teachers, parents, and from the researcher's own classroom observations.

Table 1 shows us that there are significant differences between the EFL classes taught in state schools and the native classes taught in private schools. Although the schools, on average, teach the same number of hours each week, there are clear differences in class content and teaching. EFL classes, designed for Catalan / Spanish children learning English as a foreign language, focus on basic conversation and structures and a very low level of grammar. Literacy skills are not developed, and the classes are taught in Catalan to accommodate the low level of non-native students. Teachers themselves generally have a lower level of English, with many native students finding themselves correcting the teacher's English. These findings are supported by a study carried out at primary level (CSASE, 2006*)* which revealed that only 22.7% of EFL teachers had lived for at least 3 months in an English-speaking country and 37.1% declared that they had never participated in on-going training.

In contrast, the NL classes provided in private schools focus on developing and improving literacy skills through reading and writing exercises and vocabulary learning, and frequent homework tasks are set. The classes are taught in English to reflect the level of the students, and although the teachers are not native speakers, their level of English is much more advanced, and they are often assisted by a native English-speaking teaching assistant. Those students who demonstrate a high level of English are provided with advanced materials and additional support.

The fact that the Catalan government has emphasised the importance of English in a globalised world, is contradicted by the reluctance to support and make use of those students who are most proficient in the language. Many other European countries have accommodated native English-speaking children and have recognised their English as a resource. The most advanced accommodation of Anglophone children in Europe uses the dual-language immersion model. In Vienna, Berlin and Helsinki, schools in the state sector use two languages as medium of instruction and run two parallel admissions processes, one for native English-speakers and one for other children. Furthermore, the schools take on staff holding foreign credentials, and often team-teach a subject, so that children will have a good grasp of subject-specific vocabulary in both the languages of instruction. The Vienna Bilingual Schooling project was created in order to meet the needs of the ever-increasing number of Viennese pupils that have an outstanding command of both German and English, and from day one implements both languages as languages of instruction. The project aims to impart a basic general education in the

child's first language (German or English), and basic skills in the second language (German of English), with a focus on literacy skills in the first or dominant language. In Berlin, the bilingual Nelson Mandela School (English and German) allows children who are completely bilingual to use both languages at a native level, but native English-speaking children who have no knowledge of German can continue learning in English whilst receiving special tuition in German. Furthermore, France has a system where primary and secondary streams are taught a hybrid bi-national curriculum partly staffed by foreign nationals thanks to bilateral agreements. Up to 25% of classroom time is spent studying subjects from another national curriculum in its home language—British history, for example, taught by teachers with English credentials. The French government cites this system when selling multinationals on the benefits of setting up shop in France. Closer to home, there are a great number of Spanish state schools with bilingual programmes. Many of them have developed a British-Spanish curriculum whereby they work with the British Council and employ UK-trained and qualified teaching staff.

1.4 The Study and Research Questions

With the above research problem in mind, this study set out to investigate the effects of learning an L1 as an L2 on the English language competence of native English-speaking children in Catalonia, Spain. The participants were 26 native English-speaking child immigrants living in the region's capital, Barcelona, who were split into two groups based on the English language provision at school: (1) children who attend state schools, and continue to develop their L1 English within foreign language classes (EFL group), and (2) children who attend private schools and continue to develop their L1 in native language classes (NL group). Recorded narratives were elicited using the Frog Story picture book (Mayer, 1969) as visual stimuli, and the elicited descriptions were transcribed and analysed. In addition, the parents of the participants responded to a language use questionnaire, where biographical information and information on general language usage was gathered so that other factors of the children's home environment, that could cause variability in the results, could be taken into consideration. For comparison with typically developing native English-speakers, the study incorporated monolingual data taken from the CHILDES database.

The study addressed the following key research questions:

1. *Does learning an L1 as an L2 affect the English language competence of native English-speakers?*
2. *If so, which language domains are affected most significantly? How? Why?*
3. *Are there any factors other than type of language provision that cause variability in the results?*

In answering the above questions, this study will shed light on the fields of pedagogical approaches to multilingual education, multilingual language acquisition, language attrition, incomplete acquisition, cross-linguistic influence and the multilingual mind. It will answer these questions through the analysis of three domains: the lexicon, morphosyntax and lexicalisation patterns. Within the domain of the lexicon, the study will look at lexical diversity and lexical accessibility. Within the domain of morphosyntax, the study will examine the frequency of morphological errors. Within the domain of lexicalisation patterns, the expression of motion events will be analysed. Analysis of these multiple levels will address the research questions comprehensively, looking at both form and meaning acquisition.

1.5 Importance of the Study

In attempting to answer the research questions, the work presented in this thesis contributes empirical evidence to the body of research of several fields. Firstly, this study will contribute to the L1 attrition and incomplete acquisition research in child bilinguals by providing a comprehensive analysis of participants' L1 performance across particular linguistic domains. Secondly, the research adds to the field of bilingual and multilingual language acquisition and our understanding of the bilingual and early L2 acquisition process, as well as research on pedagogical approaches to bilingual education.

In a world where speaking more than one language is "not the exception anymore" (Harris & McGhee-Nelson, 1992), this study is timely and important with regard to increasing multilingualism and multiculturalism. It will represent an important contribution to our understanding of the interplay between cross-linguistic differences and potentially universal features of cognitive processing, leading to a better understanding of how the relevant similarities and differences in language, cognition and culture work together. Our current knowledge about how multilingual minds work

is impoverished because of the lack of real, authentic and significant data sets. To find distinctive patterns in this cross-linguistic and developmental data would emphasise the importance of sufficient educational support of the L1 in an L2 environment and would have further implications for our understanding of the factors that affect the variability of performance in the first language.

Lastly, no similar research has been carried out so far for these languages and this will be the first empirical study of its kind to date. The literature on native speakers tends to focus on those who are learning within English-speaking education systems, for example Montrul (2004) and Polinsky (1997, 2006) studied heritage Spanish and Russian speakers in the United States respectively. This original research will benefit both English-speaking communities and Catalan government institutions through important implications in the area of language policy, clearly illuminating the best practice in language education and suggesting the way forward towards encouraging tolerant multilingualism, a topic of high sensitivity in Catalonia. Consequently, this will help us resolve communication conflicts and promote mutual understanding between different communities, particularly the multilingual community in Catalonia.

1.6 Thesis Structure

This introductory chapter is followed by theoretical background, which summarises findings from the fields of bilingualism, language acquisition, cross-linguistic influence and language attrition, discussing theoretical perspective in more detail. Chapter III sets out the methodology in relation to the participants, tasks and procedure. The results of the study are then presented in Chapter IV, followed by a discussion of these results in Chapter V. Chapter VI contains the conclusions, discusses limitations of the findings, and poses directions for future research.

CHAPTER II: LITERATURE REVIEW

2.1 Introduction

As explained in the introduction, this thesis endeavours to investigate the effects of learning an L1 as an L2, on the L1 competence of native English-speaking children living in Catalonia, Spain. This chapter presents an overview of the relevant theoretical background and frameworks that have been used in previous research and that will be considered within this research project, each section bringing together perspectives from second language acquisition and first language attrition within specific frameworks in the research domain of bilingualism.

This review first charts the development of the field of bilingualism, considering both general definitions and types pertaining more closely to the current investigation. It then focuses on the bilingual mind and how it stores language as well as on both the negative and positive cognitive effects of child bilingualism. The review then turns to the area of language acquisition, focusing on the differences between acquiring a first and second language and considering the effects of learning a second language on the first language. It then presents the different educational approaches to bilingual education. The final section of the review focuses on language attrition and incomplete acquisition as products of cross-linguistic influence and language contact. It discusses the linguistic and environmental factors that have been shown in the literature to contribute to these processes, and the linguistic and cognitive domains that previous studies have highlighted as most susceptible to change as a result of the interaction between two or more languages in multilingual minds.

2.2 Bilingualism

As defined by Montrul (2008, 2013), put simply, bilingualism is the knowledge of two languages. However, more specific definitions of bilingualism are problematic and can vary considerably due to the variation in bilingual characteristics that may classify a speaker as bilingual. As Grosjean (1998) confirms, bilingualism comes in many shapes and sizes. For example, an important and relevant factor to consider is how languages are acquired in relation to each other, as bilinguals differ with regard to the sequence and the timing of the languages they acquire. The following section will explore both general definitions and types of bilingualism and discuss in more detail the ones of crucial relevance for the current study.

2.2.1 General Definitions

Traditional definitions of bilingualism suggest the ability to speak two languages perfectly: according to Webster's dictionary (1961), a bilingual is defined as having or using two languages which are spoken with the fluency characteristic of a native speaker. This basic definition is supported by Bloomfield (1935: 56), who states that bilingualism is "the native-like control of two languages", and Harley (2001: 131) who states that "if a speaker is fluent in two languages, then they are said to be bilingual". Under these definitions, few people who can communicate in another language would declare themselves as bilingual.

Some definitions of bilingualism focus less on the speaker's ability and more on the use of the languages, for example, Ellis states that bilingualism is "the use of two languages by an individual or speech community" (1994: 694). More specifically, Grosjean (2010: 4) proposes that "bilinguals are those who use two or more languages (or dialects) in their everyday lives". However, these general statements do not take into consideration the many dimensions of bilingualism. For example, sociocultural factors can also be considered in the definition of bilingualism. A definition given by Skutnabb-Kangas (1991: 111), whose work concentrates mainly on immigrant communities, proposes the following definition:

> "A bilingual speaker is someone who is able to function in two (or more) languages, either in monolingual or bilingual communities, in accordance with the sociocultural demands made of an individual's communicative and cognitive competence by these communities or by the individual him/herself."

The above definition captures the importance of the speaker's environment and emphasises the importance of communicating effectively with their surrounding communities, which is of interest for us at present because the nature of the linguistic environments is one of our key parameters under scrutiny. Skutnabb-Kangas' definition supports Paradis' (1986: 7) suggestion that "bilingualism should be defined on a multidimensional continuum". Paradis states that when defining bilingualism, it is imperative to consider aspects such as psychological and sociocultural factors since they also play a substantial role in the development of bilingualism. In fact, according to García (2000) when bilingual and multilingual speakers interact using two or more languages, the language and personal abilities are not only heightened, but there is also

an opportunity of grasping cultural traits from that language. This is because languages are not only channels of communication, they also capture ideas, values, and frameworks, where speakers build their interactions and descriptions of their environment (Bialystok, 2001).

2.2.2 Types of Bilingualism

2.2.2.1 Sequential vs. Simultaneous Bilingualism

One common parameter that distinguishes bilingualism is the order or sequence in which the languages are acquired (Montrul, 2008). *Simultaneous bilingualism* is used to refer to a situation where two languages (two L1s) are acquired concurrently before age three (Valdes & Figueroa, 1996), and when the speakers do not yet have any linguistic foundation. Simultaneous bilingual acquisition has been referred to as "bilingual first language acquisition" (De Houwer, 1990). *Sequential bilingualism,* on the other hand, is said to occur when "one language is acquired during the age of early syntactic development, and the second language is acquired after the structural foundations of the first language are in place" (Montrul, 2008: 97), when the basic knowledge of the L1 has already been established (De Houwer, 1995; Paradis, Genesee & Cargo, 2011; McLaughlin, 1978).

As De Flege (1992) suggests, in sequential bilingualism, when one language is acquired following another, the age of L2 acquisition is important. Therefore, the literature often distinguishes between *early sequential bilingualism* and *late sequential bilingualism.* However, an important issue with regard to previous research on early versus late L2 acquisition, is that there is no consensus with regard to the age at which early bilingualism ends, and late bilingualism begins. As Hohenstein, Eisenberg and Naigles (2006) state, an early bilingual in one study can be a late bilingual in another. Myers-Scotton (2003) supports this by describing the situation as: many studies, many different conclusions.

An attempt to shed light on the relationship between age and language acquisition is embodied in a hypothesis called the Critical Period Hypothesis (CPH), which was originally conceived by Penfield and Roberts in 1959 and later refined by Lenneberg in 1967. The CPH suggests that one reason that children are able to acquire an L2 relatively quickly and successfully is biological: that humans are most capable of learning language between the age of two and the early teens. Chiswick and Miller describe the CPH as a "sharp decline in learning outcomes with age" (2008: 16), stating

that above the critical period, acquisition can be more difficult to achieve (Paradis, 2004). There is a wealth of evidence in both the L1 and the L2 literature supporting the notion of a critical period. For example, while often initially slower at L2 learning, children eventually outperform adults on a variety of language tasks, and even adult language learners who are extremely successful in acquiring an L2 rarely achieve nativelike ability (Long, 2007). Such observations lead to claims that languages should be learned at a young age or they may never be mastered. In Lenneberg's (1967) view, this can be attributed to the fact that below the cut-off age of puberty associated with the critical period, greater brain plasticity makes it easier to learn language. However, findings that adults *can* master other languages fundamentally contradict the biologically determined CPH. For example, Ioup, Boustagui, EI Tigi, and Moselle (1994) described Julie, an adult learner of Arabic, who, after 26 years in Egypt, tested as virtually indistinguishable from a native speaker on advanced aspects of pronunciation and grammar. Furthermore, Hyltenstam (1992) has shown that loss of linguistic ability can start as early as age six, and there has also been evidence from previous studies that core aspects of a language, such as phonology, morphology, syntax and lexicon, are differentially affected in their susceptibility to deterioration effects at different ages (Bialystok, 1997; Bialystok & Hakuta, 1999; Long, 1990), hence the need to examine more than one domain. This theory is reflected in Seliger's (1978) concept of multiple critical periods for different language components with different onsets.

Although Muñoz and Singleton (2011: 1) state that, "it is undeniable that there exists a relationship between age and success in additional (L2) learning", they also confirm that "the precise nature of that relationship has long been a matter of controversy". They go on to confirm that in various studies showing correlation between age and language learning, other factors such as input, context and individual characteristics can also explain the findings: "the amount of input a learner receives in the target language is crucial and (…) length of residence or age of arrival may be associated with widely varying amounts and intensity of additional language exposure and use" (2011: 709). For example, Johnson and Newport (1989) carried out a study on 46 native speakers of Korean and Chinese who had immigrated to the United States. Seven subjects who arrived between the ages of 3 and 7 years old were indistinguishable from native English-speaker controls. The authors argued the data showed a strong correlation with age of arrival and performance for subjects younger than 17 years but no significant correlation and large individual variation in performance for adults.

Nonetheless, other factors such as the use of the native language could also explain the results. Similarly, Birdsong and Molis (2001) studied 61 Spanish-speaking immigrants in the United States. The subjects showed a similar correlation between age of immigration and accuracy. Therefore, the evidence for other factors (i.e. age of immigration) pertaining to variability in performance in the target language must be carefully considered in the current study.

Despite the controversy surrounding the CPH, all of the participants in this study were within its upper limit of the early teenage years to control for any unnecessary inconsistencies in data. Given the above definitions, we can also clearly identify the participants in this study as *sequential bilinguals*, given that they learnt their L1 from birth, at home, and their L2 at school and within a different environment (Brisk & Harrington, 1999; Cummins, 2000). It is more difficult to categorise the participants as early or late sequential bilinguals, as the age at which the individual participants immigrated to Catalonia varies from age two to age nine. Since a cut-off point between early and late sequential bilingualism has not been established in the literature, throughout this study we shall not refer to the participants as *early* or *late* sequential bilinguals.

Defining the participants in the study as sequential bilinguals is significant as it has been discovered that simultaneous and sequential bilinguals differ in their language development, for example, in the case of lexical development (Paradis, 2007: 18-20). The acquisition of two languages in simultaneous bilinguals is "simultaneous and independent but parallel" (Montrul, 2016: 36). Simultaneous bilinguals are believed to use the same cognitive mechanisms to learn words in their two languages. In contrast, when sequential bilinguals acquire vocabulary in their L2, they are likely to be influenced by their earlier L1 vocabulary learning experience, and so the lexical development in their two languages is likely to be different. An interesting consideration, therefore, is how the language development process of sequential bilinguals will proceed if the L1 has not been sufficiently supported in education.

2.2.2.2 Additive vs. Subtractive Bilingualism

As previously mentioned in the Introduction chapter, in Catalonia there is a high level of prestige associated with the Catalan language, which is the language of instruction for all students, whilst educational support of L1 English is overlooked. Lambert (1974; 1977) suggests that the foundation of bilingualism is related to certain aspects of the

social psychological mechanisms involved in language behaviour, especially in the perception of the relative social status of both languages of the individual. Lambert (1974) continues by distinguishing the relative social status of both languages of the individual between an *additive* and a *subtractive* form of bilingualism.

According to Lambert (1970), *additive bilingualism* is used to refer to the positive outcomes of being bilingual and is characterised by the acquisition of two socially prestigious languages. During additive bilingualism, the learner gains competence in an L2 while maintaining the L1. The learner is encouraged to value both languages, leading to positive social and cognitive benefits (Hamers & Blanc, 1989: 56; Lambert, 1970: 117). Those in favour of the additive bilingual approach argue that children should be supported in their mother tongue until they have reached the *cognitive academic language proficiency* (CALP) level (see section 2.4.2), demonstrated in various bilingual education programmes that focus on the maintenance of the L1 whilst the L2 is introduced gradually.

In contrast, *subtractive bilingualism* refers to the negative affective and cognitive effects of bilingualism. This situation arises when the acquisition of one language threatens to replace or dominate the other language, for example, in members or minority groups (Herdina & Jessner, 2002). It occurs when the L2 is learnt at the expense of the L1, usually taking place in an environment where the L2 is considered to be advantageous since it holds the economic cultural power of the mainstream society, creating competition between the languages and leading the individual to a loss in the minority language, which is replaced by the L2.

In the current study, the children who attend private schools (where importance is placed on the maintenance and development of the L1 as well as learning the language of the environment), can clearly be placed in the category of additive bilinguals. With regard to the children who attend state schools, despite the fact that English is seen as an important, prestigious language in Catalonia (and hence a compulsory part of the curriculum), these participants can still be considered as subtractive bilinguals due to the lack of L1 provision and the subsequent threat of dominance from the L2.

2.2.2.3 Language Dominance: Balanced vs. Dominant Bilingualism

The aim of this study was to investigate the effects of native language provision on the first-language competence of native English-speakers living in Catalonia, Spain. Two notions related to language competence are language proficiency, "the linguistic ability

and fluency in a language" (Montrul, 2016: 16), and language dominance, "the idea that one language of the bilingual will be used more often and will likely be processed more easily than the other" (Montrul, 2016:15). Whereas proficiency can be assessed in one language, dominance implies a relative relationship of control or influence between a speaker's languages. Therefore, dominance can be classed as broader than proficiency as it takes into consideration all of the languages spoken by an individual.

It has been frequently noted that the majority of bilinguals are not equally proficient in their two languages, having a *stronger* and a *weaker* language. There are many studies in the literature related to what makes a language dominant. Deuchar and Muntz (2003), and Genesee and Nicoladis (2006) relate language dominance with more advanced development and greater proficiency in one language than the other(s). Olsson and Sullivan (2005) consider the speaker's language preference an indicator of language dominance. With relevance to the current investigation, other studies associate language dominance with the amount of input, the dominant language being the language to which the speakers receive most exposure (Argyri & Sorace, 2007; Pearson, Fernández, Lewedag & Oller, 1997), and the quality of input including the richness of the environment for the development of a minority language (e.g., Jia, Aaronson, & Wu, 2002; Jia & Aaronson, 2003; Paradis, 2011). A measure of dominance that is also relevant to this study and that can be linked to *additive / subtractive bilingualism* is the socio-political status of the languages of the environment – the difference between a majority language and a minority language (Döpke, 1992; Schlyter, 1993).

Having established that the participants in this study receiving EFL classes can be classed as sequential, subtractive bilinguals, and the participants receiving native language classes can be classed as sequential, additive bilinguals, we can start to consider how these definitions may affect the balance of the languages spoken with the use of the terms *balanced* and *dominant* bilingualism (Hamers & Blanc, 1989: 8). A *balanced bilingual* refers to a person who has a very strong command of both languages, or whose "mastery of two languages is roughly equivalent" (Li Wei, 2000: 6). However, the literature points out that this type of bilingual appears to be the exception (Baker & Prys Jones, 1998) and the term "balanced bilingual" is often considered controversial as even when more than one language is acquired from birth, a more advanced level of proficiency is often demonstrated in one of the languages. As Montrul states (2008: 18) "the reality is that most bilinguals are linguistically unbalanced, both functionally (in

their language use) and representationally (in their linguistic knowledge)" and that bilinguals will generally possess a stronger and a weaker language.

In contrast, *dominant bilingualism* refers to the notion that one of the bilingual's two languages is stronger than the other, or to someone with "greater proficiency in one of his or her languages and uses it significantly more than the other language(s)" (Li Wei, 2000: 6). In order to test which language is dominant, researchers have used a variety of methods including picture naming (Gathercole & Thomas, 2009; Gollan, Weissberger, Runnqvist, Montoya, & Cera, 2012; Mägiste, 1992), mean length of utterance (MLU; Yip & Matthews, 2007), lexical diversity (Daller, Van Hout, & Treffers-Daller, 2003; Treffers-Daller, 2011), and fluency and speed (Segalowitz, 2010). The ways in which dominance can manifest itself are varied, according to Silva-Corvalán and Treffers-Daller (2016), and cover a wide range of linguistic domains, including morphosyntactic, lexical and phonetic. Bernardini and Schlyter (2004), Deuchar and Quay (2000), and Genesee, Nicoladis, and Paradis (1995) have shown that children are more likely to code-switch when using their less proficient language than when they use their more proficient language, which can often be attributed to gaps in lexical knowledge. Similarly, Silva-Corvalán and Montanari (2008) show that language dominance plays a key role in predicting the direction of transfer in the acquisition of some complex lexical constructions, with the dominant language influencing the non-dominant one. Similarly, Schlyter (1993) and Lanza (2004) discovered that dominance had an effect on the direction of cross-linguistic influence: the child participants in their study showed transfer from their more proficient, stronger language, into their less proficient, weaker language across various grammatical domains.

More often than not, studies will show that a speaker's mother tongue is their dominant language (Hamers & Blanc, 1989: 8), however an interesting consideration is that of *language shift*. The status of a language as *dominant* is not permanent, and there is the possibility that the strength of an individual's languages may fluctuate. There are many reports of the shifting of language dominance in the literature. For example, the German-English child, Hildegard (Leopold, 1970) spent the early years of her childhood in the United States and was more proficient in English. Around age six, the family moved to Germany and after only four weeks, Hildegard spoke English with a German accent and had problems conducting simple English sentences. After moving back to the United States, English took over again. Furthermore, Burling's (1959) son Stephen, who had learnt English during his first sixteen months, and then moved to the Garo mountains

in North-Eastern India with his parents, developed Garo faster than English because most people around him used Garo. These studies emphasise that a child's linguistic environment and input are a strong determinant of language dominance. De Houwer (1995) proposes that dominance changes repeatedly throughout the life of a bilingual, usually as a function of the amount of input received in the languages. This is supported by various other studies demonstrating how the amount of input and the frequency of use of a language are crucial determinants of dominance and proficiency (Gathercole & Thomas, 2009). Thus, Silva-Corvalán and Treffers-Daller (2016) confirm that a bilingual who uses two languages can be dominant in either, depending on the amount of input and the use of these languages. The less proficient language is expected to evidence, among other features, more errors of production and more frequent use of structures that parallel those of the stronger language, as evidenced in Nicoladis' overview of the relationship between language dominance and cross-linguistic influence (2016). For example, when a child immigrates to a new language environment whilst still in the process of learning their native language, the presence and input of the new L2 along with a decrease in input from the L1, may cause a shift in dominance. Therefore, an important consideration for the current investigation will be whether or not the participants attending state schools and EFL classes demonstrate a shift in the dominant language from L1 to L2.

2.2.2.4 Summary

This section has identified the key concepts relevant for describing and classifying bilingual speakers, pointing out the relevant characteristics that can be used for the bilingual categorisation of the participants in this study. Whereas both groups can be classed as *sequential bilinguals*, having initially learnt their L1 in an L1 environment and then their L2 later within an L2 environment, the way in which the two groups differ with regard to language provision means that whilst the private school children can be categorised as *additive* bilinguals, the state school children are categorised as *subtractive* bilinguals. Having established that language provision places both groups in separate categories of bilingualism, we can assess whether this difference has an effect on language dominance and the ways in which the participants' languages interact and relate to each other in the bilingual mind, a critical consideration in bilingualism.

2.3 Bilingualism and the Bilingual Mind

From the 1990's, research from cognitive psychology has become increasingly central to our understanding of language development. This section will firstly look into theories on how language is stored in the mind, since how we store language can have a direct impact upon how language deteriorates (Montrul, 2008). Furthermore, there are different theories associated with the cognitive changes that occur in bilingualism. In order to better understand how the use of two or more languages affects the functional mind, the following section explores the literature on how we store language and addresses some of the positive and negative cognitive effects of child bilingualism.

2.3.1 How Do We Store Language?

A central issue in current bilingualism research is the representation of languages in the mind. Successful acquisition and use of language requires the storage of many words, their associated concepts, and grammatical rules. The process by which we store, access and process language is complex, yet becomes even more so when multilingualism is considered. A speaker of more than one language must not only store information pertaining to each of their languages, but also be able to access and process linguistic information according to changing linguistic contexts.

Most of the research carried out with regard to how we store language in the multilingual mind focuses on the lexical level with far fewer studies addressing the storage and processing on the level of constructions or sentences. One of the main questions put forward by researchers is whether lexical information is stored in one big lexicon containing all the words of all the languages an individual knows, or whether they are stored in separate lexicons for the different languages (e.g., McCormack, 1977; Snodgrass, 1984). Not too long ago, it was assumed that bilinguals had two independent language recognition and production systems, one for their L1 and a second one for their L2, "the received wisdom used to be that the L1 mental lexicon was qualitatively different from, and therefore, by implication, separate from, the mental lexicons associated with any additional languages" (Singleton, 2003: 167). It was assumed that the different lexicons were located in different parts of the brain. This kind of *separate-store model*, claims there are separate lexicons for each language. Evidence for this model comes from the finding that the amount of facilitation gained by repeating a word (a technique called repetition priming) is much greater and longer-lasting within than between languages (Kirsner *et al*., 1984; Scarborough, Gerard & Cortese, 1984), and

can explain why a bilingual can read a book in one language and not be hindered by their other language(s) (Brysbaert, 1998). However, this characterisation of the bilingual as the sum of two monolingual minds is inconsistent with a wealth of research on interactivity between the bilingual's languages in language processing (Grosjean, 1989), and therefore, in contrast to *separate-store models*, *common-store models* claim that there is just one lexicon and one semantic memory, with words from both languages stored in it and connected directly together (Paivio, Clark, & Lambert, 1988). The model is supported by evidence that cross-language priming experiments have shown that words from different languages prime each other in semantic priming tasks (Altarriba, 1992; Altarriba & Mathis, 1997; Chen & Ng, 1989; Jin, 1990; Meyer & Ruddy, 1974, Schwanenflugel & Rey, 1986). Furthermore, in his 2005 presentation at the Second Language Research Forum at Colombia University in New York, Vivian Cook stated that learning a second language is not just "adding rooms" to your house by building an extension at the back: it is "rebuilding all the internal walls". This imagery captures Cook's notion of multi-competence (1991), a perspective which maintains that people who know more than one language have a distinct compound state of mind that is not the equivalent of two (or more) monolingual states. It assumes that someone who knows two or more languages is a different person from a monolingual and so needs to be looked at in their own right rather than as a deficient monolingual, an idea put forward by Grosjean (1989). Multi-competence is thus not a model nor a theory so much as an overall perspective or framework, changing the angle from which second language acquisition is viewed. This perspective will be of importance to the current investigation since by looking at the whole language learner's mind, multi-competence allows researchers to consider the possibility of reverse transfer from the L2 to the L1 (Jarvis & Pavlenko, 2007), leading to a new research question: do we still speak our L1 like a monolingual native speaker when we know another language?

An additional possibility mentioned in the literature is that some individuals use a mixture of common and separate stores (Taylor & Taylor, 1990). For example, concrete words, cognates, and culturally similar words act as though they are stored in common, whereas abstract and other words act as though they are in separate stores (Harley, 2001). Over the years, more sophisticated models have been proposed, such as the Revised Hierarchical model (RHM) (Kroll & Curley, 1988; Kroll & Stewart, 1994; Kroll & de Groot, 1997), where the underlying assumption remains that L1 and L2 word forms are stored in lexicons of different sizes (a larger L1 lexicon and a smaller L2

lexicon), but that the lexicons are linked at the level of meaning. The RHM model assumes that there are strong connections between L1 words and their concepts. The L2 lexicon is characterised as smaller and more weakly connected to conceptual information than the L1 lexicon. Importantly, the RHM assumes that conceptual information is largely shared across a bilingual's two languages (e.g., Francis, 2005). At the lexical level, there is thought to be an asymmetry in the strength of connections between the two languages. Because the L2 is thought to be dependent on L1 mediation during the very earliest stages of L2 learning, there are strong connections from L2 to L1 at the lexical level, but only relatively weak connections from L1 to L2. Over time, lexical associations from L1 to L2 may be created, but the L1 will rarely be expected to rely on the L2 for access to meaning. With increasing proficiency in the L2, the RHM assumes that the individual's ability to directly access concepts for L2 words will strengthen, eventually reaching a level of lexical-to-conceptual mappings that is equivalent to that in L1 for bilinguals who are highly proficient and relatively balanced across the two languages (Van Hell & Tanner, 2012). Although the RHM has been a source of inspiration for hundreds of studies (Brysbaert & Duijck, 2010; Kroll *et al.*, 2010), there has been mixed response to the model, with many of the model's assumptions under debate due to the findings of more recent research. For instance, studies have observed conceptual mediation effects even in beginning L2 learners (Altarriba & Mathis, 1997; Comesaña *et al.*, 2009; de Groot & Poot, 1997). Furthermore, the model does not specify the lexical activation and selection processes underlying word recognition (Dijkstra & Rekké, 2010). Brysbaert and Duyck (2010) suggest that the RHM should be abandoned in favour of connectionist models such as BIA+ (Dijkstra & Van Heuven, 2002) that more accurately account for the recent evidence on non-selective access in bilingual word recognition.

Also steering between the common and separate-store models, Grosjean (1986) argues that the language system is flexible in a bilingual speaker and that its behaviour depends on the circumstances. Grosjean's Bilingual Language Modes (1992, 1997, 1999), defined by Grosjean (2008) as the state of activation of the bilingual's languages and language processing mechanisms at a given point in time, assume that the bilingual's language system is organised in separate subsets, one for each language, and that these subsets can be activated or deactivated as a whole and independently from each other. The level of activation of each of the bilingual's languages is seen as a continuum ranging from no activation to complete activation, based on factors such as the situation,

the form and content of the message being listened to, the function of the language act or the participants involved in the speech act and the conventions between them which might or might not tolerate code-switching and -mixing. For example, a Spanish-English bilingual speaking Spanish to a Spanish monolingual is said to be in 'Spanish monolingual mode' (Spanish is the base language and English is deactivated as the mode is monolingual). Grosjean (1998: 140) makes the point that bilinguals will rarely ever find themselves in pure monolingual mode since the other language(s) will always remain active to a degree. It is important to take language mode into account for this study as it "gives a truer reflection of how bilinguals process their two languages, separately or together; it helps us understand data obtained from various populations; and it can partly account for problematic or ambiguous findings relating to such topics as language representation and processing, interference, code-switching, language mixing in bilingual children etc." (Grosjean, 1998: 175). However, as previously mentioned, vast evidence for a common-store theory (e.g., Fabbro, 1999; Hernandez *et al*., 2000), indicate that identifying activation levels associated with the different languages may not even be possible.

In summary, analysing the data in the current study for evidence of how the participants store language, whether in separate-store models or common-store models, may help us to explain speech outcomes based on the interactions that take place between their languages. How a bilingual child's words, the associated concepts, and the grammatical rules of their languages are connected and stored in the mind has led to various theories regarding whether or not bilingualism represents a cognitive disadvantage or advantage in children. We shall examine this in the following section.

2.3.2 Negative Cognitive Effects of Child Bilingualism

Early studies (e.g. Arsenian, 1937; Darcy, 1953, 1963; McNamara, 1966), focussing on the relationship between bilingualism and cognitive development appeared to focus on the "detrimental effect on children's cognitive and linguistic development" (Baker, 2011: 140), and its effects on measures of intelligence (Hakuta & Diaz, 1985), hence explaining why most of the research conducted was based on psychometric tests of intelligence or IQ (Baker, 2003: 2011). Jespersen (1922: 48), stated the following:

> "It is, or course, an advantage for a child to be familiar with two languages, but without doubt the advantage may be, and generally is, purchased too dear. First

> of all the child in question hardly learns either of the two languages as perfectly as he would have done if he had limited himself to one. It may seem on the surface, as if he talked just like a native, but he does not really command the fine points of language. Has any bilingual child ever developed into a great artist in speech, a poet or orator? Secondly, the brain effort required to master the two languages instead of one certainly diminishes the child's power of learning other things which might and ought to be learnt."

These studies upheld the belief that parents should not encourage or raise their children using two languages, as it could "lead to intellectual and cognitive disadvantages as well as linguistic confusion" (Arnarsdóttir, 2012: 3), a claim supported by a number of empirical research projects. For example, Sær (1923) carried out research based on the comparison between bilingual children and monolinguals in an intelligence test, in particular a verbal IQ test in Wales. His research consisted of 1,400 children aged from 7 to 14 years old. The first group were Welsh and English bilingual speakers and the second were English monolingual speakers (Baker, 1988). The findings showed that in verbal IQ tests, monolingual English speakers were 10 points ahead of rural bilinguals (Baker, 2011). Moreover, on the Rhythm test it showed that bilingual children were two years behind monolingual English speakers. From this investigation, Sær (1923) concluded that "bilingual children were mentally confused and at a disadvantage compared to monolinguals" (Baker, 1988: 11; 2011: 140). However, the result of Sær's (1923) research was criticised by Arnberg (1981) who argued that the majority of verbal IQ tests were carried out on the bilingual's weaker language, stressing that it is more desirable to test a bilingual in their preferred language. For example, in Sær's (1923) research it would be fairer to test Welsh-English bilinguals in the Welsh language, which is their dominant language.

Further research suggesting the negative effects of language on cognition was carried out by Skutnabb-Kangas and Toukomaa (1976), who declared that, "bilingual children fail to reach a monolingual proficiency in literacy skills in any language and might not be able to develop linguistic potential" (Hamers & Blanc, 1989: 52). They described bilingual children as suffering from "cognitive or linguistic deficit", commonly known as 'semilingualism' or 'language handicap' (Hamers & Blanc, 1989; 2000; Baker, 2011; Diaz, 1985). Semilingualism or language handicap refers to a group of individuals who are often regarded as not having sufficient competence in either

language (Baker, 1993: 9). In addition, Skutnabb-Kangas (2000: 10) described semilingualism in terms of deficiency in "displaying small vocabulary, incorrect grammar, consciously thinking of language production, unnatural and uncreative with each language and having difficulty of thinking and expressing emotions in either language".

Referring back to how we store language, researchers generally agree that the bilingual disadvantage stems from the need to keep apart two representational systems and use each one appropriately, with the possibility that the co-existence of more than one linguistic system results in some sort of processing disadvantage for bilingual speakers (and an even greater disadvantage for those who use more than two linguistic systems). For example, there are theories that claim that this disadvantage may stem from a disguised word frequency (Mägiste, 1979; Ransdell & Fischler, 1987): we can assume that bilingual speakers use their dominant language less often than monolingual speakers, and therefore it is possible that the frequency values of the corresponding lexical representations are lower for the former group of speakers. Therefore, the frequency of word use in the dominant language may affect the respective availability of lexical items in bilingual speakers. Furthermore, an explanation of the bilingual disadvantage argues that bilinguals could suffer from *cross-language interference* (see section 2.5), where words from the language not being used for production in a given communicative act become activated and compete for selection with the lexical representations of the language being used (Green, 1998; Hermans, Bongaerts, de Bot, & Schreuder, 1998; Lee & Williams, 2001).

However, the literature also highlights the impact of extra-linguistic factors. For example, Troike (1984) suggested the possibility that socio-cultural factors, such as a child's broader cultural and political background, can be responsible for the poor linguistic achievement of bilingual children. Furthermore, in contrast to the aforementioned studies, in recent years, abundant evidence has been discovered on the cognitive advantages associated with speaking two languages from an early age (Bialystok, 2001; Bialystok, Craik, & Ruocco, 2006; Bialystok & Martin, 2004; Costa, Hernández, & Sebastián-Gallés, 2008). This will be presented in the following section.

2.3.3 Positive Cognitive Effects of Child Bilingualism

The first significant study suggesting the cognitive benefits of child bilingualism was carried out in 1962 by Peal and Lambert (cited in Hakuta & Diaz, 1985). Their study indicated that bilingualism does not cause negative or detrimental effects on a child's cognitive functioning. Instead, there is a high possibility that bilingualism can lead to cognitive advantages over monolingualism (Baker, 2003; 2011). They showed that bilinguals "performed significantly higher on 15 out of 18 variables measuring IQ than monolinguals" (Baker, 2011: 44), concluding that bilingualism can provide "greater mental flexibility; the ability to think abstractly, and more independently of words and providing superior concept of formation" (Baker, 2011: 144-145). Peal and Lambert's study led to further research by Ianco-Worrall (1972); Bialystok (1997, 1999, 2001) and Ben-Zeev (1977).

Bialystok's (1999) study on cognitive complexities and attentional control supported the findings that bilingualism has a positive effect on cognitive functioning. The research, carried out on 60 children, half of which were monolingual English speakers and the remaining half bilingual speakers of English and Chinese, consisted of various vocabulary and recall tasks. She concluded that bilinguals have greater "inhibitory control", and due to their "extensive bilingual experience", they also have "conscious control of thought and action" (Posner & Rothbart, 2008: 428). Her views confirm Grosjean's (1989: 6) research findings that "bilinguals are not the sum of two complete or incomplete monolinguals but an integrated whole with a unique linguistic profile". In other studies, Kopp (1982), and Zelazo and Muller (2002) all observed bilingual children making gains in thought, emotions, and behaviours.

Furthermore, with regard to multilingualism, Rossi *et al.* (2004) report that Australian bilinguals learning a third community language not only tended to be "more effective and persistent learners of the target language than monolinguals", who were able to "benefit from their metalinguistic awareness", but whose home language maintenance was improved through learning the third language (L3), which the authors attribute to the fact that the students developed an interest in language learning per se. Therefore, there exists the possibility that the mere fact of having been exposed to a different linguistic system or systems might present an advantage for language maintenance in terms of providing insights into linguistic structures which are not available to monolinguals (Singleton, 2003).

2.3.4 Summary

This section provided a background to language and the bilingual mind: evidence for common-store and separate-store models and both the positive and negative impacts of child bilingualism on cognitive development. Despite Cook's multi-competence perspective (1991) suggesting that a bilingual speaker must be viewed differently to a monolingual speaker, in order to ascertain the effects of bilingual language processing on the language development of both groups, this study will compare the data from both the private school and the state school participants with monolingual data.

2.4 Child Language Acquisition

Any discussion on bilingual acquisition requires some consideration of general acquisition features that may pertain to all types of acquisition, monolingual or multilingual. Leaver *et al.* (2005) acknowledged that the language learning experience will differ depending on whether it is the first (L1), second (L2) or third language (L3), but it is not always clear which elements of the acquisition process are innate or extrinsic. For several decades, the literature on language acquisition has sought to understand whether strategies are transferred between L1 and L2 learning, and the effect of external factors on a person's ability to succeed as a language learner. Since the state school participants in this study are developing their L1 in L2 classes, this section identifies and addresses the most important differences between acquiring an L1 and learning an L2, and discusses how teaching methods and learning strategies differ. It also explores the negative effects of learning an L2 (and L3) on the L1, when the L1 is not fully supported in the L2 environment, and proposes how these effects can be minimised with the correct educational approaches to bilingual education.

2.4.1 Acquiring an L1 vs. Learning an L2

Before identifying the differences between first language acquisition and second language acquisition, it is important to establish the difference between *learning* and *acquiring* a language. Krashen (1982) put forward that the process of learning an L2 is distinguished from acquiring an L1, with the latter being a subconscious process of gradual development of ability through use in natural communicative situations with other speakers. The focus is not the form of the speaker's utterances, but meaningful interaction through the act of communication itself, meaning that language users are largely unaware of the rate or sequence of their development. Lightbrown and Spada

(2001) observe that acquisition occurs during the formative years of one's life - usually commencing in early childhood before age three - and that it is learned as part of growing up among people who speak it fluently.

In contrast, learning is differentiated as a more conscious and explicitly sequenced process of 'accumulating knowledge of linguistic features such as vocabulary, sentence structure and grammar, typically in an institutional setting' (Yule, 1985: 163). The difference between these ways of developing language competence is manifest most clearly in their outcomes: through acquisition the contextual understanding of the language is gained, and through learning, knowledge 'about' the language: 'knowing the rules, being aware of them, and being able to talk about them' (Krashen, 1982:10; Schmidt, 1983).

Once a normally developing monolingual child has naturally acquired basic knowledge in the L1 from their surrounding environment, their L1 knowledge is "later reinforced at school through literacy" (Montrul, 2008: 99). The establishment of L1 literacy skills through reading and writing have been considered an important role in preventing language attrition (Hansen, 2001), change in language dominance (Davies, 1986) and language death (Ammerlaan *et al*., 2001), due to the impact that learning a written code has for the status of the language (Davies, 1986: 124; Pan & Gleason, 1986: 197), and also because of its role in "fixing" the corresponding language in the mind (Köpke & Schmid, 2004). As presented in Table 1 in the introduction chapter of this study, the private school children are exposed to English literacy skills in their native language classes, however, the state school children are not, attending low level classes designed for those learning English as a foreign language, focusing on the patterns and rules of language, and therefore not developing the L1 skills they require to lead to "good competence of the L2 without detrimental competence in L1" (Cummins, 1976). The following section will discuss the effects of learning an L2 before sufficient competence in the L1 has been reached.

2.4.2 The Effects of Early Second Language Acquisition on the First Language

The previously discussed Critical Period Hypothesis suggests a correlation between early language learning and better language skills, coinciding with the belief of many that 'younger is better' with regard to school programmes for second language teaching. However, Lightbrown & Spada (2013: 97) state that "early intensive exposure to the second language may entail the loss or incomplete development of the child's first

language". A number of studies have cautioned against exposing young children to an L2 before their L1 is fully developed. In her study of early L1 loss and subtractive bilingualism, Wong Fillmore (1991), warns that the timing of L2 exposure is critical since it directly affects continued L1 development. Similarly, Schiff-Meyers (1992: 28-33), explains that L1 proficiency deteriorates if L2 is introduced before competence in the L1 is fully developed. Furthermore, Li Wei and Zhu Hua (2005) note that premature L2 introduction leads to the competition of two languages and eventually the underdeveloped L1 may be lost from the linguistic repertoire of the children. Hickey and Ó Cainín (2001: 138) also caution against early L2 immersion, believing that, for young children, L2 learning should be an additive, not a replacement process.

Skutnabb-Tangas and Toukomaa (1976) developed the Threshold Level Hypothesis, which proposes that only when children have reached a threshold of competence in their L1 can they successfully learn an L2 without losing competence in both languages. If L1 competence is well developed, it will probably lead to good competence of L2 without detrimental competence in L1. Skutnabb-Tangas and Toukomaa developed their Threshold Level Hypothesis after they found that Finnish children who immigrated to Sweden and were required to start school in Swedish before they had become sufficiently competent in Finnish showed weaker school performance and lower competence in both Swedish and Finnish. In contrast, those children who had started school after becoming highly competent in their L1, and could continue to develop their L1 skills as they learned their L2, attained high levels of competence in both languages.

Based on the findings of Skutnabb-Tangas and Toukomaa, Cummins (1984) created an 'Interdependence Hypothesis', maintaining that competence depends on the level of development of the L1. Cummins distinguished between two kinds of language mastery: 'interpersonal communication', which refers to oral communication used in everyday situations, and 'cognitive academic language proficiency' (CALP), achieved when a speaker can use language in decontextualized ways, including writing, permitting the use of the language as a cognitive tool. Cummins argues that when learners have achieved CALP in L1, this competence can be transferred to L2. If not, second language learning is adversely affected. Cummins recommends beginning academic instruction in the child's mother tongue until the child has become highly competent (they have achieved CALP) in L1. Cummins' theory seems to suggest that a well selected bilingual language programme can support a child's competence in both

languages, therefore the following section will look at educational approaches to bilingual education.

2.4.3 Educational Approaches to Bilingual Education

One rationale for applying language acquisition findings to instruction and curriculum standards is based on evidence pointing to the notion that language acquisition theory in bilingual education can account for weaknesses and strengths among instructional approaches (August, D. & Hakuta, 1997; Baker, 2006; Crawford, 2004; Long 1990). This review has already considered 'when' and 'at what age' children learn a second language; however another important variable is the type of education available to them. Debates on bi/multilingual education largely centre on the degree to which a child's L1 should be incorporated into the instruction of the curriculum, with different institutions opting for a variety of approaches to bilingual education. The most common programme models can be viewed in the below table from the UNESCO article Enhancing Learning of Children from Diverse Language Backgrounds: Mother tongue-based bilingual or multilingual education in the early years (Ball, 2011):

Table 2: Instructional approaches to bilingual language education

Bilingual Language Approach	Explanation
Mother tongue-based instruction	The learning programme is delivered entirely in the L1.
Bilingual education (a.k.a. 'two-way bilingual education')	Use of two languages as media of instruction.
Mother tongue-based bilingual education (a.k.a. 'developmental bilingualism')	L1 is used as the primary medium of instruction for the whole of primary school while L2 is introduced as a subject of study in itself to prepare students for eventual transition to some academic subjects in L2.
Multilingual education	Formal use of more than two languages in the curriculum.
Transitional bi/multilingual education	The objective is a planned transition from one language of instruction to another.
Maintenance bi/multilingual education	After L2 has been introduced, both languages are medium of instruction. L1 instruction continues, often as a subject of study, to ensure ongoing support for children to become academically proficient in L1. Also referred to as 'additive bilingual education'.
Immersion or foreign language instruction	The entire education programme is provided in a language that is new to the child.
Submersion (a.k.a. Sink or Swim)	Speakers of non-dominant languages have no choice but to receive education in language they do not understand (i.e., dominant language learning at the expense of the L1). This approach promotes subtractive bilingualism.

Table 2 demonstrates the diversity of language programmes, ranging from those delivered entirely in the children's L1, to children being completely submerged in a language they do not understand. The two groups of participants within this study represent different approaches to bilingual language education. The children attending private schools receive 'maintenance bi/multilingual education' or 'additive bilingual education'. Although the majority of classes are taught in Catalan, the students receive native English language classes teaching literacy, and which are instructed in the mother tongue. In contrast, the provision for children attending state schools is the 'submersion' approach, or 'subtractive bilingual education', where the only English education they receive is within *English as a Foreign Language* classes, which are instructed in Catalan.

According to the literature, a lack of academic success of immigrant children stems in part from having to adjust to schooling in an unfamiliar language. As Lightbrown and Spada (2013: 32) confirm, "if second language learners have limited knowledge of the school language and do not have opportunities to continue learning academic content in the language they already know, it is not surprising that they fall behind in learning the academic subject matter that their peers have continued to develop". Echevarria *et al.* (2006) found that many students whose L1 is not the language of instruction have little academic success. Research demonstrates that the use of the L1 while the L2 is being learned leads to better academic outcomes in L1 (Palmer, Chackelford, Miller & Leclere, 2007), easier literacy learning (International Reading Association, 2001), and better outcomes in second language education (Lindholm-Leary & Borsato, 2006). An L1 which is unsupported can lead to various development problems in the language, encouraging cross-linguistic influence from the L2, and the eventual process of first language attrition.

2.5 Language Attrition and Cross-Linguistic Influence

The field of cross-linguistic influence (CLI) has established itself as a central area of research in second language acquisition, attracting significant attention from scholars (Alonso, 2016; Gass & Selinker, 1983; Jarvis & Pavlenko, 2008; Kellerman, 1983; Kellerman & Sharwood Smith, 1986; Oldin, 1989). The evidence obtained from studies on CLI, or "the influence of a person's knowledge of one language on that person's knowledge or use of another language" (Jarvis & Pavlenko, 2008: 1), demonstrates that the field is a multifaceted phenomenon whose exploration can be beneficial in the fields of second language acquisition and teaching.

More than fifty years have passed since the publication of Weinreich's Languages in Contact (1953), a work that looked at CLI far more closely than any investigation had before. Languages in Contact (1953) emphasized patterns of transfer, or to use Weinreich's term, "interference", however it was criticised in the literature for simply focusing on the negative effects of language contact. Odlin's (1989) use of the term "transfer" focuses on the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (1989: 27). The definition deliberately includes 'any other language' because there are many cases of people learning not only L2, but also a third language (L3). For example, in China many native speakers of Uighur (a Turkic

language) have Mandarin Chinese (a Sino-Tibetan language) as their L2 when they begin to study English as their L3, and so similarities and differences between Uighur and English might affect such learners' acquisition of the L3. Odlin's (1989) theory of transfer focuses on both positive and negative transfer. Positive transfer occurs when those similarities in the mother tongue and the target language can facilitate the learning. Negative transfer, on the other hand, refers to the negative influence that the knowledge of the first language has in the learning of the target language due to the differences existing between both languages concerned. However, Odlin's use of the term *transfer* was also criticised for not accounting for the variety of language contact phenomena which can take place during the acquisition of a new target language. Kellerman and Sharwood Smith (1986) proposed the term "cross-linguistic influence", a term which has since gained increasing acceptance in the field of second language acquisition, although not without some scholars claiming its unsuitability. Jarvis and Pavlenko (2008: 3-4) claim that influence from one language to the other could be seen as a result of a person's "integrated multi-competence" (Cook, 2002; see section 2.3.1), rather than as contact between two separate language competences. Due to the conflicting opinions in defining this phenomenon, Selinker (1992: 207) cautioned that each time the term "transfer" is used, the researcher must clearly define what is meant by this. Therefore, throughout the current investigation, instances of "transfer" and "cross-linguistic influence", terms which will be used interchangeably, will be clearly explained.

Despite conflicting opinions in terms of defining the phenomenon, what is certain is that all L2 learners and users[2] have previously acquired an L1 (Cook, 2002), and perhaps other languages, and that consequently, this prior language knowledge can be a potential source of influence during the acquisition of a new target language (Odlin, 1989; Ringbom, 1987). How this influence is manifested varies across the literature. For example, Cook, Iarossi, Stellakis and Tokumaru (2003), and Dijkstra (2003) investigated CLI in processing relating to lexis and syntax. Ringbom (1992) and Upton and Lee-Thompson (2001) looked into listening and reading comprehension. Brown and Gullberg (2008), Gullberg (2011), Kellerman and Van Hoof (2003), and Stam (2010) researched CLI in non-verbal speech, and Pavlenko (2005) found examples of CLI in conceptual representation. Therefore, Jarvis and Pavlenko (2008, in Moattarian, 2013:

[2] Cook (2002: 1-3) distinguishes between the L2 learner and the L2 user: "L2 user is any person who uses another language than his or her first language, but (…) L2 users are not necessarily the same as L2 learners". He states that L2 learners are still in the process of learning.

42) created a comprehensive taxonomy of different kinds of cross-linguistic influence (table 3).

Table 3: Jarvis and Pavlenko's (2008) taxonomy of different kinds of cross-linguistic influence

Kind of transfer		Definition
Linguistic transfer		
1	Phonological transfer	The influence of sound system of one language on production or comprehension of sounds in another language
2	Orthographic transfer	The influence of the knowledge of the writing system of one language on writing production of another language
3	Lexical transfer	The influence of word knowledge of one language in production or comprehension of words in another language
4	Semantic transfer	The influence of semantic range of words in one language in production or comprehension of another language
5	Morphological transfer	The influence of word structure of one language on the production or comprehension of word structure in another language
6	Syntactic transfer	Not only word order transfer but also the influence of a whole gamut of one language structure on the production or comprehension of another language
7	Discursive transfer	The influence of the ways thoughts are organized, introduced, or contextualized in one language on the production or comprehension of thought in another language
8	Pragmatic transfer	The influence of the ways speech acts are presented in one language on the ways they are produced or comprehended in another language
9	Sociolinguistic transfer	The influence of the ways social variables and norms presented in one language on the ways they are produced or comprehended in another language
Conceptual transfer		
10	Conceptual transfer	The influence of the ways presenting an item or concept in one language on the ways they are produced or comprehended in another language

An important consideration for the current investigation is that there is new theoretical direction in CLI research on the expansion of the effects of language influence. The types of cross-linguistic influence mentioned in table 3 not only apply to transfer from the L1 to the L2, but also from the L2 to the L1 (Bylund & Jarvis, 2011; Cook, 2003; Pavlenko & Jarvis, 2002). Pavlenko and Jarvis (2002) named this phenomenon "bidirectional transfer"; that is, transfer that works both ways. For example, Porte (2003: 112) investigated the English of several native speakers of English who were teaching English as a foreign language (EFL) in Spain and found many examples of L2-L1

negative transfer, mostly in the category of lexical transfer. Furthermore, with regard to morphological transfer, Pavlenko (2003) found that Russian speakers in the USA sometimes used the perfective/imperfective system of verbs in Russian in ways quite different from monolingual speakers in Russian and in ways quite like those found in the L2 Russian of L1 English speakers. In an attempt to classify the specific effects of cross-linguistic transfer from an L2 to an L1, Pavlenko (2000), provides the following categorisation:

i. *Borrowing*: Commonly observed within the category of lexical transfer, borrowing refers to the use of an item from the L2 in the L1, often in such a way that it is integrated phonologically and/or morphologically (e.g., lexical borrowing). This is a phenomenon that is frequent in the language of immigrants: an example found in Ortigosa's (2009) study on lexical borrowing in the Spanish spoken in New York City is *estoy cogiendo un break,* 'I'm taking a break'. The speaker borrows the English term *break,* instead of using the Spanish term *vacaciones*.
ii. *Restructuring*, or deletion, or incorporation of L2 elements into L1 causing "changes, substitutions, or simplifications (e.g., syntactic restructuring or semantic extensions)" (Pavlenko, 2004: 47). For example, the meaning of an existing L1 word is extended to include the meaning of its L2 translation equivalent. Pavlenko (2004: 51) gives the examples of the Spanish verb *correr* 'to run', which is used by Cuban immigrants in the USA in phrases such as 'running for office'.
iii. *Convergence*: the merging of L1 and L2 concepts, creating one single form that is different from both the L1 and the L2 one. Pavlenko (2004: 52) gives the example of colour categories, where it has been shown that bilinguals can have norms that differ significantly from the monolingual ones in both languages.
iv. *Shift*: unlike the above processes, shift is not limited to individual lexical items but concerns entire lexical fields, as Pavlenko (2002, 2004) has demonstrated with respect to emotion terms. For example, Pavlenko (2003) and Pavlenko and Jarvis (2002) found instances of L2 influence on L1 in reference to the linguistic framing of emotions by Russian L2 users of English.
v. *Attrition*: e.g., the loss of L1 elements evidenced in the "inability to produce, perceive, or recognise particular rules, lexical items, concepts, or categorical

> distinctions due to L2 influence" (Pavlenko, 2004: 47). Although the above concepts can often be considered evidence of attrition, Pavlenko (2004: 54) argues that they do not necessarily signify permanent loss. In contrast, first language attrition involves "a more or less permanent restructuring, convergence, or loss of previously available phonological or morphosyntactic rules, lexical items, concepts, classification schemas, categorical distinctions, and conversational and narrative conventions".

Jarvis and Pavlenko (2008: 18) relate the development in the effects of CLI from the L2 to the L1 to an increased interest in language attrition studies (Köpke & Schmid, 2004; Schmid, 2007). Language attrition, or language loss, is a relatively young field of linguistic research that has gained momentum over the past decade, and was formally established in the early 1980s with a conference at the University of Pennsylvania (Lambert & Freed, 1982). Some of the various strands of modern attrition research, such as language loss in children and adults; L1 and L2 loss; loss as a pathological condition (in aphasia or dementia) and in healthy individuals; linguistic, sociolinguistic, psycholinguistic and neurolinguistic perspectives, were brought together for the first time.

Today, there are two major branches of attrition research: the first is the concern of the current research, *first language attrition*, which focuses on the individual loss of the mother tongue, usually in immigrants, and the second is *second language attrition*, which focuses on the loss of the second language. Most of language attrition research to date has been descriptive data-based studies rather than theoretical-exploratory works, but there have been attempts to apply theoretical frameworks from linguistics and neighbouring fields to attrition data (Hansen, 2001: 60). Some frameworks tested on attrition data are the regression hypothesis (Jordens, *et al.*, 1989; Keijzer, 2010; Olshtain & Barzilay, 1991), learnability theory (Sharwood Smith, 1983; Sharwood Smith & van Buren, 1991), the matrix-language frame model (Bolonyai, 1999; Schmitt, 2000), social network theory (Hulsen, de Bot *et al*., 2001), sociocultural theory (Jiménez, 2004) and ethnolinguistic vitality theory (Hulsen, 2000; Yağmur, De Bot *et al*., 1999). However, despite almost 30 years of research, many questions concerning attrition have remained unanswered or have yielded conflicting evidence. To these belong, amongst others, the issues of how real a phenomenon first language attrition is, and whether the changes observed constitute temporary difficulties in language processing or changed linguistic

knowledge. The following section discusses some important studies in first language attrition theory.

2.5.1 First Language Attrition: The Findings

As previously stated, attrition has been studied from a variety of perspectives, although much or the evidence is contradictory. For example, research into the L1 attrition of adults, has so far provided a rather ambiguous picture. Research reported in the literature ranges from finding 'surprisingly little loss' (de Bot & Clyne, 1989: 87) despite self-perceptions of significant first language decline (de Bot, Gommans *et al*., 1991; de Bot & Clyne, 1994; Jaspaert & Kroon, 1989; Jordens, de Bot *et al.,* 1989; Schoenmakers-Klein Gunnewiek, 1998) to reports of definite signs of attrition on some or even all linguistic levels (Altenberg, 1991; Ammerlaan, 1996; Hiller-Foti, 1985; Köpke & Nespoulous, 2001; Leyen, 1984; Major, 1992; Olshtain & Barzilay, 1991; Pavlenko, 2003; Schmid, 2001; Waas, 1996). Therefore, "after two decades of first language attrition study researchers still disagree whether a first language in which a certain level of proficiency has been reached can ever undergo significant attrition, let alone how or why it might" (Köpke & Schmid, 2004: 1). Opinions range from viewing L1 attrition as "a ubiquitous phenomenon found wherever there is bilingualism" (Seliger, 1991: 227) and as "an all-pervasive problem not restricted to a very limited number of sociocultural scenarios' (Sharwood Smith, 1983: 229), to the expectation of stable, unchangeable L1 proficiency: "In cases other than language pathology, we do not expect an established L1 to deteriorate or diverge from the grammar that has been fully acquired" (Seliger, 1996: 616). A number of explanations can be offered with regard to the varying results obtained. First, differences in methodology may have caused this confusing picture (Köpke & Schmid, 2004). For example, some of the studies used tests specifically designed to tap linguistic knowledge, taking care to eliminate factors that would impact on processing load (e.g. Jaspaert & Kroon, 1989). Further, given that L1 attrition appears to be a rather slow, inconspicuous process, some studies may have failed to uncover evidence for its existence if the instruments used were not sufficiently focused. Moreover, a lot of work has been done on typologically close languages, which may have some part to play in either minimizing or disguising language loss (Köpke & Nespoulous, 2001).

Another important consideration is that within adult second language attrition research, high proficiency together with the age factor has been established as a good

predictor for language retention (de Bot & Hulsen, 2002: 259; Herdina & Jessner, 2002: 97; van Els, 1986: 9). However, the implication for first language attrition is that it should not occur under 'normal' circumstances since most people attain 'full' competence in their L1. However, evidence is mounting that:

> "neither first languages nor second languages are immune to loss. With non-use they fade, and though they keep their place in our memory system, they become less accessible up to the point where the knowledge has sunk beyond reach and is for practical purposes lost" (de Bot & Hulsen, 2002: 253)

This then would mean that the issue of L1 attrition is not so much a categorical question (does it actually happen?) as one of degree (how much does it happen?). One can also consider the fact that first language attrition is much more likely to affect children over adults, given that when adults start the L2 acquisition process their L1 is fully established and well-practised, whereas a child's L1 knowledge is likely to be less advanced and less stable.

Considering the degree to which L1 attrition occurs instead of whether it occurs means that attention must be paid to factors that may influence the process. One definition of the term first language attrition refers to changes in a native language that has either fallen into disuse or is used alongside an environmental one. In accordance with this definition, first language attrition is a process driven by two factors: (1) the presence, development and regular use of a second linguistic system, leading to cross-linguistic interference (CLI), competition and other effects associated with bilingualism, and (b) a decreased use of the attriting language, potentially leading to access problems (Schmid & Köpke, 2007). Therefore, L1 attrition does not usually happen in isolation, but in the context of another language being acquired: "L1 is generally replaced by another language, and this language is often assumed to influence the process of L1 attrition" (Köpke & Schmid, 2004: 17). This definition of first language attrition is particularly relevant for speakers who have immigrated to another country and henceforth lived in an L2 dominant environment (Schmid & Köpke, 2007), and is therefore extremely relevant to this study. However, an important consideration is that language attrition describes the deterioration of a language, or part of a language, that was once fully acquired by the speaker. Referring back to the relationship between age and language acquisition, it is unclear in the literature exactly when in childhood an L1

is considered to be fully acquired. It is therefore possible that a child may not be able to use, e.g., a particular aspect of grammar, because they did not reach "full development" in that aspect, and it remains "incompletely acquired" (Montrul, 2009: 241) upon arriving in a new linguistic environment.

2.5.2 First Language Attrition vs. Incomplete First Language Acquisition

Montrul (2008: 21) states that L1 attrition and incomplete L1 acquisition both account for "language loss across generations", however, that incomplete L1 acquisition refers to the "outcome of language acquisition that is not complete", whereby in children, some specific properties of the language have not had a chance to reach "age-appropriate levels of proficiency after intense exposure to the L2 begins". For example, Anderson (1999) in a longitudinal study followed two Puerto Rican siblings for two years soon after their immigration to the United States. The siblings were followed longitudinally beginning two years after their immigration, at ages 4 and 6, respectively, and the recordings ended when the sisters were 6 and 8 years old. The study focused on control of gender agreement in noun phrases, which typically developing monolingual Spanish-speaking children master by age 3 (see details in Montrul, 2004). The younger sibling did not show mastery of gender agreement with nouns at age 4 and the error rates increased dramatically two years later at age 6 after intense contact with English through day-care. Similarly, Silva-Corvalán (2003) longitudinally investigated the linguistic development of seven Spanish–English bilingual children. Two of the children did not produce present subjunctive forms at ages 5;5 and 5;6, when more fluent bilingual children already do. Because many minority language speakers may not be exposed to a sufficient amount of language exemplifying the grammatical property in question, a linguistic property that emerges and is mastered during monolingual early language development can remain only partially mastered in these bilingual children, never fully reaching a nativelike level, as was the case for gender agreement in nouns with Anderson (1999).

In contrast, L1 attrition occurs when a property of the L1 previously acquired by a speaker, is no longer available to them, or "the loss of a given property of the language after that property was mastered with native-speaker level of accuracy" (Montrul, (2008: 21). Attrition is much easier to document and measure in adulthood than in childhood, although the effects of attrition in adulthood seem to be minor as compared to the effects in childhood (Köpke 2007; Montrul 2008). For example, unlike the younger sibling in

Anderson's case study, the older sibling was producing gender agreement in nouns with 100 percent accuracy at age six but two years later, she exhibited a 5.8 percent error rate. Nico and Bren, two of the children followed longitudinally by Silva-Corvalán (2003) from age two, exhibited a much more reduced tense–aspect and mood system at age five than at age three.

As language development is an incremental process where newly acquired knowledge can (temporarily) be forgotten, it is hard to attribute a young L1 speaker's degree of proficiency to either incomplete acquisition or to attrition. A particular item in an L1 speaker's vocabulary knowledge can only be said to be the result of attrition if there is evidence that this speaker did have this knowledge at an earlier point in time. As Montrul (2008) argues, the best way to tease apart incomplete acquisition and attrition is by carrying out longitudinal case studies. Furthermore, it is also possible for incomplete acquisition and attrition to coexist in two different grammatical domains (e.g. gender agreement vs. subjunctive), or for incompletely acquired aspects of grammar to undergo further attrition. For example, if a child shows mastery of verbal morphology with 70 percent accuracy at time A and two years later, at time B, mastery drops to 40 percent. How can we tell if such decline is due to attrition, for example? The only way to tease apart incomplete acquisition and attrition and their potential coexistence is with longitudinal studies of children focusing on both early and late acquired structures in the two languages, as Merino (1983) did. Merino investigated production and comprehension abilities of Spanish and English in immigrant children attending an English-only school in San Francisco, focusing on early acquired structures (tense, agreement, gender) and late acquired structures (relative clauses, subjunctive, conditional) in both Spanish and English (where relevant). The cross-sectional part of the study tested children from kindergarten (age 5) to fifth grade (age 10), while the longitudinal part tested the kindergarten children two years later. Results showed progressive gains in English production and comprehension by age and grade level and progressive loss in Spanish abilities. The cross-sectional results revealed that the fifth graders had less knowledge of Spanish than the children in kindergarten. The longitudinal results further showed that the later acquired structures (relative clauses, subjunctive, conditionals) suffered more severe decline than the early acquired structures (tense, agreement, gender), which was taken as evidence of attrition. There are many possibilities for why late acquired structures were more affected than the early

acquired structure, including input frequency, complexity of the structures and linguistic vulnerability of the structures. Clearly, more studies of this type are needed.

Cabo and Rothman (2012) challenged the use of the term "incomplete acquisition", arguing that L1 speakers' state of competence should not be described as "incomplete", since it ignores the role of input as a central component of language acquisition. They argued that L1 speakers' competence is not incomplete but different from monolinguals' due to environmental reasons, emphasizing that the input they are provided with is different from monolinguals'. Montrul (2016: 125) agreed that referring to L1 speakers' knowledge as incomplete is problematic since it cannot be claimed that languages can be acquired completely. In the current research project, for simplicity's sake, I use "incomplete acquisition" to refer to the knowledge L1 speakers have not acquired regardless of whether this is due to insufficient input or a lack of opportunities for its acquisition at the time of changing their language environment. On the other hand, "attrition" will refer to properties of the L1 that were acquired before the speaker immigrated, but which they can no longer produce or understand.

Having established that the participants in this study may be susceptible to both first language attrition and incomplete first language acquisition, the following section will consider some of the cognitive, linguistic and environmental factors that may affect these processes.

2.5.3 Language Typology

In addition to the contact between the two languages, typological proximity of the languages can also play a role in determining the extent of the attrition occurring. The following section will examine the role of language typology in first language attrition, since the typological similarities between languages have been found to play a fundamental role in the occurrence of cross-linguistic influence demonstrated in bilingual populations (Kellerman, 1983; Ringbom, 1987). This section will discuss some of the typological differences between English, and Catalan and Spanish.

Simply defined, the study of typology deals with ways in which languages differ from each other. The concept of 'distance' between languages has long been established in linguistics (Lado, 1957; Weinreich, 1953), and the typological profile of a language has been defined as "a cross-linguistically valid characterisation of its structure, highlighting in particular what is universal and what is language specific" (Viberg, 1998: 199). Language typology is often considered a predictor of the ease in which a learner

will master a new language, with many studies showing that languages which are typologically closer to those a speaker already knows, will be learnt with greater ease: "We assume that the student who comes in contact with a foreign language will find some features of it quite easy and others extremely difficult. Those elements that are similar to his native language will be simple, and those elements that are different will be difficult" (Lado, 1957: 2). For example, Vila *et al.* (2009) showed that students whose L1 was a Romance language found it easier to learn Catalan and Spanish, compared with their peers of other linguistic origins (particularly Asian and specifically those whose L1 was Mandarin Chinese).

However, an intriguing question regarding attrition phenomena is how attrition is affected by the typological distance between the languages, or whether the typological characteristics of a language can change under influence from the L2. There are numerous typological differences between English, on the one hand, and Catalan and Spanish, on the other. This section addresses two of these differences: *motion event lexicalisation* and *pronoun-dropping* and discusses how they may be affected by cross-linguistic influence**.** Motion event lexicalisation was chosen for discussion because languages such as English and Spanish have received a lot of attention in this context due to the fact that, according to Talmy's typology of languages (Talmy, 1985, 1991, 2000), English and Catalan / Spanish represent opposite language types because of how their speakers lexicalise motion. Pronoun-dropping was chosen for discussion because languages such as Catalan and Spanish are examples of *pro-drop* languages, which allow subject pronouns to be omitted. On the other hand, languages such as English always require lexical subjects; thus, they have [-pro-drop] value.

2.5.3.1 Motion Events: Satellite vs. Verb Framed Languages

Talmy (1985: 60) defines a motion event as "…a situation containing movement or the maintenance of a stationary location alike…". According to Talmy, there are six semantic[3] components which play a role in the conceptual structure of a motion event, the first four constituting the central elements while the last two are associated components: (a) Motion: the presence per se of motion; (b) Figure: the moving entity; (c) Ground: the object with respect to which the Figure moves, which can potentially include the source, the medium, and the goal of movement; (d) Path: the course followed

[3] Talmy equates the semantic and cognitive level. For the need to distinguish the semantic and the cognitive level see: Vigliocco, G. and Filipović Kleiner, L (2003).

by the Figure with respect to the ground; (e) Manner: the manner in which the motion takes place; and (f) Cause: the cause of its occurrence. Talmy (1985: 61) offers the following two explanations to illustrate the components:

- *The pencil* *rolled* *off* *the table*
  Figure *Motion* *Path* *Ground*
  Manner

- *The pencil* *blew* *off* *the table*
  Figure *Motion* *Path* *Ground*
  Manner
  Cause

In both sentences the pencil is the Figure and the table is the Ground, which in this example expresses source of movement, while the particle *off* expresses the Path. In addition, the verbs *rolled* and *blew* express Motion while in addition the verb *rolled* expresses Manner of motion while *blew* expresses Cause of motion.

However, the work of Talmy's (1985, 1991, 2000) lexicalisation of motion events shows there are crucial cross-linguistic differences in the ways in which different languages express motion events. Talmy (1991) proposed a distinction between two major patterns; verb-framed languages (V-languages) and satellite-frames languages (S-languages). In V-languages, for example Romance languages, the main verb conflates Motion + Path, and Manner is expressed, if at all, separately by means of an adverbial or a gerundive type of constituent. Typical examples of V-languages are Spanish and Catalan, where verbs like *entrar* 'go in' in Spanish (example 1), and *entrar* 'go in' in Catalan (example 2), only contain the Path, and the Manner 'running' is codified in a gerund, e.g., *corriendo* and *corrent*:

(1) *El niño* *entró* *en la casa (corriendo)*
The boy enter.PST.3SG in the house (run.GER)
'The boy entered the house (running)'

(2) *Va* *entrar* *a la casa (corrent)*
go.PST.3SG enter.INF the house (run.GER)

‘He entered the house (running)’

In contrast, with regard to S-languages, for example Germanic languages, the verb usually expresses the Motion + Manner, while information about the Path follows the verb in what Talmy calls a “satellite”, i.e., verb particles (e.g., *down, out, up*, etc.). The following are examples in English:

(3) *The owl **popped out** of the tree*

(4) *The dog **leaped out** of the window*

Based on Talmy’s typology (1985, 1991, 2000), English, on the one hand, and Spanish and Catalan, on the other, represent two different typological patterns. Whereas English is classed as an S-language, both Catalan and Spanish are V-languages, since their characteristic expression of motion fits in with general verb-framed patterns. The systematic differences found in children learning typologically different languages has been well documented in the literature. The following section will explain some of the studies relevant to this research.

2.5.3.2 Motion Events and First Language Acquisition

A major claim by Berman and Slobin (1994) is that children, from an early age, are sensitive to the typological characteristics of their native language. Slobin (1991; Slobin, 1996; Berman & Slobin, 1994) has proposed that each language’s grammatical constructions not only provide native speakers of a language with a concept for the expression of events and thoughts, but also restrict how events and thought are expressed. According to Slobin (1996), the results of the cross-linguistic research in L1 acquisition conducted by Slobin and his colleagues (collected in Berman & Slobin, 1994) support the hypothesis that when acquiring his/her first language, a child learns specific ways of “thinking for speaking”, that is, the lexicalisation patterns of a language seem to influence the speakers’ thinking during speaking, although it is important to clarify that speakers of Spanish, for example, perceive Manner in the same way as English speakers, however, because their language does not tend to codify this information they express it less (Slobin, 1996). Slobin’s Thinking for Speaking hypothesis has received empirical support in various cross-linguistic studies (Özyürek & Özçalışkan, 2000; Özçalışkan & Slobin, 1999; Slobin, 1991, 1994; Strömqvist & Verhoeven, 2004; Wilkins, 1997).

In their investigation of child language acquisition, Berman & Slobin (1994) and Slobin (e.g., 1996, 1997, 2000) examined whether and to what extent the different typological patterns found in different languages have an impact on their native speakers' expression of motion events. Berman and Slobin (1994), which included native speakers of both S-languages (English and German) and V-languages (Spanish, Hebrew and Turkish) from three age groups, used oral narratives elicited by means of a wordless picture book, Frog, where are you?, i.e., the so-called "frog story" (Mayer, 1969), to show that the two typological patterns had a clear impact on the rhetorical style followed by the native speakers – both children and adults – in narrating motion events. Using Talmy's typology (1985, 1991, 2000), Berman and Slobin's study (1994) showed the following consistent typological differences in the way motion events were narrated by speakers of S-languages and speakers of V-languages:

i. Speakers of S-languages used a greater variety of motion verbs in contrast to speakers of V-languages;
ii. Speakers of S-languages provided more manner information than speakers of V-languages;
iii. Speakers of S-languages were more likely to specify the details of trajectories, whereas speakers of V-languages described aspects of the static scene in which the movement took place, leaving trajectories to be inferred;
iv. Speakers of S-languages showed more elaboration in their description of path of motion as compared to speakers of V-languages;
v. S-language speakers exhibited a more frequent use of event conflation (when different composites of locative trajectories, i.e., path, ground-source, medium, and goal, are incorporated within a single clause).

The above observations are supported by numerous studies relating to the expression of motion events in English and Spanish (e.g., Aske, 1989; Cadierno, 2004; Filipović, 2007, 2008; Ibarrexte-Antuñano, 2003; Larrañaga *et al.,* 2011; Mora-Gutiérrez, 2001; Naigles & Terrazas, 1998; Negueruela *et al*., 2004; Slobin, 1996; Stam, 2006). Although less investigation in this area of linguistics has been carried out using the lesser-studied Catalan language, Ibarretxe-Antuñano, Hijazo-Gascón, and Moret-Oliver (2017), followed Talmy's and Slobin's framework for the study of motion events, and

demonstrated that Catalan can be classified as a V- language, with their participants consistently following the basic and characteristic verb-framed patterns.

These different studies focusing on English, Spanish and Catalan, and using different methodologies, provide evidence of the difference in motion event patterns encoded in these three languages.

2.5.3.3 Pro-Drop Languages vs. Non-Pro-Drop Languages

As previously mentioned, another way in which English differs typologically to both Catalan and Spanish is the use of pronouns. A productive area of syntactic research in generative grammar and second language acquisition research for 20 years has been the pro-drop (pronoun-dropping) parameter (Liceras, 1988; Phinney, 1987; White, 1985, 1989, among others). Pro-drop parameter (also known as null subject parameter) is specific to certain languages which allow subject pronouns to be omitted. These languages exhibit the [+pro-drop] value of the parameter (White, 1989). Languages like Catalan and Spanish are among the pro-drop languages. On the other hand, other languages such as English and French always require lexical subjects; thus, they have [-pro-drop] value. That is to say, subject position in English cannot be empty, whereas it may in Catalan and Spanish. For example, in Spanish *él ama* (he loves), is possible, as well as *ama (he loves).* In other words, Spanish and Catalan can have null subjects.

There are differing views in the literature about whether learners of pro-drop languages reset pro-drop parameter or learners of non-pro drop languages have access to this parameter especially in the initial stages. Various research has been conducted on speakers of pro-drop languages like Spanish (Isabelli, 2004; Liceras & Diaz, 1999; Montrul & Garavito, 1999; Phinney, 1987; White, 1986), Italian (Peverini, 2004; Torrego, 1998), and Japanese (Kanno, 1997; Zushi, 2003) when they learn non-pro-drop languages such as English and French. With regards to the current study, transfer from the L2 to the L1 was discovered in Polinsky's (1995) study of the pro-drop languages Polish, Tamil and Kabardian, which found that L1 speakers consistently lose null subjects in their L1, replacing them with overt pronouns as influenced by their non-pro-drop L2. Sorace (2005), also discovered an increase in the use of overt pronouns in native pro-drop languages. Other languages that have shown a loss in the L1 pro-drop feature, or its use in a more limited way, are Hungarian (de Groot, 2005), Hindi (Mahajan, 2009), Korean (Choi, 2003), and Arabic (Albirnini *et al.*, in press).

The general consensus within the literature is that cross-linguistic influence between typologically different languages within the pro-drop parameter, often results in transfer, and thus, a higher proportion of errors and less competence in the target language. Therefore, it will be interesting to see how the two groups of participants in this study differ with regard to their use of pronouns.

2.5.4 The Impact of Environmental Factors

As stated by Lightbrown & Spada (2013: 31), 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". When the input in one language is greater because of environmental factors, then such factors can be strong determiners for exposure to one language over the other (Unsworth, 2008). According to Bloom (2002), we are born with an innate ability to learn any language, but it is our social conditioning, i.e. the way we are raised by our parents / caregivers that guides us as humans to communicate with one another. Therefore, within the current research it will be important to consider how a child's environment, family, home and school may have affected their language development. Therefore, the following section will explore the different environmental factors that may impact on language transfer and attrition, namely, age, age of immigration, length of residence, quantity of L1 input, quality of L1 input, parental and family influence, friends, socio-economic factors, previous L1 proficiency, gender and attitudes.

2.5.4.1 Age

To help explain the effect of age on the process of language loss in children, the previously discussed Critical Period Hypothesis (Lenneberg, 1967) has often been referred to (e.g., Bylund, 2009; Polinsky, 2011). While acknowledging the contentiousness of the existence of a pre-designated "critical" or "sensitive" period for language learning (Singleton, 2003; Singleton & Ryan, 2004), Köpke and Schmid (2004) suggest that the relative ease with which children acquire L2s might facilitate the forgetting of L1. In support of this theory, Montrul (2008) argues that if the Critical Period Hypothesis helps to explain successful language acquisition by children, it may also shed light on the fast and drastic language loss in children as compared to adults when they change their language environment. If it is true that children enjoy a window

of opportunity where their developing linguistic competence is still quite malleable and particularly susceptible to cues in their linguistic environment, then a change in the linguistic environment during that same window of sensitivity will also have a greater impact than if the changes were to occur later on in life. It follows, then, that age of immigration is a likely predictor of the proficiency of native speakers.

2.5.4.2 Age of Immigration

In exploring the effect of age on native language competence, two age factors should be distinguished: (a) biological age at the time when the study is conducted, as previous discussed, and (b) age of immigration. The age at which speakers immigrate to the L2 environment has been found to be a very strong predictor of various facets of language proficiency, including pronunciation, morphosyntax, and lexis (Bylund, 2009). The earlier the extensive exposure to the majority language starts, the more severe the family language loss is likely to be (Montrul, 2008: 161), because children will then have had much less L1 input by the time they embark on their bilingual journey (Montrul, 2008: 249).

Studies investigating the relevance of age of immigration (e.g. Ammerlaan, 1996, Pelc, 2001) have only been able to show an age effect if including both participants whose exposure to the new language environment began pre-puberty as well as those whose exposure began post-puberty. Leyen (1984), for example, found significant attrition of vocabulary in children, but not in adults. In fact, in these cases age of immigration was established as the single most important factor in predicting attrition (Köpke & Schmid, 2004: 10), whereas no age of immigration effect was found in studies employing only older speakers. In other words, once people reach adulthood and with it a level of L1 proficiency approximating something of a "full native-speaker competence", their chances of maintaining their mother tongue are better than those of younger speakers whose mother tongue was not as well established.

Another important consideration with regard to the current study is that age of immigration is often regarded as immediately relevant to the distinction between incomplete acquisition and attrition. Many child language researchers often claim that L1 acquisition is largely completed by the end of pre-school years and that the language of the 5 or 6-year old child is not much different from the adult (Anglin, 1993). However, Harley and Wang (1997) argue that such claims are not attested with any conclusive evidence.

With regard to attrition studies, Köpke (1999, as cited in Schmid, 2002) and Schmid (2002) both showed no significant effects of age of immigration on any linguistic level of attrition. While Schmid (2002) interprets these findings as suggesting the robustness of grammatical features that had been fully acquired prior to the onset of attrition, they also seem to suggest that other factors might have a stronger influence on attrition.

2.5.4.3 Length of Residence

Length of residence in the host country typically coincides with the time elapsed since immigration and thus continued exposure to the native language. Given the theoretical and practical possibility of L1 attrition, it would appear to be common sense that skills or knowledge should deteriorate progressively the longer they are not used; however, the picture emerging from the research is more complex.

One change that appears to occur very soon after a person becoming immersed in a different linguistic environment is a shift in language dominance, which is discernible as "access to L1 gradually becoming slower than access to L2, without L2 competence necessarily being native like" (Köpke & Schmid, 2004: 11). Depending on the area of knowledge tested and the tasks chosen, language dominance has been demonstrated to switch after between 3 and 7 years of length of residence (Frenck-Mestre, 1993, reported in Köpke & Schmid, 2004; Mägiste, 1979).

With regard to the timeline and extent of attrition, a proficiency effect has been demonstrated: more proficient learners displayed an initial retention plateau in comparison with their less proficient peers. This has been explained with reference to a "critical threshold during learning" (Neisser, 1984, in de Bot & Hulsen, 2002), i.e. the idea that knowledge learnt to a certain degree may be less vulnerable to loss (Hansen, 2000, in de Bot & Hulsen, 2002). In addition to the impact of initial proficiency, it is likely that other factors, such as the amount of contact with L1 and typological proximity, play a part in the attrition pattern. As an extreme example one might cite the case of an 83-year-old Dutchman (Jaspaert & Kroon, 1992) who had been living in the US for more than 60 years and whose L1 showed a lot less erosion than one might have expected after such a length of time. The researchers estimated about 5% of his language to be affected, which should have been far higher if it were true that reduction of contact with the L1 ultimately leads to its disappearance.

2.5.4.4 Quantity of L1 Input

Another factor likely to influence the rate of language maintenance and loss in children is the amount of input and use (e.g., De Houwer, 2006; Montrul, 2008). Seliger and Vago (1991: 4) confirm that "the diminished role of L1 in use and function, exacerbated by separation from the L1 speaking community in the case of immigrants, is one of the significant sociolinguistic variables in the advent and sustenance of first language attrition." Rothman confirms that “the only external variable necessary to guarantee linguistic acquisition is sufficient exposure to input” (2007: 361), and Major (2002: 79) confirms that "first language loss, or attrition, is frequent in speakers who have continuous L2 exposure and also in those who use their L1 less and less frequently", these two factors would appear to be causally linked: as L2 use increases, so decrease the time and contexts available for L1 use.

Some studies (e.g., de Bot, Gommans & Rossing, 1991; Köpke, 1999 as cited in Schmid, 2007) have indeed shown a correlation between frequency of use and bilinguals’ L1 attrition, and other studies have emphasised the positive correlation between input quantity and learners’ level of proficiency for both morphosyntax (e.g. Gathercole 2007; Gathercole & Thomas, 2003; Paradis, 2011; Paradis, Nicoladis & Crago, 2007; Paradis, Genesee & Crago, 2011) and vocabulary (e.g. Paradis, 2011; Pearson, Fernández, Lewedeg & Oller, 1997; Vermeer, 2001). Gathercole (2007) reveals more advanced morphosyntactic development for simultaneous bilingual children in the language that they had greater exposure to. More specifically, she observes that English-Spanish bilinguals living in Miami with the greatest amount of Spanish exposure, because only Spanish was spoken at home, outperform other bilinguals in detecting ungrammatical sentences, with the author concluding that: “the more input a child has in a given language, the more likely s/he is to develop a given structure earlier” (2007: 232).

An effect of input quantity on morphosyntactic development was also demonstrated by Paradis, Nicoladis and Crago (2007), who studied French-English bilinguals and French monolinguals on their production of the past tense. Monolingual English data were used for comparison. Crucially, they found that although bilinguals lagged behind monolinguals overall, they performed as well as the bilinguals in their language of greater exposure on all but English irregular verbs. This result suggests that input quantity is a crucial factor in rate of acquisition.

2.5.4.5 Quality of Input

Although sometimes difficult to demonstrate, several studies have shown that in addition to input quantity, the quality of the input is also a key factor in the shaping of linguistic development (e.g. Scheele *et al*., 2010; Goldberg, Paradis & Crago, 2008; Place and Hoff, 2011). Children require quality teaching adapted to their linguistic competences and academic level (Arnau, 2013). For example, Scheele and colleagues established that L1 and L2 proficiency in Moroccan-Dutch and Turkish-Dutch 3-year olds is related to L1 and L2 input at home. Differences in the amount of oral and literate L1 and L2 language activities, such as book reading, are found to predict L2 proficiency. Similarly, in a lexical acquisition study by Goldberg, Paradis and Crago (2008), specifically mother's level of education, emerges as a significant predictor of vocabulary development. Goldberg *at al.* claim that the consistency of this finding throughout a number of studies suggests that factors associated with the quality of input may be crucial to language development.

The quality of input is extremely relevant to this study as the major difference between the two groups of participants is the type and quality of English language teaching they receive. Furthermore, as discussed in the introduction chapter of this thesis, the academic level of the EFL classes is much too low for the participants attending state schools, and the quality of teaching much lower than that of the private schools, with teaching methods described as "not very innovative" (CSASE, 2008: 110).

2.5.4.6 Parental and Family Influence

Traditionally, family is considered to play a crucial role in maintaining L1 or encouraging multilingualism (Fishman, 1965), and the role of parents is generally considered crucial in children's L1 maintenance. Parents, who can be considered as their children's 'first teachers', have a strong influence on the development of their child's language skills, language socialisation, perceptions of the value of L1 and maintenance of L1.

Gardner and Lambert (1972) were amongst the first theorists to characterise parents' language attitudes as 'instrumental' and 'integrative'. Whereas *instrumental language attitude* focuses on whether one language will contribute to personal success, security or status, *integrative language attitude* focuses more on social considerations, such as the elaboration of an identity associated with a language. The attitude of the parents in turn affects children's dual language behaviours: in the context of the current

study, if Catalan is favoured as the home language, then the child may sense that English is less important, resulting in a weakening of English in favour of Catalan. Furthermore, the choice of Catalan as the home language, within a community where the Catalan language is clearly valued over others, may result in children acquiring the valued language with a decrease in knowledge of their first language (Wong-Fillmore, 1991). In its 1995 position statement, 'Responding to Linguistic and Cultural Diversity: Recommendations for Effective Early Childhood Education', the National Association for the Education of Young Children (NAEYC) raised concern for the potential problems related to the loss of a first language noting that all children are cognitively, linguistically, and emotionally connected to the language and culture of their homes. Furthermore, Lao's (2004) study of English-Chinese bilingual children emphasised the important contributions of parents' home language behaviour in supporting their children's L1 development.

For the current study, we must not only consider which language is spoken most in the home, but by whom that language is spoken. According to Brown (1973), maternal speech is the most salient in the child's environment. Numerous studies contribute that 'maternal speech' or 'motherese' is an important factor in an infant's language development. For example, Soderstrom *et al.* (2007) postulate that the female maternal language is pivotal in the infant's learning experience. While most of the research in 'infant-directed' speech has focused on the mother; mothers are not the only people infants and young children are exposed to in the home, but also fathers (Van den Weijer, 1999). The literature tends to pay less attention to the importance of the language of the father referred to in the literature as 'fatherese' (Soderstrom *et al.,* 2007). Extensive research was conducted in the 1970's and 1980's comparing infant-directed speech of mothers with that of fathers (Berko Gleason & Weintraub, 1976). Berko Gleason and Weintraub suggested that there was more conversation between mother and child than father and child, although perhaps this was due to the fact that the mother was often the primary caregiver, and therefore, spent more time interacting with the child.

Although extensive evidence points to the strong parental influence on children's language development, Baker (1992) has cautioned against the assumption that parents' attitudes regarding their child's language acquisition necessarily match their language behaviour with the child, as relationships between attitudes and behaviours are usually complex. Furthermore, it is not just the parents who influence the language situation in the home environment, but also other family members. For example, children tend to

use more L1 when interacting with grandparents than between themselves (Clyne & Kipp, 1999; Extra & Verhoeven, 1999; Fishman & Nahirny, 1966; Huls & van de Mond, 1992; Pauwels, 2005, among others). Children's language choices have also been shown to vary between siblings to a greater extent than their language choices for the interaction with their parents (El Aissati & Schaufeli, 1999; Hlavac, 2000). Furthermore, older children in the family are usually considered to use more L1 and have better skills than younger ones (Fishman & Nahirny, 1966).

2.5.4.7 Friends

Considering that the friends of an immigrant child may be fellow immigrant children with the same L1 background and/or speakers with different L1 backgrounds, language use in this domain is likely to involve more L2 use than in the family. While few studies exist, it is generally agreed that younger people in each generation tend to use more L2 when interacting with interlocutors in their age group than older people in their community (Gal, 1979; Li Wei, 1994). In his study on language shift in three generations in the Chinese immigrant community in the UK, Li Wei (1994) investigated the pattern of networks where participants in each generation had direct and routine interactions with people and its relationship to their language choices and self-reported language abilities. His general findings suggest that networks of younger participants tend to be non-kin, non-Chinese, and peer-group based. Li Wei noted that the general language choice pattern was a shift from Chinese monolingualism via various types of bilingualism to English-dominant bilingualism. Accordingly, the more English-dominant the language choice pattern, the more peer-oriented the social network.

2.5.4.8 Socio-Economic Factors

Schachter (1979: 57) reports that a family's socio-economic status is a "directive for the enrichment of language". This might be explained by more educated people having more tools for language maintenance at their disposal, including more insight into the structure of language, possibly receiving higher salaries which would afford them more frequent travel home or other ways of keeping in contact, or being more familiar with and hence possibly readier to use written language, which again would maximise their opportunities or L1 use (Köpke & Schmid, 2004: 21). Socio-economic status must be considered within this study as the high costs of private education may be a reflection of higher salaries and therefore higher levels of education.

2.5.4.9 L1 Proficiency

The level of proficiency attained in L1 up until the time of immigration is considered as playing an important role in L1 attrition, however findings from studies examining L1 proficiency often contradict each other. While both Pelc (2001) and Jaspaert and Kroon (1989) found level of education in the L1 to be an important factor for language loss, Köpke (1999, as cited in Schmid, 2002) found no significant effect of level of L1 education on attrition at any linguistic level, although this conflict may be the result of other confounded variables, for example, age of immigration. Furthermore, given that these studies employed certain kinds of formal test, their participants' performance might have been affected by literacy as well as problem solving-skills, as suggested by both Pelc and Jaspaert and Kroon. Yăgmur (1997) found that the performance of his bilingual participants patterned similar to the performance of their respective monolingual counterparts, showing that those with higher education performed better than others. While the performance of each bilingual group was lower than the respective monolingual counterpart, the difference was greater in those with lower education.

Within this study, it will be important to determine the participants' levels of English proficiency prior to the time of immigration.

2.5.4.10 Gender

Gender is regarded as an important but very complex variable in the field of sociolinguistics (Holmes, 1992; Wodak & Benke, 1997). In the immigrant context, findings suggest that women in the minority language community generally have an important role in the maintenance and transmission of the community language, while first-generation males in such communities tend to lead language shift (Holmes, 1995; Winter & Pauwels, 2003), suggesting a tendency for females to use the L1. This tendency is understood as due to different roles given to males and females in traditional society. While men are given more opportunities for education and work outside the family, where they are required to use the L2, women are given fewer opportunities for learning the L2 and are required to take care of children and older family members. It is often the men that bring L2 into the home (Winter & Pauwels, 2005). However, although the above may be relevant for a study relating to adult language use, the participants in the current study are most likely too young to relate to such roles.

2.5.4.11 Attitudes

Attitudes towards a minority language have been considered one of the most influential factors in language maintenance (Fishman, 1991; Schmid, 2002; Ben-Rafael & Schmid, 2007). Factors related to the attitudinal dimensions of social context are also considered very elusive and difficult to measure (Köpke & Schmid, 2004; Schmid & de Bot, 2004; Thomason, 2000), despite the fact that attitude is central in L1 attrition and L2 acquisition (Gardner & Lambert, 1972) as well as bilingualism (Baker, 1988). In L2 learning, it is generally agreed that positive attitudes towards L2, its speakers and its culture have positive effects on L2 achievements. It is also agreed that learners with positive attitudes toward their own L1 and culture are most likely to be successful in L2 learning, leading to additive bilingualism (Lambert, 1977). Huguet *et al.* (2008) studied the attitudes towards Catalan and Spanish in a sample of 225 immigrant students schooled in Catalonia. The results of the study showed overall positive attitudes towards both Catalan and Spanish. However, they also revealed that linguistic origin determined the attitudes manifested, with students from Latin America, whose L1 is Spanish, demonstrating more positive attitudes towards Spanish and less favourable ones towards Catalan.

Furthermore, the role of attitudes appears more complicated when it comes to L1 maintenance and attrition among immigrants. Attitudes are largely determined by how they perceive their own linguistic situation as well as how they themselves are perceived not only by the majority group but also by their own L1 community. In a new social context brought about by immigration, the immigrant needs to redefine their social identity. Many of the social variables that help constitute one's social identity are beyond the individual's control, but linguistic behaviour is one salient marker of identity that the individual can control to some degree (Schmid, 2004). Since two languages are available for the bilingual and each has different levels of social prestige, status, values, and emotional bonds, they may experience conflicts between their attitudes towards L1 and L2 (M. Ross, Xun, & Wilson, 2002). While they may wish to be assimilated into the mainstream culture in order not to be stigmatised as an "immigrant", they may also wish to remain a member of their ethnic group where they still can claim a certain social status and feel a strong tie to their origin (Yağmur, 1997). A more favourable attitude to one group may mean a less favourable attitude to the other. If L2 is more favoured, L2 use will increase at the expense of L1 use, since the extent of using one language is always relative to that of using the other.

While these attitudinal factors may not have a direct influence on L1 attrition, it is reasonable to assume that they have a very important role in the bilingual's language use, which may in turn lead to L1 attrition. However, the role of attitudes in L1 attrition has been largely unexplored to date, and only a few studies explicitly address this issue. Waas (1996) investigated L1 proficiency in terms of citizenship and ethnic affiliation associated with ethnic community activities/organisations, assuming that they would represent the degree of (non) assimilation into the L2 environment. These findings did not show a significant relationship between attitude and language ability. Another important consideration in the context of the current investigation, is that the minority language (English) *is* deemed prestigious, hence why it is compulsory for all students within the education system. This makes the study different from many other immigrant contexts, where the L1 is not considered prestigious.

2.5.4.12 Summary

From the above discussion of the potential linguistic and environmental factors that may impact on language development, the following picture emerges: the younger a person when placed into an L2 environment and the less contact this person has with L1 subsequent to immigration, the more profound and wide-reaching the effects of cross-linguistic influence and language attrition. However, other environmental factors such as the quality of input and language attitude may also influence language development, although many of these factors need further research to compensate for contradictory results.

Having examined the factors that may influence language development, the following sections will investigate how certain domains of language may be susceptible to CLI and language attrition.

2.5.5 Language Domains

Theoretical aspects of L1 attrition suggest that L1 attrition may occur at any level of any language but that it neither occurs at random nor affects all aspects of the language at the same time and to the same degree (Gürel, 2002; Köpke, 2004; Köpke & Nespoulous, 2001; Montrul, 2004; Seliger, 1989, 1991). This section reviews empirical studies that address L1 attrition and CLI within particular linguistic and cognitive domains.

2.5.5.1 The Lexicon

With regard to the question of which linguistic and extra-linguistic factors may contribute to language attrition, a further important issue is of course whether language attrition proceeds as a principled, "rule-governed process" (Seliger, 1991: 28), and whether there are parts of the language system that are more vulnerable to language attrition than others. It is generally assumed that certain aspects of the linguistic system are relatively more sensitive to deterioration than others, and Andersen (1982: 92) suggests that the main task for language attrition research is to determine “in which linguistic area the linguistic marking of distinctions will begin to erode, which will be next”. The bilingual lexicon is one of the most thoroughly studied domains within investigations into bilingualism, and throughout the literature the lexicon has been identified as the place where “bilinguals report the most dramatic changes in their first language after acquiring a second language” (Boyd 1993: 386). This observation is supported by various empirical studies comparing the degree of attrition between linguistic levels and suggesting that the lexicon is the first area to be affected by attrition (Köpke & Nespoulous, 2001; Köpke & Schmid, 2004; Schmid, 2002). Studies suggest that lexical items are more subject to cross-linguistic influence than functional or grammatical ones (Myers-Scotton, 2001; Romaine, 1995). However, it must be taken into account that the lexicon is the most frequently investigated area to date and the best documented (Ecke, 2004; Pavlenko, 2000; Schmid, 2004).

Schmid and Köpke (2008) describe the mental lexicon of the attriter as particularly susceptible to change since the lexicon numerically contains more items than say phonology (rules or phonemes) or morphosyntax (rules or morphemes), while at the same time these many lexical items are much less linked with each other in the linguistic system than phonological or morphosyntactic rules/items are with each other. As a consequence, loss of a lexical item has much less far-reaching ramifications than the loss of a syntactic or phonological rule, and can therefore be afforded more easily.

Some studies have assessed bilingual lexical diversity by measuring the ability of the bilinguals to produce as many words as possible in a certain category (Ammerlaan, 1996; Hakuta & D'Andrea, 1992; Waas, 1996; Yağmur, 1997). Other studies have attempted to investigate how and to what extent lexical access is compromised in L1 attrition. Research on lexical attrition has been heavily influenced by investigations into a bilingual’s lexical access and lexical retrieval. For example, a number of studies report lexical retrieval failures among bilingual speakers (Hakuta & D'Andrea, 1992; Isurin,

2000; Jaspaert & Kroon, 1992; Köpke, 2004; Köpke & Schmid, 2004; Olshtain & Barzilay, 1991, Schmid & de Bot, 2004). Such studies typically assess lexical attrition by investigating bilinguals' lexical retrieval ability through formal elicitation tests based on psycholinguistic theories (Ammerlaan, 1996; Hakuta & D'Andrea, 1992; Hulsen *et al*., 2001, 2002; Isurin, 1999; Waas, 1996; Yağmur, 1997), or analysing patterns of lexical items used spontaneously by the bilingual (Ben-Rafael, 2004; de Bot & Clyne, 1994; Jaspaert & Kroon, 1992; Kaufman, 2001; Olshtain & Barzilay, 1991; Pavlenko, 2003; Schmitt, 2000; Yağmur, 1997).

Another trend in research into lexical attrition has focused on types of lexical items susceptible to attrition. It is generally believed that less-common, low-frequency items are most susceptible to attrition and to the influence of L2 (Andersen, 1982: 94). Less frequent items and items that have not been used for a long time become harder to access (Andersen, 1982; Paradis, 2007). For example, Olshtain and Barzilay (1991) chose to report the retrieval problems associated with specific, infrequent nouns, since such nouns could not be avoided in the story re-telling and thus force some coping strategy. Subjects coped with the problems by circumlocuting and paraphrasing, replacing the problematic noun with a noun with similar meaning, and activating a conscious and systematic retrieval process until they had accessed a noun which sounded acceptable to them. It would appear from the descriptive data reported in their study that highly specialised vocabulary is at greater risk of attrition, as it is used less frequently, and it is noteworthy that all 15 test subjects had these retrieval problems with specialised vocabulary while the controls hardly experienced any such accessibility issues. However, while other studies support these findings (e.g., Altenberg, 1991; Leyen, 1984), in her experimental study of a Russian child adopted by an American family, Isurin (2000) also reports that high-frequency words, cognates, and words semantically close to L2 equivalents were most vulnerable to loss.

With regard to issues experienced in lexical retrieval, Paradis' Activation Threshold Hypothesis (1994; 2001; 2007) relates the retrievability of items stored in memory to the frequency of their use. Paradis (1994) explains that, if an item is used frequently (we refer in this section to lexical items, however the hypothesis may be applied to any type), its threshold is constantly lowered, making retrieval faster and less effortful. Those items that are used less frequently and less recently activated items become more difficult to activate, i.e. to retrieve for processing. Thus, frequent L2 use impacts on the activation level in L1 by, on the one hand, raising the L1 activation

threshold during L2 use, while on the other, simultaneously keeping larger portions of its own network activated. This creates the conditions which, if consistently present, may eventually lead to L1 attrition. The overall activation threshold for L2 as a result of its frequent use is so low that it cannot be sufficiently inhibited in L1 use, causing interference in production. If L2 is very highly developed, this will lead to increased competition by a larger number of competitors with potentially lower activation thresholds, again causing interference and non-retrieval.

The discussion of L1 attrition as a result of competition during processing becomes more complex when we refer back to the notion of language mode (Grosjean, 1989; 1998; 2001; 2008). With reference to L1 attrition, a bilingual currently in monolingual L1 mode who finds items from L2 to be more readily available than items from L1 will continue to search for an item in L1, which can cause disfluency (Paradis, 1993: 142). This situation implies a very high level of L2 activation (since L2 is inhibited in monolingual mode), and failure to retrieve an item and corresponding disfluency might indeed be a sign of language attrition.

2.5.5.2 Morphosyntax

Analysing morphosyntax for effects of attrition is important since morphosyntactic rules and properties are generally considered more resistant than lexical ones to the influence of L2 (Andersen, 1982; Gürel, 2002; Myers-Scotton, 1993; Schmitt, 2001; Thomason & Kaufman, 1988), and therefore evidence of morphosyntactic attrition may represent a more advanced process.

Word order is the most frequent variable discussed in L1 syntactic attrition. Some early studies briefly report that their participants have difficulties with L1 word order. For example, Waas (1996: 165) noted that all of her Australian German-English bilingual participants showed a tendency towards SVO word order "even in relatively simple [German] sentences" and that they frequently abandoned the German sentence or switched to English. Others suggest that L1 syntax may undergo restructuring as a result of cross-linguistic influence (Pavlenko, 2000).

With regard to morphology, the literature points to an overall reduction in overall morphological complexity (Andersen, 1982; Polinsky, 1996, 1997; Schmid & de Bot, 2004), taking into consideration tense, aspect, and mood. However, the vast majority of studies report evidence of attrition in the verb morphology. In her data, Schmid (2002) found over-regularisation of the present tense in the narration of events and explained

that the participants might have applied the present tense as an unmarked choice when they were uncertain about the use of the past tense. Anderson (2001) investigated attrition in L1 verbal inflection in two young Puerto Rican sisters. In her analysis of interactions between the participants and their mother, she found over-regularisation in the verb conjugation paradigm involving tense/aspect/mood. Anderson reported that regular conjugation was applied to irregular verbs, a tendency which was more prominent among low frequency verbs since the tense of irregular high frequency verbs was produced correctly.

When considering the phenomenon of over-regularisation, it is important to consider how the components of language are stored in the mind. With regard to the current study, the English past tense has been a much-debated area with regard to the nature of language processing, and is of theoretical interest because it embraces two strikingly different phenomena: regular inflection, as in *walk-walked* and *play-played*, and irregular inflection as in *throw-threw* and *run-ran* (Pinker & Ullman, 2002). The regular suffix *-ed* is often applied to irregular verbs by children, resulting in over-regularisation, as in *run-runned*. A simple theory for this, known as the Words and Rules theory (WR) (Pinker & Ullman, 2002: 1), is that "irregular forms must be stored in memory, whereas regular forms can be generated by a rule that suffixes *-ed* to the stem".

The WR theory claims that the regular-irregular distinction is a design of the human language faculty, in particular, the distinction between lexicon and grammar. The lexicon is a subdivision of memory containing the simple words of a language, and that irregular past tense forms are simply words, acquired and stored like other words but with a grammatical feature such as 'past tense' incorporated into their lexical entries. Regular forms, by contrast, can be productively generated by a rule, just like phrases and sentences. A stored irregular form blocks the application of the rule to that verb (e.g., *ran* pre-empts *runned*). Marcus *et al.* (1992) suggest that blocking is vulnerable in young children, because their memory retrieval system is immature and sometimes lets them down. Errors like *drived* are therefore caused by lapses in memory retrieval. Following the aforementioned Activation Threshold Hypothesis, we must also consider the possibility that due to less L1 use and increased L2 use, irregular past tense verbs are used less frequently and less recently, meaning that they become difficult to activate.

The key predictors of the WR theory are: (1) that irregulars should have the psychological, linguistic and neuropsychological signatures of lexical memory, whereas regulars will often have the signatures of grammatical processing: and (2) that speakers

should apply regular inflection whenever memory fails to supply a form for that category. A stored form may be unavailable for many reasons: low or zero frequency, lack of a similar form that could inspire an analogy, inaccessibility due to language attrition, and various kinds of damage to the neurological substrate of lexical memory (Pinker & Ullman, 2002).

The WR theory contrasts with the Rumelhart-McClelland model (RMM, 1986) and other connectionist models that posit a single pattern associator, which, rather than linking a word to a word stored in memory, they link sounds to sounds. Because similar words share sounds, their representations are partly superimposed, and any association formed to one is automatically generalised to the others. For example, having been trained on *fling-flung* and *cling-clung*, they may generalise to *spling-splung*.

Due to the fact that the phenomenon of over-regularisation is characteristic of a child's developing language, it will be interesting to analyse the over-regularisation rates of the two groups of participants in comparison with the monolingual data.

2.5.5.3 Lexicalisation Patterns

Previously within this literature review we discussed language typology and how English can be categorised as a satellite-framed language, whereas Catalan and Spanish are known as verb-framed languages. This led us to discuss the differences between the languages with regard to motion events within the context of first language acquisition, and Slobin's Thinking for Speaking hypothesis. Studies show that children are attuned to the structure of their L1 from a very early age, which is evident in the way they talk about motion (Allen *et al*., 2007; Berman & Slobin, 1994; Bowerman & Choi, 2001; Choi & Bowerman, 1991; Slobin, 1996, 2004). However, an interesting consideration is whether a child's conceptualisation patterns with regard to motion may be affected by learning a typologically different language. Furthermore, the study of lexicalisation patterns is comprehensive and affords insights about both the lexical and the construction level.

Learning an L2 is said to entail learning another way of thinking for speaking (Cadierno, 2004), that is, learning which particular details of a motion event must be attended to in the input and expressed in the foreign language (i.e., attention to static descriptions vs. movement trajectories, and less or more attention to manner of motion). This has been labelled "re-thinking for speaking" by Robinson and Ellis (2008). The task of the L2 learner is thus not just to learn individual motion verbs, but to learn how

to structure the whole semantic domain of motion in the L2. However, it may also be the case that no re-thinking occurs; rather that the speaking is carried out in the L2 but thinking is carried out in the L1 (Filipović, 2016).

Given that the verbal encoding patterns established in an L1 are particularly resistant to restructuring under the influence of an L2 with different encoding patterns (see Malt & Sloman's 2003 study of object naming), and that typological preferences particularly for motion event lexicalisation appear to be extremely robust, the literature points to the tendency of transfer from an L1 to an L2 in second language acquisition (e.g., Cadierno, 2004; Cadierno & Ruiz, 2006; Filipović & Vidaković, 2010; Hijazo-Gascón, 2015; Larrañaga *et al.*, 2011; Navarro & Nicoladis, 2005; Negueruela *et al.*, 2004; Stam, 2006; Vidaković, 2012), and therefore a general hypothesis consistent with Thinking for Speaking would be that the learners' L1 typological patterns will, at least initially, constitute the point of departure for the form-meaning mappings established in the L2. For example, Cadierno and Lund (2004) studied the expression of manner of motion by learners with typologically different L1s and L2s (Danish, an S-language and Spanish, a V-language). They found that in general, Spanish learners of Danish would tend not to use manner verbs, and in contrast, Danish learners of Spanish tended to add manner information to their Spanish motion verbs. Similarly, in their 2004 study, Negueruela *et al*. discovered that L2 (English) speakers, even at advanced levels, have difficulties manifesting L2 lexicalisation patterns and rely on patterns internalised in their L1 (Spanish). Furthermore, Hijazo-Gascón (2015) encountered evidence of transfer in motion event lexicalisation in the L2 Spanish of L1 speakers of French, German and Italian. For a recent review of motion event typology in relation to the field of second language acquisition, see Cadierno (2017).

The general consensus throughout the aforementioned studies is that learners, especially in the early and intermediate stages of language acquisition, tend to make partial and non-target like form-meaning mappings that are often influenced by their L1. However, although the literature on Thinking for Speaking indicates a tendency for transfer from the L1 to the L2, a few studies have examined L2 influence on the L1 with regard to motion event lexicalisation. Brown and Gullberg (2010) investigated lexicalisation patterns in adult native speakers of Japanese learning English, and in monolingual Japanese and English speakers. The results showed an effect of the L2 on the L1 even at intermediate stages of English proficiency in the bilinguals. Furthermore, Aveledo, Fraibet and Athanasopoulos (2015) studied Path and Manner verb preferences

amongst native Spanish-speaking children learning L2 English, and discovered L2 influence on L1 motion event encoding, where bilinguals used more manner verbs and fewer path verbs in their L1, under the influence of English.

Various studies have also indicated an influence from the L2 to the L1, but only under certain conditions. For example, Hohenstein *et al*. (2006) studied bidirectional influence of L1 and L2 in native speakers of English with L2 Spanish. Results showed that when describing in Spanish, bilinguals produced more manner verbs than Spanish monolinguals; when describing in English, bilinguals produced fewer manner verbs than English monolinguals. However, these patterns were qualified by an age of acquisition effect, in that an effect of L2 on L1 was only present in early bilinguals (their Spanish had fewer path verbs), (see also Bylund, 2009; Hohenstein, Eisenberg, & Naigles, 2006 on motion event encoding). Other conditions include language proficiency (see Bylund & Jarvis' 2011 study on grammatical aspect and endpoint encoding).

With regard to the conditions under which L2 influence on the L1 may be present, this study is original and innovative because it looks at how the context of instruction (L1 taught as L2) can affect the expression of motion. Therefore, the current study aims to investigate Talmy's typological framework on motion events (Talmy, 1985, 1991, 2000) and Slobin's theory of Thinking for Speaking in the context of bilingualism, by exploring whether learning an L1 as an L2 in childhood may result in influence from the L2 to the L1 with regard to the process of lexicalisation patterns in motion events.

2.5.5.4 Summary

This section aimed to establish some cognitive and linguistic domains of language which may show different levels of language attrition and cross-linguistic influence. With regard to the current study, by examining these language domains within the data obtained, the research will be able to assess the level of attrition with regard to the native English-speaking children learning their L1 as an L2.

Overall, this chapter provided an overview of the current state of knowledge in the areas of bilingualism, language acquisition and attrition, all of which relate to the current study. The following section will discuss the methodological approach.

CHAPTER III: METHODOLOGY

3.1 Introduction

The main purpose of this study is to establish whether and how the Catalan Language Policy affects the English language competence of native English-speaking children. To do this we will examine the various linguistic outcomes of language contact that are taking place, with a hypothesis that one of the key factors in this process could be the teaching of their L1 as an L2.

The previous chapter provided a review of the literature. This chapter discusses the research design and methodological approach that is most appropriate for the current investigation. The chapter defines the scope and the limitations of the research design, and situates the research amongst existing research traditions.

A qualitative and quantitative design is set out in order to seek empirically formed answers to the research question. This is followed by an overview and rationale for the research design, commencing with an outline of the key methods used. Each method used will be justified, given the importance of design and validity in the choice of research instruments. The subsequent section illustrates the data collection process and analysis of methods used and their implementation. In addition, ethical issues concerning the research process are identified. The final section details data analysis methods, before concluding with a brief summary of the preceding sections.

3.2 Methodological Approach

As Seliger and Shohamy (1989) and De Vaus (1990) suggest, the research methods adopted in any research project depend upon the questions and the focus of the researcher. The three common approaches to conducting research are quantitative, qualitative, and mixed methods. The researcher must firstly distinguish the difference between quantitative and qualitative methods and how these methods may benefit the study, before devising a methodological approach.

3.2.1 Quantitative Research

Leedy and Ormrod (2001: 102) state that "Quantitative researchers seek explanations and predictions that will generalise to other persons and places. The intent is to establish, confirm, or validate relationships and to develop generalizations that contribute to theory". Therefore, much like the current study, quantitative research begins with a

problem statement and involves the formation of a hypothesis and a literature review, as it "builds upon existing theories" (Leedy & Ormrod, 2001). What constitutes a quantitative research method involves a numeric or statistical approach to research design and the research itself is independent of the researcher. As a result, data is used to objectively measure reality. It is important for the researcher to carry out quantitative analysis of data because the results collected need to be a true representation of a cross section of a specific population, that being, in the context of this study, native English-speaking children living in Catalonia, Spain.

3.2.2 Qualitative Research

It is often considered advantageous to commence a study with qualitative research, as it can help to generate hypotheses which can then be tested using quantitative measures. It is described as an unfolding model that occurs in a natural setting, and that enables the researcher to develop a level of detail from high involvement in the actual experiences (Creswell, 1994). In other words, qualitative data can help the researcher within the context of the current study, to understand the experiences and attitudes of participants. Qualitative research will allow the researcher to observe elements that pose questions that she can attempt to explain.

3.2.3 Incorporating Quantitative and Qualitative Approaches

There is a distinct tradition in the literature that advocates the use of multiple research methods. This form of research is described as the multi-method or multi-trait approach (Campbell & Fiske, 1959), and tends to be associated with the incorporation of quantitative and qualitative research designs. This form of research strategy has also been called triangulation (Webb, Campbell, Schwartz & Sechrest, 1966). Onwuegbuzie and Johnson (2006) hoped that the mixed methods approach to research provided researchers with an alternative to believing that the quantitative and qualitative research approaches are incompatible and, in turn, their associated methods "cannot and should not be mixed". With the mixed methods approach to research, the researcher can incorporate methods of collecting or analysing data from the quantitative and qualitative research approaches in a single research study (Creswell, 2004; Onwuegbuzie & Johnson, 2006; Tashakkori & Teddlie, 2003). That is, the researcher can collect or analyse not only numerical data, which is customary for quantitative research, but also non-numerical data, which is the norm for qualitative research, in order to address the

research question(s) defined previously in the study. Applied to research, it means "it is better to look at something from several angles than to look at it in only one way" (Neuman, 2003: 138).

With regard to the current study, a single quantitative approach may limit what can be learned about information given by participants. Moreover, in quantitative analysis "researchers have less room for the unanticipated" (Becker, 1996: 61). Conversely, qualitative researchers are unable to as readily as quantitative researchers "insulate themselves from data" (Becker, 1996: 56). As Denzin (1978) suggested, using a combination of methodologies to collect different kinds of data bearing on the same phenomenon, may improve the accuracy of the data collected by the researcher. Therefore, with regard to this study, a multi-method approach provides a more certain portrayal of the children's language ability (Denzin, 1978: 302). This approach to research will provide the researcher with the ability to design a single research study that answers questions about both the complex nature of phenomenon from the participants' point of view and the relationship between measurable variables, such as the type of language provision they receive.

Quantitative and qualitative research methods investigate and explore the different claims to knowledge and both methods are designed to address a specific type of research question. While the quantitative method provides an objective measure of reality, the qualitative method allows the researcher to explore and better understand the complexity of a phenomenon. The combination of both quantitative and qualitative approaches in this study would appear to offer the addition of confidence, strength, and stability in the resulting data. The next section will present an explanation of the participant criteria of the study, which will allow the researcher to design a data collection tool appropriate for the research context.

3.3.Participants

3.3.1 Participant Groups

In order to perform a comparative analysis to assess the effects of language provision, the researcher must collect data from the following two groups of participants:

i. **Participant Group 1: Children receiving *English as a Foreign Language* (EFL) classes**

The first group consists of 12 participants: 6 boys and 6 girls from age 4 to age 12, all of which are native English-speaking children who attend (1) Catalan state schools and (2) *colegios concertados.* A *colegio concertado* is a type of school in Spain, which is usually religious, and that is privately owned but receives a state subsidy. Parents pay a monthly fee, but the fees are much lower than those for private schools. Although *colegios concertados* have more flexibility with regard to the curriculum they set, the *colegios concertados* in this study bear exact resemblance to the state schools in regard to the English language teaching of native English-speaking children. All participants in this group, therefore, are taught English as a foreign language, receiving no formal native English-language teaching.

ii. **Participant Group 2: Children receiving native language classes**

The second group contains 14 participants, consisting of 7 boys and 7 girls from age 4 to age 12, all of which are native English-speaking children who attend Catalan private schools and receive native English-language teaching.

iii. **Participants Group 3: Monolingual Data**

The study will compare the data elicited from both Participant Group 1 and Participant Group 2 with that of typically developing native English-speaking children, by using monolingual data from the CHILDES archive (MacWhinney, 1984). The Child Language Data Exchange System (CHILDES, http://childes.talkbank.org/) is a corpus designed to serve as a central repository for first language acquisition data. The corpus is appropriate for this research since it contains transcriptions of native English-speaking monolingual children narrating the Frog Story (Mayer, 1969), and therefore provides the researcher with comparable data. The study used the data from 30 monolingual English-speaking children from the corpus, from age 4 to age 9.

3.3.2 Participant Criteria

As mentioned in the literature review, this study must take into consideration a wide range of variables that could potentially affect the data. Therefore, in order to keep certain variables constant and to facilitate the comparison of data, the following selection criteria were chosen:

i. All participants have English as their native language and developed their L1 in an L1 environment.
ii. All participants must be residing in Catalonia and be bilingual (English and Catalan), or trilingual (English, Catalan and Spanish) speakers that are being educated within the Catalan Education System (within a State school, private school, or *colegio concertado*).
iii. They must have at least one native English-speaking parent.
iv. Where the other parent in not a native English-speaker, they must be Spanish / Catalan.
v. They must be between the ages of three and fourteen as per the Critical Period Hypothesis (Lenneberg, 1967, see section 2.5.4.1). By having a diverse sample of participants with regard to the variable of age of acquisition, it may be possible to analyse the effects of age on the outcome of language learning.

3.3.3 Location of Participants

Despite the research being based on the Language Policy in the autonomous region of Catalonia, all participants were located in the region's capital city of Barcelona. It was important for the researcher to remain consistent with the location to control for the following variables:

i. Immigrant population: Barcelona is the location in Catalonia with the highest percentage of native English-speaking immigrant families, and focusing on this area will facilitate the participant search.
ii. Logistical reasons: Selecting participants from the same location will mean that the researcher can carry out research with more participants, in a shorter time period.
iii. Urban vs. Rural: It is important to control for the local amenities available to the participants. For example, those living in a rural area will most probably have less access to after school language clubs and private tutoring, and a native English-speaking child in a rural state school will more than likely be the only immigrant in the school, subsequently affecting other variables such as their opinions towards different languages, the language of their friendship group, and the language they choose to speak at home. Perhaps future research could be carried out in this area.

3.4 Data Collection Methods

The following section will discuss the data collection methods that were used in the study, including rationale for method selection.

3.4.1 Language Use Survey

With the participant criteria established, the researcher created a network of contacts in Catalonia through contacting Lecturers, Heads of Department, School Directors, and organisers of social groups and social networking groups. This network of contacts gave the researcher access to over 600 parents and guardians of native English-speaking children living in Catalonia.

As previously mentioned in section 3.2.2, commencing a study with qualitative research can help the researcher to understand the experiences and attitudes of participants. Therefore, the researcher designed a language use survey specifically for use in this study, covering the linguistic and extra-linguistic details of the participants' backgrounds.

The survey was issued to a parent or guardian of each potential participant. The time period the parents had to fill out the survey was between December 2013 and May 2014. Once the surveys were returned the researcher was able to sort through the prospective participants and locate those who were appropriate for the study, (see section 3.3.2, participant criteria). Care was also given to choosing balanced numbers of males/females and an equal spread of participants between the three school groups.

The use of a data collection tool such as a survey has the benefit of ensuring stability of responses across a range of questions presented by the researcher. Wyatt (2002) states that it is important to evaluate a child's language skills on his or her dialectal background, community, culture, and ethnicity, as such important variables can have an impact on how you report a child's performance. Hence, in this study, the survey was self-derived by the researcher, taking into account the cross-cultural/linguistic backgrounds of the respondents.

The information gathered within the language use survey was divided into the below sections, and included both variables observed in the literature as having a direct effect on a child's L1 ability within an L2 environment, as well as any other variables that the researcher considered could potentially impact on the results:

i. A personal background section, including questions on:

- The child's: Age
  Gender
  Place of Birth
  Language spoken at home
  Age of immigration
  Length of residence in Catalonia
- The Mother's: Nationality
  Profession
  Language spoken at home with the child
- The Father's: Nationality
  Profession
  Language spoken at home with the child

ii. A language background section, including questions on:

- The child's English proficiency at time of immigration (including details of grades achieved before immigration, if possible)
- Age of acquisition (of both Catalan and Spanish)
- Evidence of attrition (e.g. language delay, lexical borrowing, etc.)

iii. Type of English language education:

- School Type (private school, state school, *colegio concertado*)
- Type of instruction (ESL or native language)
- Number of hours of English classes per week
- Language of instruction
- Estimated number of native English-speakers attending the school
- Homework set and additional support for native speakers
- Teacher nationality and proficiency (teacher proficiency based on parents' and students' observations)

iv. Out of school activities

- Does the child watch television / films in English?
- Does the child take part in any after school English clubs?
- Nationality of the child's main friendship group

v. Any other information you see as relevant to the study.

As can be seen from the above, the survey includes both open and closed-ended questions. As discussed in the methodological approach section of this chapter (section 3.2.3), the researcher decided to combine both a qualitative and quantitative research approach to the study in order to increase the accuracy of the data. Closed-ended questions can provide quantifiable responses, such as 'age of Catalan acquisition', whereas open-ended questions, such as 'any other information you see as relevant to the study' provide an exploratory quality to the responses, providing a window into what respondents may be thinking with regard to a particular phenomenon. All of the questions and information requested from the participants' parents within the language use survey can be seen in appendix 1.

3.4.1.1 Rationale for choosing a language choice survey

As previously discussed, the most difficult part of this research is how to choose the best possible way to measure a participant's English language skills in direct correlation with how they are taught their native language at school. To be able to do this, it is extremely important to account for all other variables that may also affect their ability to speak their native language, and to try to keep these other variables constant throughout the research. A self-derived language choice survey gave the researcher the opportunity to gather information regarding the variables which might impact on performance, such as the language spoken in the home environment, and control this information across the groups. Also, this metalinguistic data can help us account for some of the reasons behind our results.

Many previous studies relating to bilingualism have used interviews as a primary method of obtaining research relevant information, however, unlike the use of time consuming interviews, surveys can collect a sizeable corpus of data in a relatively short time since a survey can be administered to large groups of people simultaneously (Cohen, 1996). Beebe and Cummings (1985) confirm that surveys are a highly effective means of:

i. Gathering a large amount of data quickly; and
ii. Gaining insights into social and psychological factors that are likely to affect speech and performance.

The use of a language use survey allows the researcher to create a survey and send it out to all potential participants simultaneously. Once the parent received the survey in the form of an email attachment, they simply completed their responses and clicked ‘send’. The researcher then received an email with the individual responses added to an Excel spreadsheet containing all participant survey responses. With all participant information automatically entered onto a spreadsheet, the researcher could easily keep track of the participants who had completed the survey and made it possible to compare a large number of responses. This method avoided the time-consuming task of organising and transcribing interviews.

3.4.1.2 Limitations to the use of surveys

Despite the above rationale for choosing a language use survey as a method of data collection, every data collection method has its limitations. For example, it has been argued that interviews reveal a greater degree of personal introspection and involve less conditioned and more spontaneous responses, a crucial aspect for the deciphering of the multi-componential view of identity and L1 attrition (Solís Obiols, 2002). Furthermore, while surveys may take many forms and address a range of issues, they remain less flexible than interviews, given that the richness of the immigrant's experience cannot be reduced to a few constructs and generalizations, as made available by a survey-based methodology. Perhaps if the scope of this investigation were wider, the surveys could have been complemented with interviews, which would provide the participants with more control over the data revealed.

3.4.2 Data Collection Instrument

After the participants had been selected based on the previously mentioned criteria (see section 3.3.2), the researcher needed to select a data collection instrument in order to record the English-language ability of the participants. Many different approaches have been used in previous studies on bilingualism including natural speech observation, language tests, personal narrative, and fictional narrative. The following section discusses the researcher's rationale for selecting fictional narrative as her data collection instrument.

3.4.2.1 Fictional Narratives

The term *narrative,* as used here, refers to "all types of discourse in which event structured material is shared with readers and listeners, including fictional stories, personal narratives, accounts and recounts of events (real or imagined)" (Mistry, 1993: 208). Two types of narratives are commonly used in the field of bilingualism, personal and fictional. Fictional narratives are stories about fictional events, often elicited with non-verbal prompts, such as pictures or videos. Fictional narratives are appropriate for this study because researchers working with bilingual children commonly use these narratives to answer questions about cross-linguistic influence, language attrition, and the development of vocabulary, temporality, and narrative competence (Pavlenko, 2008: 312). While personal narratives can also be used for these purposes, they exhibit a significant amount of variation across participants and contexts and are less amenable to analysis of intra- and inter-group similarities and differences. For example, one type of narrative relies on verbal input alone to elicit narratives about personal experiences – either one-time occurrences (Kemper, 1984; Peterson & McCabe, 1983; Roth & Spekman, 1986) or familiar "scripted" events (Fivush & Slackman, 1986; Hudson & Nelson, 1986). In applying these methods, the researcher has little external control over the events which the narrator is referring to. Another method aims to overcome this particular problem by providing a shared non-verbal – typically visual and typically fictive – basis for narrative description. This may be done by showing a film without words (Chafe, 1980; Hickmann, 1980, 1982; Sleight & Prinz, 1985; Warden, 1981) or by using pictures (Berman & Slobin, 1994). This study chose to use non-verbal prompts over verbal prompts as they encourage spontaneous speech from the participants, and as Berman and Slobin state, picture-based narratives are "often aimed at examining children's ability to introduce, maintain and shift reference to protagonists" (1994: 41),

for example, the characters shown in the pictures (Hickmann, 1980; Hickmann & Liang, 1990; Karmiloff-Smith, 1980, 1981; McGann & Schwartz, 1988). This design has an advantage over the memory burden entailed by film viewings, which vary in degree of retention of the material which they present (Berman & Slobin, 1994: 41). Researchers who have chosen to use narrative as a form of assessment on bilingual children often favour cartoons, pictures and picture books, because storytelling elicited by means of these prompts does not require children to imagine events and thus reduces the cognitive load imposed by the task (Berman, 1995).

3.4.2.2 Rationale for choosing fictional narratives

i. **Ample normative data available:**

Narratives have been documented comprehensively in young normally developing children in recent years (Bamberg, 1987; Bamberg & Marchman, 1990). The fact that narrative ability has good normative data available means that it should be an ideal source of comparison for children in whom language development / regression issues are evident or suspected. With regard to the results of this study, it should be possible to directly compare children's skill at a number of different aspects of language such as grammatical measures, story structure and even pragmatics. This base of normative data available means that performance in particular areas of language can be compared between children with normal language development patterns and children who are suspected to be experiencing language development issues.

ii. **Narratives are a good representation of every-day speech:**

It is notoriously difficult for a researcher to identify specific errors made by children with language difficulties in every-day speech. A data collection instrument is required that is structured enough to reflect conversational style and the errors within this. The storytelling activity is a task that triggers data in a spontaneous way, and will not, therefore have a biasing impact on the speech production. Child narratives are thought to correspond closely to skills involved in every-day conversation (Preece, 1987), and therefore may be a promising assessment option for representing a child's every-day linguistic ability.

iii. **Narrative and literacy skills:**

Oral narrative and literacy ability are closely interwoven skills. The latter develop later than the first with written narratives being estimated at around 60% the length of their oral counterparts (Gillam & Johnston, 1992). Kaderavek and Sulzby (2000) report that oral narratives using a familiar storybook as a prompt given by typically developing children were more complex and showed more of the devices used in written language than the narratives given by peers with language development issues.

iv. **Poor narrative ability can demonstrate language problems:**

It is possible to use narrative to distinguish children with communication difficulties from typically developing peers. Children with language development problems have been shown to produce poor narratives both when retelling stories and when generating them (Liles *et al.*, 1995; Merritt & Liles, 1987; Tager-Flusberg, 1995; Van der Lely, 1997). These individuals are sometimes reported to produce narratives similar to those generated by younger normally developing children, and this is often the reported impression of every-day language.

v. **Fictional narrative facilitates participant comparison:**

Fictional pictures sequences were chosen for this study, over any other type of narrative, because the use of a single set of pictures as a narrative prompt provides a shared point of departure and a common external basis for comparing the narrative productions of children. Furthermore, narrative also allows the researcher to collect longer stretches of spoken language with a common plot, also making the comparison of data more feasible.

3.4.2.3 Limitations to the use of narratives

An obvious disadvantage to using narratives as an assessment method is that audio-recorded narratives require transcription, which is extremely time-consuming.

3.4.3 Selection of the Picture book *Frog, Where Are You*?

A particularly common prompt used in linguistic analysis is the picture book *Frog, Where Are You?* (Mayer, 1969), popularised by Berman and Slobin's (1994) cross-linguistic study and used in several studies with bi- and trilingual children (Álvarez, 2003; Ordóñez, 2004; Pearson, 2002; Reetz-Kurashige, 1999; Yoshitomi, 1999). The picture book, often referred to in the literature as 'The Frog Story', is a picture book

without words, representing a typical children's story involving a boy, and dog, and their missing frog. The Frog Story (Mayer, 1969) can be seen in appendix 2.

3.4.3.1 Rationale for choosing the storybook '*Frog, Where Are You*?'

This particular picture book proved appropriate for the research aims of this study due to the availability of monolingual corpora in a variety of different languages (Bamberg, 1987; Berman & Slobin, 1994; MacWhinney, 1984). With regard to the baseline data from monolingual speakers, due to the fact that Mayer's (1969) book has been used in many studies, monolingual and bilingual corpora has previously been collected using the same prompt, in many different languages, which facilitates comparisons (Bennett-Castor, 2002) as well as comparison with regard to the bilinguals' ages and levels of proficiency. The picture book has been used in a number of cross-linguistic language development and attrition studies (Berman & Slobin 1994; Olshtain & Barzilay 1991, Strömqvist & Verhoeven, 2004) and therefore, the extensive research on child language development generated from this prompt provides a wealth of insight into children's narrative development and basis for comparison with the current study (e.g. Berman & Slobin, 1994). The use of the prompt in previous studies also means that there are established elicitation procedures and analytical frameworks. Further justifications for the use of the book are as follows:

i. **The narrative provides common content:**

As Berman and Slobin (1994: 20) confirm, the principle underlying the use of this single picture storybook was to provide a common content – across age and language- representing a typical children's story with a hero (the boy and his dog), a problem (the boy has a pet from which runs away), a set of actions which follow from this problem (the boy and the dog search for the missing frog), and a "happy ending" (the boy finds his frog, or gets another one in exchange).

ii. **The prompt is suitable for all age groups**

The numerous studies carried out using The Frog Story support the picture book's appropriateness for linguistic analyses across all age groups and speakers of different languages.

iii. **The book allows the narrator to relate to a variety of topics**

The Frog Story is an event rich story, presenting events and changes in location. It "depicts a fairly long elaborate series of events, allowing narrators to relate to a variety of topics" and "allows for different levels of cognitive inferencing between events" (Bermin & Slobin, 1994: 20). For example, "young children had no difficulty in recognising that the frog had gotten out of the jar in which it was located on one page, and which was empty on the next; but they were unable to grasp what happened to the boy who, climbing onto a rock and clutching onto what appear to be the branches of a tree, then finds that he has inadvertently caught onto the antlers of a deer that was standing behind the rock" (Berman & Slobin, 1994: 20). These different levels of interpretations were of interest to this study, since they give rise to different types and levels of linguistic expression.

iv. **This type of picture book is familiar to all research participants**

This type of story is well-known in both English-speaking countries and in Catalonia, and the child participants were all familiar with picture books. As Berman and Slobin state (1994: 21), "*Frog, Where Are You?* is clearly a product of Western culture", and all of the story scenes are part of the experience of the children with whom we worked in Catalonia – either through direct experience or through experience with pictures, storybooks, movies, and television.

3.4.3.2 Carrying Out the Narratives

To collect rich narrative data and comparable language samples it is important to follow appropriate elicitation procedures. The standard protocol, and therefore the protocol used in this study, for story elicitation through *Frog, Where Are You*? is offered in Berman and Slobin (1994: 22-3).

When carrying out the narrative assessment, the same procedure was followed for each participant in each group. Each task was carried out individually and each subject was given the same instructions. A deliberate effort was made to minimise the burden on memory, and to make children aware in advance that they were being asked to tell a story. The following procedure, (based on Berman & Slobin, 1994: 22-23) was applied in each case within the current study:

i. Children were firstly told the following:

"Here is a book. This book tells a story about a boy [point to picture on cover], a dog [point], and a frog [point]. First, I want you to look at all the pictures. Pay attention to each picture that you see and afterwards you will tell a story". (Berman & Slobin, 1994: 22).

ii. Unlike Berman and Slobin's study, whereby "it was particularly important that the interviewer avoid prompts that would lead to a particular choice of verb tense" (Berman & Slobin, 1994: 23), the researcher encouraged the children to tell the story in the past tense as narrating in the past tense has been reported in literature to cause specific difficulties for children with linguistic problems (Leonard, 1998). Therefore, the researcher added "the story happened a long time ago, so if you could start from the beginning and tell me what happened".

iii. The researcher covered the title of the book, so that "the children would not be biased by the author's presentation of the search theme" (Berman & Slobin, 1994:23).

iv. The child sat side-by-side with the researcher, who was the sole listener.

v. Because the researcher wanted to leave the burden of narration on the child, without scaffolding by the adult, the researcher minimised their verbal feedback to neutral comments that would not influence the form of expression chosen by the child. The following prompts were allowed: (1) silence or nod of the head, (2) "uh-huh," "okay," "yes," (3) "anything else?", (4) "and…?", (5) "Go on." Younger participants were offered support that did not inappropriately influence the findings, for example, "you may now turn the page".

vi. The narration was audio-recorded using a Dictaphone.

vii. Each recorded narration was transcribed for analysis.

For a potentially stronger research design, the researcher, a native speaker of English with a high proficiency of the Spanish language and a good understanding of the Catalan language, carried out all testing in order to try to eliminate the possibility of confounding variables.

3.4.3.3 Limitations to the Narrative Data Collected

Firstly, it is not possible to claim that an identical task was performed by each of the children. Although each child is following the same picture book, fictional narrative tasks, by nature, will vary from child to child; "narrators are free to choose perspectives on events" (Berman & Slobin 1994: 39). Each child will have its own interpretation of what is required of them from the narration task, and will have varying ideas regarding the storytelling process. As Berman and Slobin confirm, younger children have a shorter concentration span and they require "more scaffolding than older children in producing an extended speech text" (1994: 23), leading to a greater input from the researcher. Therefore, it is important that when carrying out the data analysis section of the study, the researcher takes into account the differences in task-construal across the different groups.

A further limitation to the narration data is the use of gestures by the child. As Berman and Slobin point out (1994: 24), because the listener (in this case, the researcher) was familiar with the story and was also able to see the pictures (the researcher sat side-by-side with the narrator), it is quite likely that this increased the child's tendency to use gestures, such as pointing or facial expressions to explain parts of the story. Further studies aimed at overcoming the problem of shared knowledge and perception (Kail & Hickmann, 1992) have experimented with controls such as the listener being replaced by another listener, unfamiliar with the story, after the original listener has introduced the picture book, and then sitting opposite the narrator instead of side-by-side with the narrator (Slobin, 1991). Although this study shows that the narrator's sensitivity to the listener increases, this type of research is beyond the scope of the current study.

3.5 Ethical Issues

3.5.1 Consent Forms

This research project received approval from the university's ethics committee, who confirmed that the researcher must obtain signed consent forms; where the research was carried out at the child's home, the researcher must obtain a signed consent form from the parent, and where the research was carried out at the child's school, the researcher must obtain a signed consent form from both the parent and the school Director. All consent forms were issued and signed before the research was carried out. A copy of the consent form can be seen in appendix 3. Although obtaining consent forms for each

participant resulted in some disadvantages such as a more limited number of recordings, it was vital that the research conformed to the UEA's Ethical Procedure.

Furthermore, in line with the university's guidelines, the researcher clearly understood her obligations and respected the rights of the participants in terms of anonymity and confidentiality as well as empowerment of both the children and their parents throughout the research process.

3.5.2 Child Participants

Many potential issues have been raised in previous research with regard to the use of children as participants in research projects. The researcher felt that it was important that the participating children felt empowered to have "control over the research process and methods which are in tune with the way they see and relate to the world" (Thomas & O'Kane, 1998: 337). Therefore, it was important to allow the child to participate in their own terms, rather than being used as an 'object' in the research process. As Morrow and Richards in Thomas and O'Kane (1998: 337) state, "the biggest challenge for researchers working with children is the disparities in power and status between adults and children". Therefore, it is important to do research 'with' children and not 'on' children. In order for the child to feel that they had a voice in the research and were not mere objects, the following approaches were used:

i. The researcher contacted the parent to make an appointment to carry out the research, and agreed a place where the child would feel most comfortable. This place was agreed by both the child and the parent.
ii. Both the child and the parent were asked if they had any questions.
iii. On carrying out the research, the researcher made the child feel as comfortable as possible by first of all engaging in some small talk, asking the child some everyday questions.
iv. The child and parent were informed that they could withdraw from the study whenever they wanted.

3.5.3 Voice Recordings

For ethical reasons, it was decided that the voice recordings be done 'in safe environments' with written consent. This would assure their security and minimise the likelihood of possible negative feedback from the third parties. Those safe places were either the school where the child studies, or the family home.

3.6 Data Analysis

The following section introduces the methods the researcher used to analyse the data collected from the language use survey. The section commences with analysis methods of the language use survey. It then moves on to transcription conventions. The researcher then considers the main areas for data analysis of the elicited narrations. All areas of data analysis will be discussed for benefits and weaknesses and data validity and reliability throughout.

3.6.1 Data Analysis of Language Use Survey

An added benefit of using the Language Use Survey was that this tool provided the researcher with more reliable and consistent data for initially measuring the children's language use in and outside the home. Furthermore, the closed-ended questions provided quantifiable responses; whereas open-ended questions provided an exploratory window into what respondents were thinking with regard to a particular phenomenon. Given that closed-ended questions aggregate easily, they are relatively simple to analyse, and the researcher will be able to generalise the results to the sample frame and subsequently the wider population with some degree of certainty. The researcher can easily group together the participant responses from the closed-ended questions in a table, and draw conclusions. However, open-ended questions are often asked when it is not clear how responses to a question will naturally group. This results in answers which prove difficult to analyse. Therefore, the data collected from this measurement was not scored or represented quantitatively, it was described qualitatively, initially to aid the researcher in discovering which participants were relevant to the study, and secondly to support the data from the audio-recorded narrations.

3.6.2 Data Analysis of the *Frog, Where Are You?* Narratives

3.6.2.1 Transcriptions

As previously mentioned, during the data collection stage, the researcher attempted to keep all research conditions the same during testing to maximise reliability of data. A uniform format must also be employed for the transcription of the elicited oral narratives, which is the first step taken by the researcher in data analysis. The transcription conventions used in a study are usually chosen with the research questions and the theoretical framework in mind (Ochs, 1979). In the present study, the researcher

followed the transcription conventions offered by Berman & Slobin (1994). The following rationale is given for the researcher's choice of transcription conventions:

i. The transcriptions are broken down into 'minimum units of analysis':
Berman & Slobin (1994) selected the "clause" as the minimum unit of analysis for their study, which they describe as "more linguistically structured than the behavioural unit of an "utterance" but as less determined by syntactic criteria than a "sentence"" (1994: 26). A clause is described as "any unit containing a unified predication, whether in the form of a verb or adjective" (1994: 26). (A full explanation of data to be included and excluded from the clause count can be found in the appendices). The following examples from the narrations are considered single clauses: *boy captured a frog; they came to a beehive; jar smashed.* The research questions in this study require that the researcher analyses various aspects of linguistic ability of the participants. By dividing each narration into clauses, and subsequently measuring the average number of words per clause, the researcher will be able to compare various aspects of narrative length and complexity. Furthermore, the frequency of specific errors throughout the narratives can be measured in proportion to the number of clauses to assure that the results were not affected by story length variation across groups.

ii. Clause coding:
Each clause was recorded on a separate line and preceded by an individual code. The code specifies the participant's English language provision: EFL – English as a Foreign Language, or NL – Native Language; the participant's age; the picture of the book they were looking at whilst producing the utterance; and the number of the clause in that text. Thus, for example, the code NL6 01002 would represent a 6-year-old participant who is currently receiving native English-language instruction and was looking at the first picture of the book. The clause is the second clause in the narration. The use of separate lines and clause coding facilitates data comparison between participants and enables quick referencing for the researcher.

iii. Paralinguistic features:
As mentioned in previous chapters, language attrition or language development issues can be represented by language delay. This type of

'disfluency' can be measured by paralinguistic features such as pauses, hesitations and repetition. Berman and Slobin's conventions (1994) allow the researcher to include this information in the transcriptions. For example, a long pause is represented by three dots (…). A full coding list for paralinguistic features can be found in the appendices.

iv. Previous studies:

Since Berman and Slobin's transcription conventions (1994) have been used in many previous studies (e.g., Berman & Slobin, 1994; Strömqvist & Verhoeven, 2004), this will facilitate the comparison of data, much of which is readily available in the CHILDES archive (MacWhinney, 1984). This will help the researcher to increase the reliability and validity of the data.

3.6.2.2 Limitations to Transcription Conventions

Following Berman and Slobin's transcription conventions (1994) is a very timeconsuming process. Perhaps an idea for future research would be to use one of the many transcription computer programmes available to researchers. Furthermore, although it did not fall within the timescale of this study, a future researcher may benefit from another person double-checking the transcripts, to improve accuracy and reliability of data.

3.6.3 Domains for Analysis

The main aim of this study is to examine the English language competence of those participants who learn their L1 as an L2, and to compare these results with participants who receive native classes. By looking at multiple aspects of the narrations, the researcher lens of this analysis is widened to provide a richer description of the impact of a child learning their L1 as an L2. Firstly, as an initial point of analysis, data will be analysed for narrative length. Within the literature review, three domains were established as representing different levels of language attrition, which shall be used in analysis: (1) the lexicon, a domain which is susceptible to change due to its looser structure (lexical items are much less linked with each other in the linguistic system than, say, morphosyntactic rules/items), (2) morphosyntax, whereby the presence of attrition may represent a more advanced level of attrition due to the tight structure of grammatical properties, and (3) motion event lexicalisation, a language domain reported in the literature to be extremely resistant to restructuring in the L1.

i. **Narrative Length:**

After applying Berman and Slobin's transcription conventions to the elicited narrations, it is simple for the researcher to measure the complexity of the texts in terms of total narrative word length, the number of clauses per narrative, and to measure the syntactic complexity by measuring the mean length of clause. The researcher will present this information in a table providing mean values and standard deviations for both the EFL and NL groups, allowing her to observe any significant between-group differences.

ii. **The Lexicon**

The lexicon will firstly be analysed for lexical diversity. Lexical diversity, defined as the percentage of different words in the total number of words, is an important measure of how language learners deploy their active vocabulary. A higher lexical diversity shows us that a participant is less repetitive in their choice of words, possibly indicating that they possess a richer vocabulary. Because simple TTRs have been shown to be a problematic measure of lexical diversity in that they vary as a function of text length, they are of little use unless the extract length is identical (Vermeer, 2001). As a solution to this problem, the researcher used the software LexTutor to calculate the Standardised Type Token Ratio (STTR) for the first 100 words of each narrative.

Secondly, the lexicon will be analysed for lexical accessibility (also known in the literature as lexical retrieval). Retention of lexical items usually prefers the most frequently used vocabulary (Gürel, 2004, Pavlenko, 2003, Schmid, 2004), therefore, and in accordance with Obler (1982), the items which are most susceptible to loss or change are infrequent, specific, nouns. Seven such specific nouns have been selected for analysis since the children will be unable to ignore them when faced with the task of fluent storytelling: *jar*, *beehive, gopher, owl, stag, pond* and *tree trunk*. These nouns were also selected as none of them appear in the top 2,000 most frequently used words in the English language, according to the British National Corpus. In the event that the participant is unable to use the noun or demonstrates an issue in retrieval, compensatory strategies will be analysed.

This analysis was chosen as a similar study carried out by Olshtain and Barzilay (1991) demonstrated retrieval problems and compensatory strategies, such as hesitations and delays, amongst participants.

iii. Morphosyntax

Analysing morphosyntax for effects of attrition is important since morphosyntactic rules and properties are generally considered more resistant than lexical ones to the influence of L2 (Andersen, 1982; Gürel, 2002; Myers-Scotton, 1993; Schmitt, 2001; Thomason & Kaufman, 1988), and therefore evidence of morphosyntactic attrition may represent a more advanced process.

Mean Length of Utterance (MLU) will be analysed, since it serves as an estimator for syntactic complexity, relying on the assumption that shorter sentences tend to be simpler. Furthermore, the accuracy of the language produced by the participants will be assessed by analysing the rate and types (including omissions) of morphological errors produced. The resultant measure, *Frequency of Morphological Errors*, will be calculated as a proportion of morphological errors to total number of clauses, to assure that the results are not affected by story length variation across groups. Any specific errors which occur much more frequently in one group in comparison to the other, will be analysed separately.

With regard to tense, as previously mentioned in this chapter, the participants were encouraged to narrate the story in the past-tense. The narratives will be analysed for tense shifts or "mixed" tense usage, veering back and forth from past to present. The researcher will interpret this as the narrator's inability to remain anchored within a consistent narrative mode and that they have not yet "established a unified narrative thread, in which grammatical tense serves to establish text cohesion and coherence" (Berman & Slobin, 1994: 62). The location of the tense shifts will also be analysed.

iv. Lexicalisation Patterns

Based on Berman and Slobin's summaries for the way motion events are narrated in S-languages and V-languages (1994), the present study will analyse the following:

- Motion: Comparing the total number and type token ratio of motion verbs for each group.
- Manner: Comparing the total number and type token ratio of Manner verbs for each group. Examining first and second-tier verbs.
- Trajectories: This analysis uses the owl scene, where an owl flies out of a tree, to examine the description of trajectory details vs. the description of static scenes.

- Path: Examining the degree of the elaboration of Path descriptions by analysing the use of ground-adjuncts.
- Event conflation: Examining the frequency of event conflation by analysing the complex path expressions found within the narratives of the cliff scene, where the boy falls down from the cliff to the river.

3.6.4 Statistical Data Analysis

To discover the significance of the results obtained, statistical analysis will be performed using a series of independent T-tests in SPSS. A significance level of 0.05 will be used for all statistical tests.

3.7 Summary

This chapter has outlined in detail the methodological and research design process used for this study. The research design has focused on a multi-method quantitative and qualitative approach to collect the data. It involved the use of triangulation, as an effective approach used when mixing methods and styles over a given period of time. Hence, validity and reliability were able to be achieved through this "triangulation approach" to analyse research questions. The criteria for participants and the rationale for choice of research instruments were discussed, with the language use survey as the initial tool for data collection and participant selection in this study. The researcher also discussed the rationale for the selection of the picture book *Frog, Where Are You?* (Mayer, 1969), which was used as a data collection instrument to elicit fictional narratives from the 26 child participants. In the section that followed, we provided a brief description of ethical issues and measures put in place by the researcher in order to meet the requirements of the University of East Anglia's Ethics Committee and ensure an ethical approach to research. Finally, the chapter concluded with a discussion of data analysis methods and statistical scoring to be implemented in the following chapters of the research. The next chapter will present the results of the fieldwork.

CHAPTER IV: RESULTS

4.1 Introduction

This chapter will present the data analysis which is divided into four sections. By looking at multiple aspects of the narrations, the researcher lens of this analysis is widened to provide a richer description of the impact of a child learning their L1 as an L2. As an initial point of analysis and to measure narrative complexity, the researcher will analyse the data obtained for narrative length in terms of the *total number of words* and the *total number of clauses* per narrative, and to measure the syntactic complexity the researcher will measure the *mean length of clause* (commonly referred to as the mean length of utterance in the literature). Analysis of the data will then focus on the three language domains identified in the literature review and methodology: the lexicon, morphosyntax and lexicalisation patterns. The researcher chose to analyse these three domains as the literature presents them as having different levels of susceptibility to language attrition. Due to its looser structure, the lexicon has been frequently identified in the language attrition literature to be the first area affected by attrition (Köpke & Nespoulous, 2001; Köpke & Schmid, 2004; Schmid, 2002), therefore if attrition is occurring amongst the participants, it should be observed within the lexicon. Analysing morphosyntax for effects of attrition is important since morphosyntactic rules and properties are generally considered more resistant than lexical ones to the influence of L2 (Andersen, 1982; Gürel, 2002; Myers-Scotton, 1993; Schmitt, 2001; Thomason & Kaufman, 1988), and therefore evidence of morphosyntactic attrition may represent a more advanced process. Finally, the researcher decided to analyse the narratives for lexicalisation patterns since they have been confirmed in the literature to be extremely resistant to restructuring in the L1.

4.2 Narrative Length

In general, children's narratives vary significantly in length, and thus, to make meaningful comparisons by controlling for variation in story length, the narratives were first coded for length as measured by *number of words*, *number of clauses*, and *number of words per clause*. Furthermore, narrative length can also be considered a measure of linguistic and syntactic complexity, therefore, we put forward the following hypothesis:

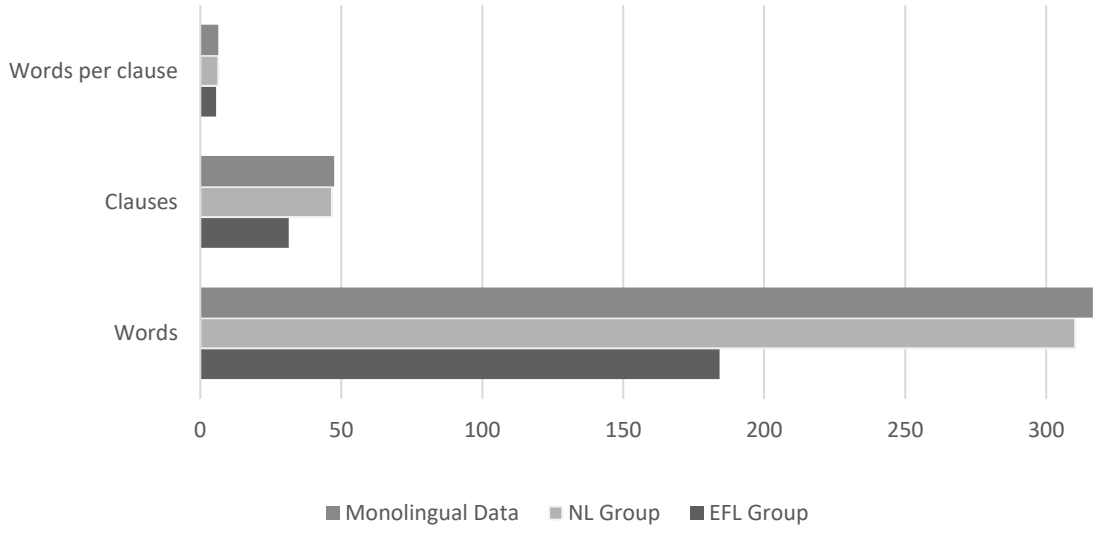
Hypothesis 1: *In comparison with the NL group, t*he *EFL group narratives will provide fewer total words, fewer clauses per narrative,* and a lower *mean length of clause.*

Table 4 and Figure 1 demonstrate noticeable differences between the groups with regard to narrative length. In agreement with our hypothesis, the EFL group produced narratives with fewer mean words, clauses, and length of clause in comparison with the NL group. Independent t-tests revealed these between-group differences to be significant for *number of words*, and mean *length of clause* (p = .050 and p = .037, respectively), although number of clauses was not significant. Furthermore, significant between-group differences are also identified for the EFL group and the monolingual data (p = .050 and p = .019, respectively). The NL group values were minimally lower than the monolingual data values, so the difference between the NL group data and the monolingual data was not significant for any of the categories (*number of words:* p = .709, *number of clauses:* p = 0.960, *words per clause:* p = 0.585). Furthermore, the standard deviation values show us that there was considerably more variability in the EFL group data.

Table 4: Means and standard deviations for words, clauses, and words per clause for language provision

	EFL Group (N=12)		NL Group (N=14)		Monolingual Data (N=30)	
	M	SD	M	SD	M	SD
Number of Words	184.2	91.9	310.3	62.3	316.5	51.3
Number of Clauses	31.33	15.23	46.7	11.3	47.5	10.5
Number of Words per Clause	5.6	1.1	6.4	0.6	6.4	0.5

Figure 1: Mean words, clauses, and words per clause for language provision



Aside from the *language provision* variable, further analysis of the data also highlighted two other variables which appear to show correlation with the data: *age* and *age of immigration*. Table 5 and Figures 2, 3 and 4 show us that *number of words*, *number of clauses*, and *mean length of clause* increase with age with the exception of the EFL age-group 10-12, where the values decrease (although, it is important to point out that there is only one participant in this age-group which may affect the reliability of the data).

Table 5: Mean words, clauses, and words per clause for language provision and age

	EFL Group (N=12)			NL Group (N=14)			Monolingual Data (N=30)		
	Age			Age			Age		
	4-6 (n=2)	7-9 (n=9)	10-12 (n=1)	4-6 (n=1)	7-9 (n=6)	10-12 (n=7)	4-6 (n=20)	7-9 (n=10)	10-12 (n=0)
Words	107	232	217	288	310	333	295	335	-
Clauses	26	32	36	43	46	51	36	51	-
WPC	4	6	6	6	6	6	6	7	-

Figure 2: Mean number of words and age

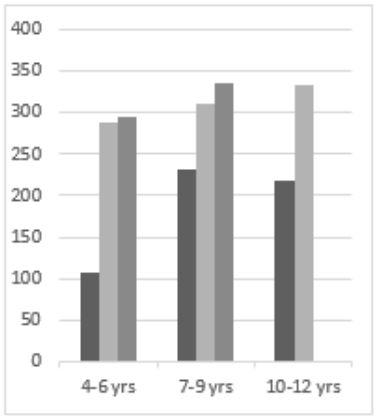


Figure 3: Mean number of clauses and age

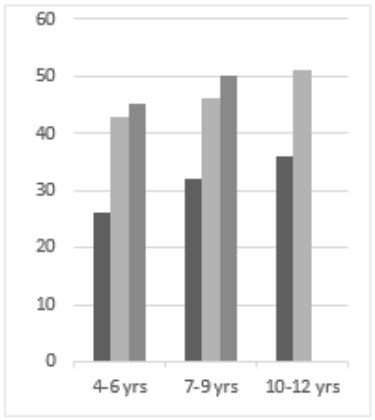
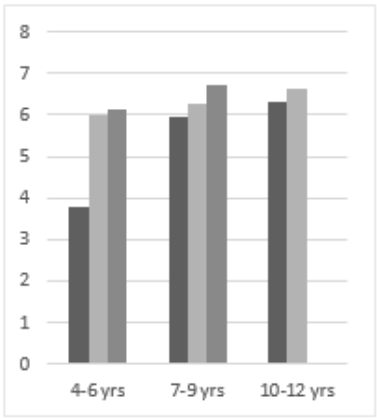


Figure 4: Mean length of clause and age

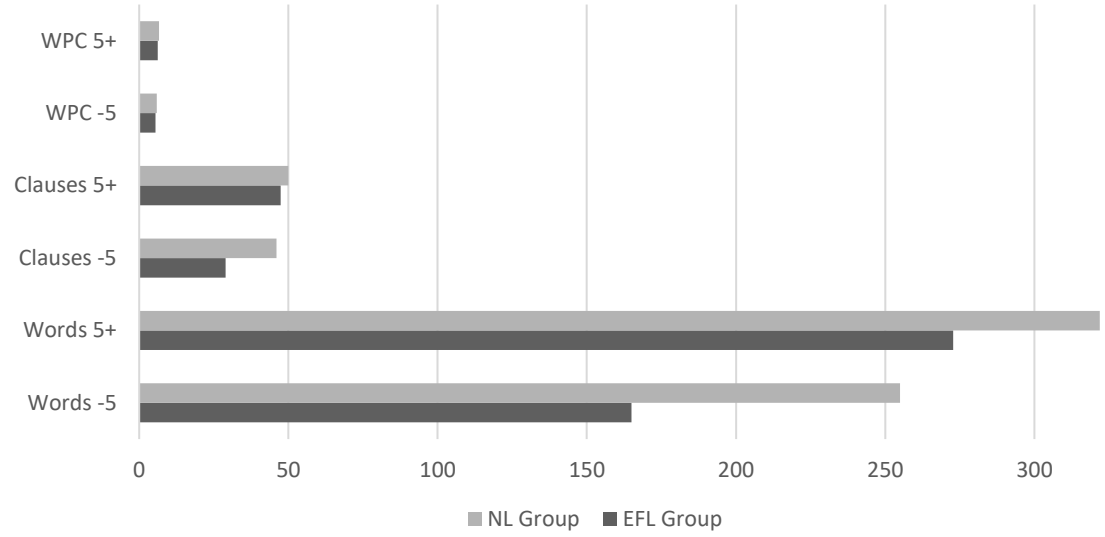


With regard to the *age of immigration* variable, for both the EFL group and the NL group, those participants who immigrated before the age of 5 produced lower values for *number of words*, *number of* clauses, and *mean length of clause* than those participants who immigrated from the age of 5. However, this variable is only significant for the EFL group with regard to *mean number of words (significant at p* = .048*)* and *mean number of clauses (significant at p* = .052). Furthermore, Table 6 shows us that the values for the NL group who immigrated below the age of 5 are close to the values of the EFL group who immigrated from the age of 5, showing us that the lowest values for the NL Group are on a parallel with the highest values from the EFL group, and further illustrating the limits of EFL provisions and the advantages of NL provisions.

Table 6: Mean words, clauses, and words per clause for language provision and age of immigration

	EFL Group (N=12)		NL Group (N=14)	
	Age of Immigration		Age of Immigration	
	Below 5 (n=7)	5+ (n=5)	Below 5 (n=6)	5+ (n=8)
Words	165	273	255	322
Clauses	29	47	46	50
Words per Clause	5	6	6	7

Figure 5: Mean words, clauses, and words per clause for language provision and age of immigration



4.2.1 Summary

In this section of the study, we analysed the *number of words* and *number of clauses* within the narrations as measures of linguistic complexity, and the *number of words per clause* as a measure of syntactic complexity.

We were presented with three variables that appear to affect the data: *language provision*, *age*, and *age of immigration*. In agreement with our hypothesis, when we solely compared the data for language provision, the analysis revealed that the EFL group were generally outperformed by both the NL group and the monolingual data (the EFL group averaged fewer *words per narrative*, fewer *clauses per narrative*, and a lower *mean length of clause* in comparison to the NL group and the monolingual data), and we observed significant between-group differences for *words* and *words per clause.* There were no significant differences between the NL group data and the monolingual data.

When we analysed the data for the effects of variables other than language provision, we observed a clear pattern with regard to (a) *age, and* (b) *age of immigration*. With regard to the *age* variable, as is to be expected, older speakers generally produced longer texts than younger speakers (Berman & Slobin, 1994). With regard to the *age of immigration variable*, participants who immigrated from the age of 5 provided higher values than those who immigrated before the age of 5. However, the only significant values were obtained for the EFL group within the categories of *number of words* and *number of words per clause*.

This section confirms that *language provision*, *age*, and *age of immigration* are all potential factors affecting narration length. However, the only significant variables are *language provision* (a consistently significant variable) and *age of immigration* (a variable which appears to have a greater impact on the EFL group data).

Although this section has presented us with some interesting data, it is important to consider that some of the age-groups, such as the 10-12 age-group for the EFL group, contain only one participant. It is likely that this may affect the reliability of the data. Furthermore, Berman and Slobin (1994: 32) confirm that we cannot "correlate the "goodness" or a narrative with its relative length". In their study, they observed some adult participants producing shorter, more condensed narratives than the child participants. Perhaps this observation can account for the lower narrative length values for the older participants within the EFL group. Therefore, narrative length alone cannot be considered a guideline for narrative ability, and a more in-depth analysis was required to study not only the length (quantity) but also the 'texture' of the narratives (quality). This will be carried out by analysis of other linguistic domains in the following sections, starting with the lexicon.

4.3 The Lexicon

This section of the study focuses on the lexicon, or more specifically, explores the ways in which learning an L1 as an L2 may result in reduced *lexical diversity* and *lexical accessibility*. The bilingual lexicon is one of the most thoroughly studied domains within investigations into bilingualism, and according to Nation (1993: 115), initially, learners' skill in using language is heavily dependent on the number of words they know. As previously discussed, it is generally assumed that certain aspects of the linguistic system are relatively more sensitive to deterioration than others (Anderson, 1982), and in the literature review, we observed that the lexicon has been identified as the place where "bilinguals report the most dramatic changes in their first language after acquiring a second language" (Boyd 1993: 386). It is therefore imperative that we investigate the effects of learning an L1 as an L2 on the lexicon.

To examine these effects, we focused on two areas of lexical competence: *lexical diversity* and *lexical accessibility*. Lexical diversity, calculated using standardised *Type Token Ratio* and defined as the percentage of different words in the total number of words, is an important measure of how language learners deploy their active vocabulary.

A higher lexical diversity shows us that a participant is less repetitive in their choice of words, possibly indicating that they possess a richer vocabulary. Because simple *Type Token Ratios* have been shown to be a problematic measure of lexical diversity in that they vary as a function of text length, they are of little use unless the extract length is identical (Vermeer, 2001). As a solution to this problem, we calculated the standardised *Type Token Ratio* for the first 100 words of each narrative.

As discussed in chapter II, the literature confirms the apparent better retention of the more frequent vocabulary items (Gürel 2004, Pavlenko, 2003, Schmid, 2004). Therefore, and in accordance with Obler (1982), the items which are most susceptible to loss or change are infrequent, specific, nouns. In the data that was collected, seven such specific were used as a test case for retrieval difficulties and will be analysed in detail: *jar*, *beehive*, *gopher*, *owl*, *stag*, *pond* and *tree trunk*. These specific nouns were chosen for analysis by the researcher as they were key words which introduced new aspects of the story, and were therefore difficult for the participants to ignore. They were also low frequency words, not appearing in the top 2,000 most frequently used words in the English language, as confirmed by the British National Corpus. When faced with the task of fluent storytelling, the children were unable to ignore these key words in the story. We had put forward the following hypotheses:

Hypothesis 2: *In comparison with the NL group, the EFL group will provide narratives with lower lexical diversity.*

Hypothesis 3: *In comparison with the NL group, the EFL group will demonstrate a lesser ability to correctly use the infrequent specific nouns.*

Hypothesis 4: *In comparison with the NL group, the EFL Group will demonstrate a higher error rate and use of compensatory strategies in retrieval of the infrequent specific nouns.*

4.3.1 Lexical Diversity

As an initial point of analysis, we started by calculating the mean *Type Token Ratio* for the EFL group, the NL group, and the monolingual data. We can see from Figure 6 that the EFL group has a much lower mean *Type Token Ratio* than both the NL group and the monolingual data, the figures being 0.32, 0.49, and 0.50, respectively. The differences between the EFL group data and both the NL group and the monolingual data are significant ($p = .050$ and $p = .032$, respectively), although the difference between

the NL group and the monolingual data is not significant (p = .076). Therefore, the data appears to agree with our hypothesis that the EFL group will provide narratives with lower lexical diversity than the NL group.

Again, when the data was analysed for affecting variables other than language provision, *age* and *age of immigration* were the only other variables to show correlation. On calculating the mean *type token ratio* in relation to the age of the participants, Figure 7 shows us that the values increase with age, with the exception of those participants between the ages of 10 and 12, where the values appear to decrease for both groups. With regard to the age of immigration, Figure 8 shows us that whilst this variable does minimally affect the NL group data, the difference is not significant (p = .080), however the impact of age of immigration on the EFL group data is significant (p = .019), with those participants who immigrated below the age of 5 producing a much lower mean *Type Token Ratio* than those who immigrated from the age of 5.

Figure 6: STTR and language Provision

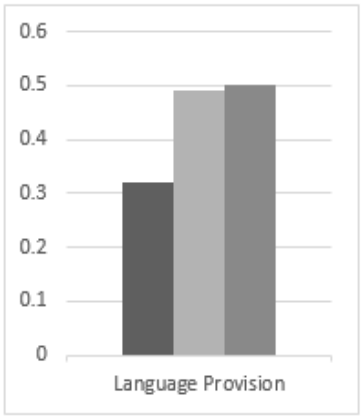


Figure 7: STTR and age

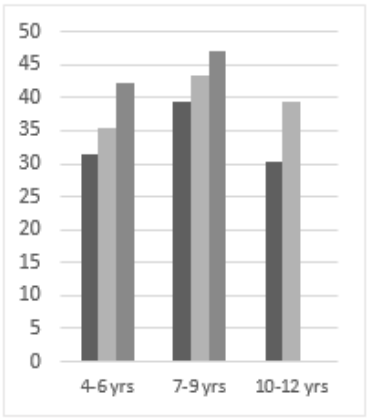
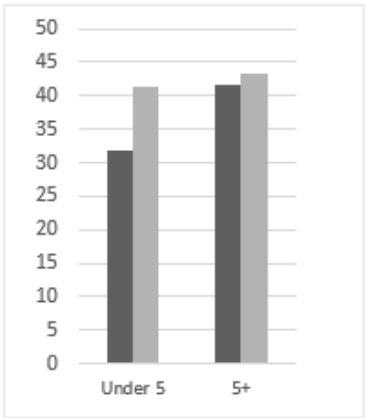


Figure 8: STTR and AoI



In order to further investigate the lexical diversity of the narratives, we analysed the use of different word-types for the EFL group and the NL group. Within the total word count, we calculated the percentage of nouns, verbs, adjectives, adverbs, prepositions, pronouns, conjunctions and determiners for each participant. We can see from Figure 9 that the percentage of word types across both groups is similar, meaning that the higher mean *Type Token Ratio* for the NL group is not attributable to the participants using a specific word type more frequently. However, when we performed *Type Token Ratios* for each word type, we discovered that there was a significant difference (p = .001)

between the two groups with regard to nouns, with the NL group providing a higher average *Type Token Ratio* throughout all three age-groups, as shown in Figure 10.

Figure 9: Percentage of word type and language provision

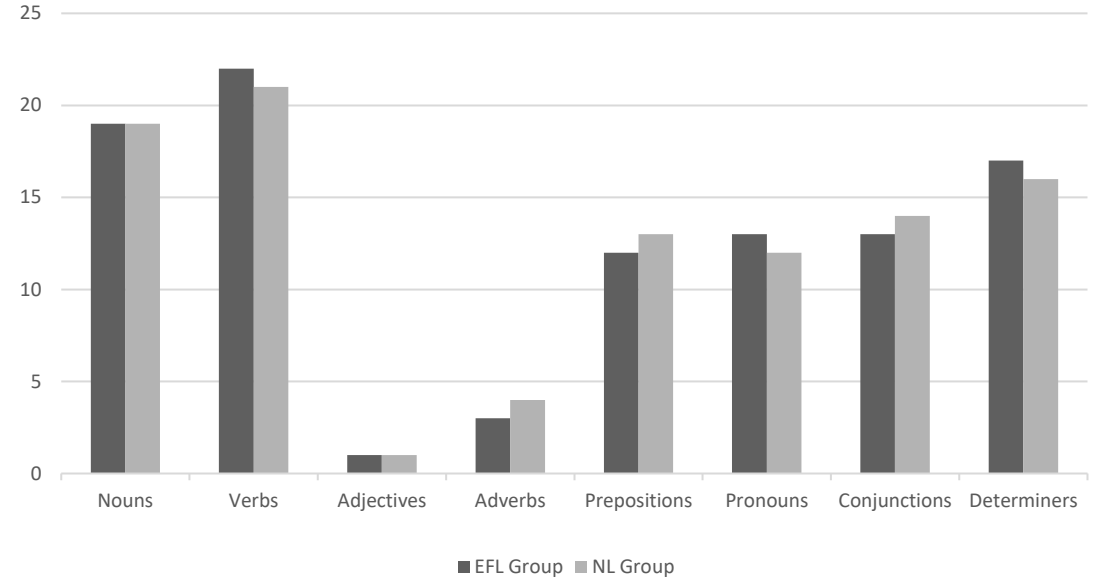
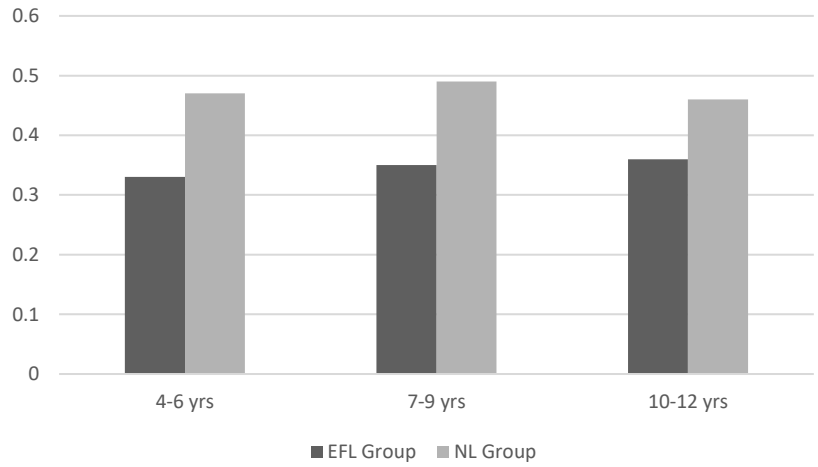


Figure 10: Mean STTR for nouns, age and language provision



4.3.2 Lexical Accessibility

Having identified that the NL group provided narratives with a richer vocabulary of nouns in comparison to the EFL group, we analysed the participants' ability to produce

infrequent, specific nouns in order to identify any problems that the EFL group may have with regard to noun accessibility.

Firstly, with regard to the seven specific nouns chosen for analysis: *jar*, *beehive*, *gopher (mole* was also accepted*)*, *owl*, *stag (deer* was also accepted*)*, *pond* and *tree trunk (trunk* and *log* were also accepted*)*, it was necessary to identify the percentage of correct nouns produced by both groups and deviations from the monolingual data. As the first point of analysis, we calculated the total percentage of nouns identified for both groups, and discovered that the EFL group were significantly less likely to be able to use the nouns than both the NL group (p = .001), and the monolingual data (p = .000). The difference between the NL group and the monolingual data was not significant (p = 0.07).

Table 7 presents the percentage of identified nouns in relation to the participants' age and language provision, and shows us that the percentage generally increases with the age of the participant, with the exception of a decrease in values for age 8 and 9 within the EFL group, and a decrease at age 12 for the NL group. We can also see that the values at age 4 for the NL group and the monolingual data are equal, however after age 4 the values for the monolingual data increase at a faster rate than those for the NL group, although the difference between the data sets is not significant.

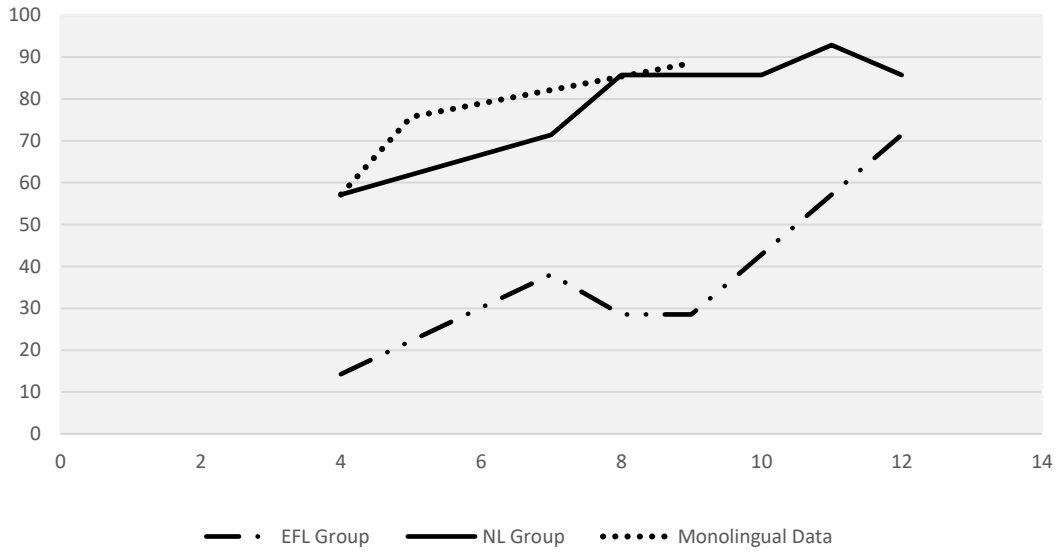
Table 7: Mean percentage of nouns identified, age and language provision

Age	EFL Group (N=12)	NL Group (N=14)	Monolingual Data (N=30)
4	14	57	57
5	-	-	76
7	38	71	-
8	29	86	-
9	29	86	89
10	-	86	-
11	-	93	-
12	71	86	-

A contrasting pattern can be observed when we convert this data into Figure 11 below. From the age of 7, for the NL group we can observe a sharp increase in the ability to produce the nouns, whereas the EFL group present a sharp decrease in this ability. This

is significant when we consider that the participants receive instruction in their L3, Spanish, from the age of 6. As previously discussed in the literature review, some studies have documented the positive cognitive effects of learning an L3 on the L1, which is ascribed to the students having developed an interest in language per se and having obtained various insights into linguistic structures (Cook, 2003; Singleton, 2003). As confirmed by Clyne, Rossi, Hunt *et al*. (2004), "through L3, the pupils' home language maintenance is strengthened, and they develop a more general interest in languages. Perhaps this relates to the private school children who are supported in their L1 whilst they become multilingual. In contrast, having discussed in the literature that the introduction of an L2 before the L1 has been sufficiently developed can lead to the underdevelopment of the L1, we must also consider that the introduction of an L3 is likely to have a further detrimental effect.

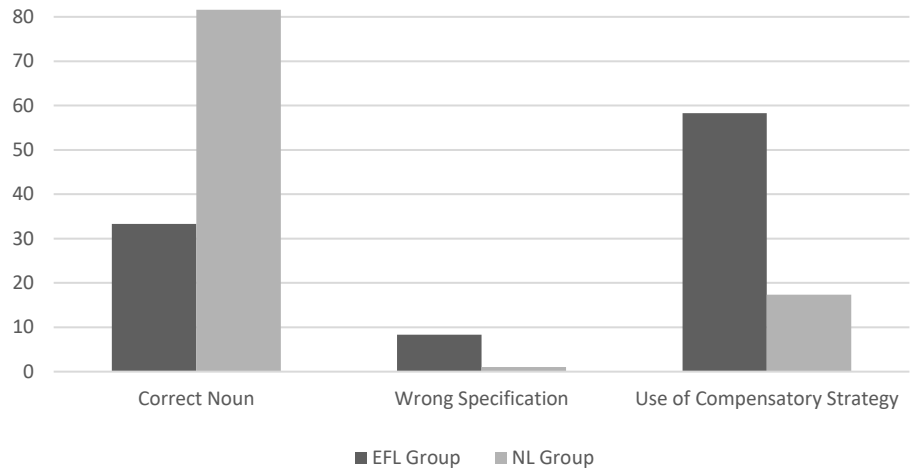
Figure 11: Mean percentage of identified nouns, age and language provision



As previously mentioned, the specific nouns chosen for analysis were difficult to avoid as they provide fundamental information with regard to the telling of the story and were often repeated throughout. Analysis of the data revealed that if a participant could not produce the specific noun, they employed the use of compensatory strategies. Compensatory strategies are described by Tarone (1981) as those strategies used by the second language speaker when he or she desires to communicate a particular meaning to a listener but believes there is a lack in his or her second language linguistic system. We expand this definition to include a lack in the speakers' first language linguistic system.

Figure 12 identifies the difference in ability for the NL group and the EFL group with regard to using the specific nouns. The data show that the NL group were much more likely to be able to use the nouns in comparison to the EFL group (p = .032), and the EFL group were more likely to provide a wrong specification (p = .050) or to use compensatory strategies (p = .001).

Figure 12: Percentage of nouns identified, wrong specifications, use of compensatory strategies and language provision



On analysis of the data, if the participants did not give the correct noun or the wrong specification, we discovered the use of 5 compensatory strategies:

i. Selection of a general term, e.g., the use of "water" instead of "pond", or "animal" instead of "deer".
ii. Lexical borrowing, e.g., the use of a noun from their L2. An example would be the use of the Catalan word for river, "riu".
iii. A long retrieval process, e.g., the researcher noted significantly longer pauses whilst the participant took time to search for the noun in the mental lexicon.
iv. Overt comments: a comment made by a participant regarding linguistic deficiency, e.g., "I forgot what this is called", or "I don't know what this is called".
v. Avoidance of a term through bypassing or pointing.

Tables 8 to 15 identify the percentage of wrong specifications and each compensatory strategy used by both groups for each of the specific nouns (the analysis was based on the participants' first encounter of the noun). Table 15 shows us the total percentage

used by both the NL group and the EFL group. From the data presented in tables 8-15, it is clear that the NL group, although demonstrating some variability in their responses, had considerably less difficulties producing the specific nouns. The NL group participants seem to exhibit a certain uniformity indicating that such words are easily available in their lexical memory. This stands in sharp contrast to the difficulties encountered by the EFL group in supplying suitable nouns.

Table 8: Compensatory strategies used on the first encounter of *jar*

	NL Group (N=14)		**EFL Group (N=12)**	
	Number of Participants	%	Number of Participants	%
Noun Identified	13	93	1	8
Wrong specification	-	-	2	17
General term	1	7	2	17
Lexical borrowing	-	-	1	8
Long retrieval process	-	-	-	-
Comments that they don't know	-	-	2	17
Comments that they can't remember	-	-	-	-
Avoidance or pointing	-	-	4	33

Table 9: Compensatory strategies used on the first encounter of *beehive*

	NL Group (N=14)		**EFL Group (N=12)**	
	Number of Participants	%	Number of Participants	%
Noun Identified	10	72	1	8
Wrong specification	-	-	1	8
General term	3	21	2	17
Lexical borrowing	-	-	-	-
Long retrieval process	-	-	-	-
Comments that they don't know	-	-	2	17
Comments that they can't remember	-	-	1	8
Avoidance or pointing	1	7	5	42

Table 10: Compensatory strategies used on the first encounter of *gopher*

	NL Group (N=14)		EFL Group (N=12)	
	Number of Participants	%	Number of Participants	%
Noun Identified	5	36	2	17
Wrong specification	-	-	2	17
General term	7	50	-	-
Lexical borrowing	-	-	-	-
Long retrieval process	-	-	-	-
Comments that they don't know	-	-	2	17
Comments that they can't remember	-	-	1	8
Avoidance or pointing	2	14	5	41

Table 11: Compensatory strategies used on the first encounter of *owl*

	NL Group (N=14)		EFL Group (N=12)	
	Number of Participants	%	Number of Participants	%
Noun Identified	13	93	6	50
Wrong specification	1	7	1	8
General term	-	-	-	-
Lexical borrowing	-	-	-	-
Long retrieval process	-	-	-	-
Comments that they don't know	-	-	1	8
Comments that they can't remember	-	-	1	8
Avoidance or pointing	-	-	3	25

Table 12: Compensatory strategies used on the first encounter of *stag*

	NL Group (N=14)		EFL Group (N=12)	
	Number of Participants	%	Number of Participants	%
Noun Identified	14	100	8	67
Wrong specification	-	-	-	-
General term	-	-	1	8
Lexical borrowing	-	-	-	-
Long retrieval process	-	-	1	8
Comments that they don't know	-	-	1	8
Comments that they can't remember	-	-	-	-
Avoidance or pointing	-	-	1	8

Table 13: Compensatory strategies used on the first encounter of *pond*

	NL Group (N=14)		EFL Group (N=12)	
	Number of Participants	%	Number of Participants	%
Noun Identified	13	93	7	58
Wrong specification	-	-	-	-
General term	1	7	3	25
Lexical borrowing	-	-	1	8
Long retrieval process	-	-	-	-
Comments that they don't know	-	-	-	-
Comments that they can't remember	-	-	-	-
Avoidance or pointing	-	-	1	8

Table 14: Compensatory strategies used on the first encounter of *tree trunk*

	NL Group (N=14)		EFL Group (N=12)	
	Number of Participants	%	Number of Participants	%
Noun Identified	12	86	3	25
Wrong specification	-	-	1	8
General term	-	-	-	-
Lexical borrowing	-	-	-	-
Long retrieval process	-	-	-	8
Comments that they don't know	-	-	1	8
Comments that they can't remember	-	-	-	-
Avoidance or pointing	2	14	7	51

Table 15: Total number of compensatory strategies used by each group

	NL Group (N=14)		EFL Group (N=12)	
	Number of Participants	**%**	**Number of Participants**	**%**
Noun Identified	**80**	**82**	**28**	**33**
Wrong specification	**1**	**1**	**7**	**8**
General term	**12**	**12**	**8**	**10**
Lexical borrowing	**-**	**-**	**2**	**2**
Long retrieval process	**-**	**-**	**1**	**1**
Comments that they don't know	**-**	**-**	**9**	**11**
Comments that they can't remember	**-**	**-**	**3**	**4**
Avoidance or pointing	**5**	**5**	**26**	**31**

All of the NL group, with the exception of one participant, were able to use the noun *jar*. This contrasts with the EFL group, where only one of the participants could use the noun. Two of the EFL group gave a wrong specification with the terms "cup" and "bowl". The general term provided by the NL group was "container", whereas two participants from the EFL group used "thing", which could be considered a less specific, higher frequency noun. One participant from the EFL group, as demonstrated in example 5, provided an example of lexical borrowing with the use of the Spanish word for vase "jarrón", a term which was selected after an initial pause, perhaps suggesting that the switch was not a natural unconscious selection but a conscious strategy to compensate for the lack of L1 knowledge:

(5) *And it break, the, um, the, err, jarrón [EFLl-7]*

Another interesting observation with regard to lexical borrowing, was that two EFL group participants used the term "pot" for *jar*. Since the word "pot" is the Catalan word for *jar* but is also an English word for a type of container, it is difficult to know whether the participant is using an incorrect term or demonstrating the use of lexical borrowing. Within the data, I have included the use of "pot" within the wrong specification category, but it is worth considering if it is indeed an example of lexical borrowing or convergence.

The term *beehive* was, again, much more accessible to the NL group, with ten of the fourteen participants using the noun. Only one of the EFL group was able to use the noun. Three of the NL group provided a general term with the use of "nest", whereas only two of the EFL group provided a general term with the use of "home" and "nest". However, the EFL group also provided a wrong specification with the term "hove". The term *gopher* was less accessible to the NL group than the other terms, with only five of the participants producing the correct noun. Seven of the participants provided the same general term "animal" or "little animal". Only two of the EFL group provided a correct term and two provided a wrong specification with the terms "hamster" and "rat". All except one of the NL group were able to correctly use the term *owl*. The participant who provided a wrong specification used the term "falcon", which could be considered lower frequency than the one required. Six of the EFL group were able to use the term, with one participant using the incorrect term "pigeon". All of the NL group were able to correctly use the term "deer" or "stag", as were eight of the EFL group participants. The general term used was "animal". All of the NL group, with the exception of one

participant who provided the general term “water”, were able to correctly use the term “pond”. The three EFL group participants who provided a general term also used the term “water”. One EFL group participant demonstrated lexical borrowing by using the Catalan term for river, “riu”, and similarly to the previous example of lexical borrowing, selected the term after an initial pause:

(6) *They falled into, into, err, riu [EFLh-4]*

For the noun *tree trunk*, twelve out of fourteen participants from the NL group identified the term, in contrast to three participants from the EFL group. The wrong specification provided was “branch”.

The use of overt comments to express that a term was not known or not remembered was a strategy only used by the EFL group. For example:

(7) *Um, I don’t know what they’re called [EFLh-4]*

(8) *Nah, I can’t remember how they call this [EFLf-12]*

Another observation, which is applicable to each of the nouns, was the noticeable between-group difference with regard to the participants who used avoidance as a compensatory strategy. The participants from the NL group simply did not mention the term, not incorporating it into their narrative and moving past it as if deeming it irrelevant to the story, whereas the EFL group participants pointed to the page whilst saying “there”, “this”, or “that”.

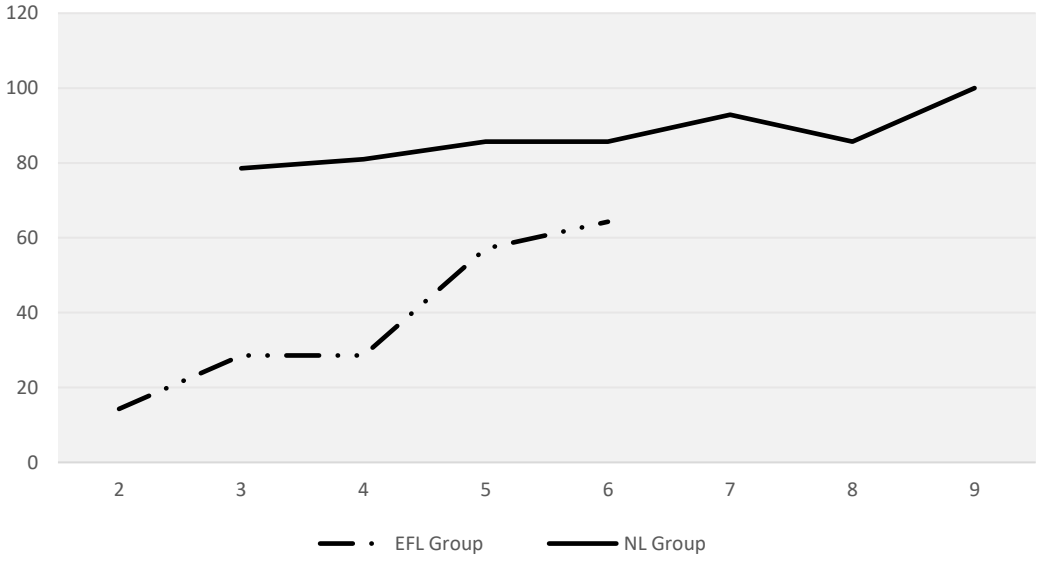
It is clear from Table 15 that language provision has influenced the data with regard to the percentage of nouns identified, wrong specifications and compensatory strategies. We have also observed how the percentage of nouns identified correlates with the *age* of the participants. A further variable that appears to have an effect on the data is *age of immigration*. Table 16 and Figure 13 demonstrate how the percentage of nouns identified generally increases with age of immigration, however from immigration age 5, the percentage increases much more dramatically for the EFL group.

Table 16: Mean percentage of nouns identified, age of immigration, and language provision

	EFL Group (N=12)	NL Group (N=14)
Age of Immigration	Percentage of Nouns Identified	
2	14	-
3	29	79
4	29	81
5	57	86
6	64	86
7	-	93
8	-	86
9	-	100

To understand the sharp increase in correct terms for the EFL Group, in Table 17 we compare the types of compensatory strategies used by participants who immigrated before the age of 5 and from the age of 5:

Figure 13: Mean percentage of nouns identified, age of immigration, and language provision



The EFL group participants who immigrated before the age of 5 were the participants least likely to be able to use the nouns, and the most likely to provide a wrong specification. They were the only participants to demonstrate the use of lexical

borrowing and to overtly express that they "didn't know" how to say a specific term. They were also the participants who most often avoided a term. EFL group participants who immigrated from the age of 5 onwards were the most likely to provide a general term, and were the only participants to demonstrate a long retrieval process or to overtly state that they "can't remember" how to say the term.

The data show less variation between the NL group participants who immigrated before the age of 5 and those who immigrated from the age of 5. Although those who immigrated before the age of 5 were less likely to be able to use the nouns and more likely to provide a general term, their ability to use the nouns was still higher than the EFL group participants who immigrated from the age of 5.

Table 17: Percentage of compensatory strategies, age of immigration, and language provision

Language provision & AoI	Noun Correctly Identified %	Compensatory Strategies %						
		Wrong Specification	General Term	Lexical Borrowing	Long Retrieval Process	Comments that they don't know	Comments that they can't remember	Avoidance or Pointing
EFL -5	27	12	4	4	-	18	-	35
EFL 5+	60	3	17	-	3	-	9	9
NL -5	80	3	14	-	-	-	-	3
NL 5+	86	-	10	-	-	-	-	5

4.3.3 Summary

The data in this section support all three of our hypotheses. Firstly, discovering that the EFL group provided a significantly lower mean *Type Token Ratio* than both the NL group and the monolingual group, supported hypothesis 2, suggesting that the EFL group use less diverse vocabulary and more high-frequency words than the NL group do. This finding is in agreement with Laufer (1991) and Linnarud (1986), who confirmed that those learners with a lower language proficiency will use a greater proportion of high- rather than low- frequency words, "a limited lexicon forces a less proficient

speaker to categorise processes in basic terms and prevents them from offering great lexical detail in descriptions" (Noyau & Paprocka, 2000).

On further analysis of the word-types in each group, we discovered that although the percentage of different word-types used throughout the narrations did not vary significantly between the groups, standardised *Type Token Ratios* performed for each of the word-types revealed that there was a significant between-group difference in the *Type Token Ratio* for nouns, suggesting that the NL group participants possess a richer vocabulary of nouns. To further investigate the use of nouns by each of the groups, the ability to produce seven infrequent, specific nouns was analysed. In agreement with hypothesis 3, the EFL group demonstrated a lesser ability to correctly use the nouns chosen for analysis: the NL group were significantly more likely to be able to use the nouns. Furthermore, hypothesis 4 was confirmed when the EFL group demonstrated a higher error rate and use of compensatory strategies than the NL group. This agrees with Olshtain and Barzilay's (1991) study confirming that the degree of L1 restriction for those who have been uprooted from their natural mother tongue context and transferred to a new language environment, may promote varying levels of language erosion with regard to using nouns in a story book.

With regard to *participant age*, as would be expected, the *Type Token Ratios* appeared to increase with age, confirming that older speakers generally display more diverse and sophisticated use of lexis than the younger ones (Berman & Slobin, 1994). Although, the oldest EFL age-group showed a decrease in values. With regard to lexical accessibility, from the age of 7, the NL group appear to have an increased ability to produce the nouns, whereas the EFL group appear to have a decreased ability. Furthermore, at the age of 8, the NL group demonstrate a continuous levelling, whereas the EFL group, after a short period of levelling, demonstrate a steep increase in the ability to produce the correct nouns.

The *age of immigration* variable appeared to affect both groups, suggesting that the earlier the speakers move to a second language environment, the lower their proficiency in their native language is likely to become in terms of lexical diversity. The effect of age of immigration is in line with various studies (e.g., Ammerlan, 1996; Bylund, 2009, 2009; Pelc, 2001) that show its strong impact on incomplete acquisition and language attrition. However, the effect of *age of immigration* was only significant for the EFL group, and the greater impact of this variable on the EFL group data can be observed throughout this section.

4.4 Morphosyntax

Having analysed the participants' lexicon, the next stage of analysis was to assess the participants' grammatical production. Analysing morphosyntax for effects of attrition is important since morphosyntactic rules and properties are generally considered more resistant than lexical ones to the influence of L2 (Andersen, 1982; Gürel, 2002; Myers-Scotton, 1993; Schmitt, 2001; Thomason & Kaufman, 1988), and therefore evidence of morphosyntactic attrition may represent a more advanced process.

We analysed the narratives for morphosyntactic errors, including omission. The resultant measure, *Frequency of Morphological Errors*, was calculated as a proportion of morphological errors to total number of clauses, to assure that the results were not affected by story length variation across groups.

4.4.1 Morphosyntactic Errors

With regards to the analysis of morphosyntactic errors, we put forward the following hypothesis:

Hypothesis 5: *In comparison with the NL group, the EFL group will demonstrate a higher frequency of morphosyntactic errors.*

The types of morphosyntactic errors are presented in Table 18.

Table 18: Types of morphosyntactic errors

Morphosyntactic Error	Examples
1. Errors in pronouns	*'them lost it', 'Ø fell down'*
2. Verb auxiliaries	*'they running from him', 'they was running'*
3. Determiners	'*Ø dog run fast'*
4. Noun Plurals	*'he found some frog'*
5. Verb tense	*'he falled down'*
6. Number marking	*'he have an angry face'*
7. Prepositional errors	*'he is inside the lake'*

Ø represents omission

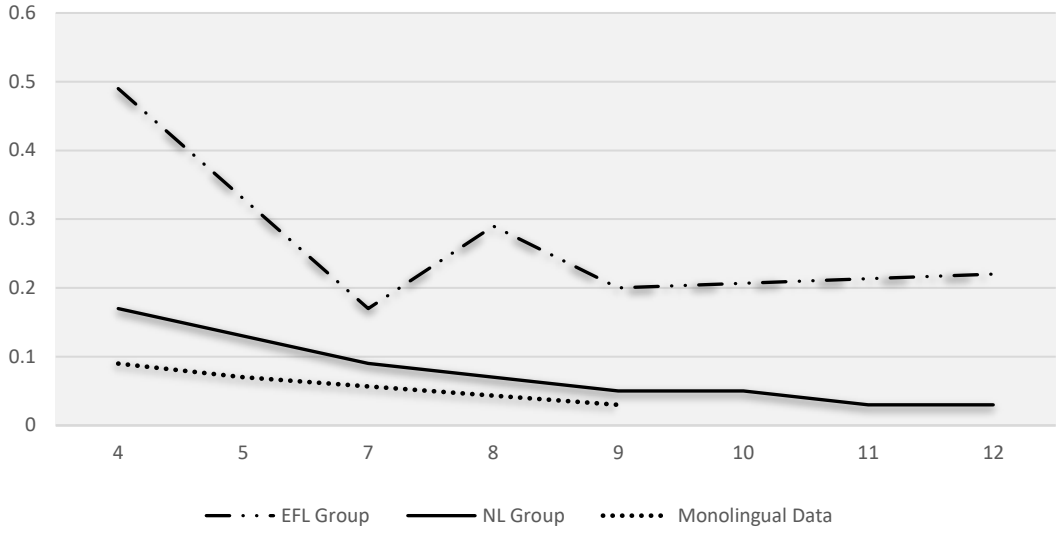
Table 19 supports our hypothesis by showing that the EFL group do indeed demonstrate a significantly higher frequency of morphological errors than the NL Group (p = .015) and the monolingual data (p = .001). Although the NL group data show a slightly higher proportion of errors compared to the monolingual data, this result is not significant (p = .070).

Table 19: Mean frequency of morphosyntactic errors, age, and language provision

	Mean Frequency of Morphosyntactic Errors and Age		
Age	EFL Group (N=12)	NL Group (N=14)	Monolingual Data (N=30)
4	0.49	0.17	0.09
5	-	-	0.07
7	0.17	0.09	-
8	0.29	0.07	-
9	0.20	0.05	0.03
10	-	0.05	-
11	-	0.03	-
12	0.22	0.03	-
Mean Frequency:	0.27	0.07	0.06

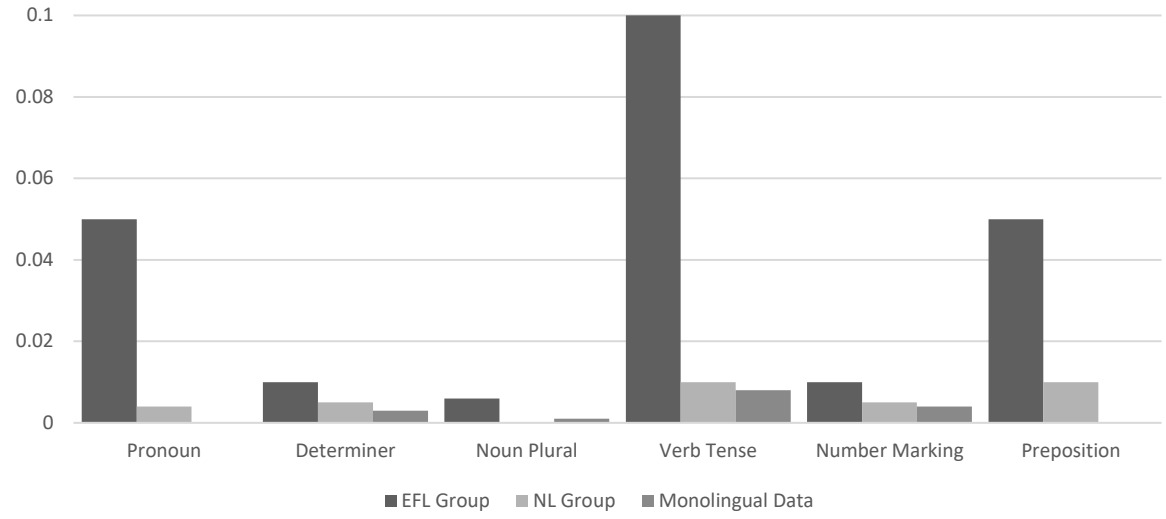
Figure 14 presents us with a clear pattern that the EFL group produced a higher frequency of morphosyntactic errors than both the NL group and the monolingual data, across all ages. We can also see that for the NL group and the monolingual data, the frequency of morphosyntactic errors gradually declines with age, unlike values for the EFL group, which, after a steep decline, appear to increase again at age 8.

Figure 14: Frequency of morphosyntactic errors, age, and language provision



Having proved the hypothesis that the EFL group demonstrate a higher frequency of morphosyntactic errors than the NL group, we will consider the types of morphosyntactic errors produced by both groups. Figure 15 presents a clear picture that the difference in morphosyntactic error frequency between the two language provision groups can be attributed to three significant error types: *pronouns (p* = .011*)*, *prepositions (p* = .006*)*, and *verb tense (p* = .002*)*. Furthermore, when we compare the language provision groups to the monolingual data, we can see that pronoun and preposition errors were only produced by the bilingual groups, meaning that these errors may be due to influence from Spanish and Catalan as opposed to the other categories where errors are present in the monolingual data, and therefore may be representative of L1 development.

Figure 15: Frequency of morphosyntactic error types



For analysis, I will focus on the categories of *pronoun*, *preposition* and *verb tense* since these categories present the greatest variance between the language provision groups.

With regard to pronoun errors, the data for the EFL Group and the NL Group both provided examples of the use of incorrect pronouns, for example:

(9) *And then the boy, them takes a frog [EFLi-8]*
(And then the boy, he takes a frog)

(10) *And the boy and the dog them go into the forest [NLg-4]*
(And the boy and the dog they go into the forest)

However, the EFL group provided a considerably higher quantity of pronoun omissions. The NL group produced no errors of this type. For example:

(11) *Ø Is seeing the frog and is seeing the dog [EFLb-7]*
(He is seeing the frog and is seeing the dog)

(12) *Ø is in the bed and is sleeping [EFLg-4]*
(He is in the bed and is sleeping)

As previously discussed in the literature review, a way in which the languages of the study differ typologically is in their production of pronouns. English, a non-pro-drop

language, requires the use of a subject. Pro-drop languages on the other hand, such as Catalan and Spanish, do not, and can have null subjects. Since all pronoun errors produced by the NL group were examples of incorrect pronouns and not omissions, this may indicate that this transfer is only relevant for the participants that learn an L1 as an L2. Crucially, since this type of error did not occur within the monolingual data, it would appear that this may be an example of transfer. Filipović and Hawkins (2013) confirm that Spanish pro-dropping is often transferred into early L2 English as the structure is simpler and increases processing efficiency while not significantly impeding communication because the message can still get through. However, what is interesting is that the data in this study show transfer from the L2 to the L1, and not from the L1 to the L2.

Prepositions was another morphosyntactic category where errors were only present amongst the bilingual groups, suggesting an effect of bilingual transfer and not L1 development. However, the EFL group were much more likely to make preposition errors than the NL group. Examples 13 and 14 represent some of the preposition errors that were present in the EFL group data.

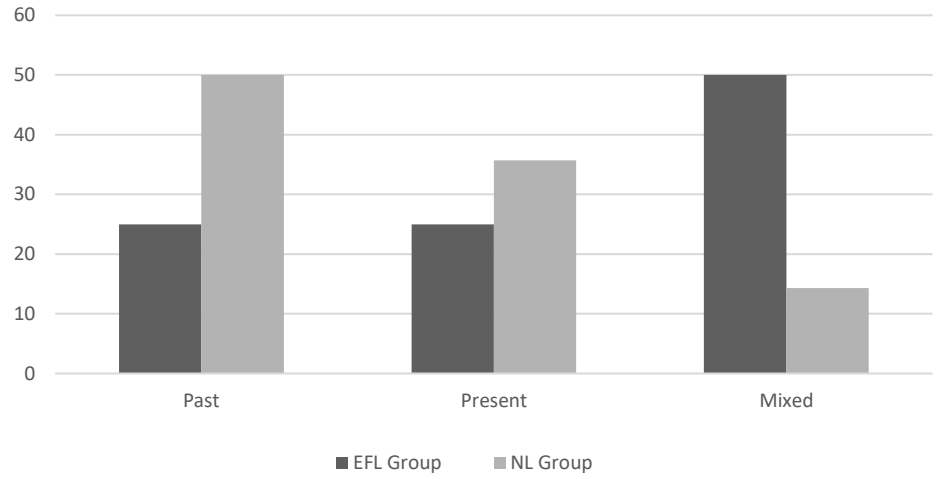
(13) *The reindeer throws the boy and the dog **on** the lake [EFLd-9]*
(The reindeer throws the boy and the dog in the lake)

(14) *They look **for** the window [EFLi-7]*
(They look through the window)

Prepositions are a very common area of transfer that has been documented in Catalan and Spanish speakers acquiring English as a second language, since the same Catalan / Spanish preposition can be used for different meanings, whereas those different meanings would be represented by more than one preposition in English. For example, the English prepositions *in* and *on* are both represented in Spanish by *en*, and the Spanish preposition *por* can mean *for, by* and *through*. Thus, a Spanish speaker acquiring English might mix up the use of the corresponding English prepositions because they are not differentiated in Spanish. Interestingly, despite the fact that this type of transfer is usually observed in a speaker's L2, examples 13 and 14 demonstrate transfer from the L2 to the L1.

We can see that the largest frequency of errors occurred in the category of *verb tense.* As mentioned in the methodology, when the participants were introduced to the narration task, they were encouraged to narrate in the past tense, however Figure 16, which shows us the anchor tenses used by each group, suggests that the EFL group may not be as proficient in the use of the past tense as the NL group, with many of the participants starting the narration in the past tense, but switching to the present tense, and back, throughout the narrations.

Figure 16: Anchor tense percentages and language provision



When investigating what triggers the switch from past tense to present tense, it was evident that the EFL group participants often switched from the past tense to the present tense when faced with a verb that is irregular in the past tense, for example:

(15) *They wanted to bite the dog, so the dog, err, **runs** away [EFLb-7]*
(They wanted to bite the dog, so the dog, err, ran away)

(16) *The boy shouted to the frog and the dog jumped, he **falls** [EFLk-7]*
(The boy shouted to the frog and the dog jumped, he fell)

On further analysis of the *verb tense* errors, we also discovered that the majority of these errors consisted of irregular past tense errors in the form of *over-regularisation*, for example:

(17) *He **throwed** him in a lake [EFLi-7]*
(He threw him in the lake)

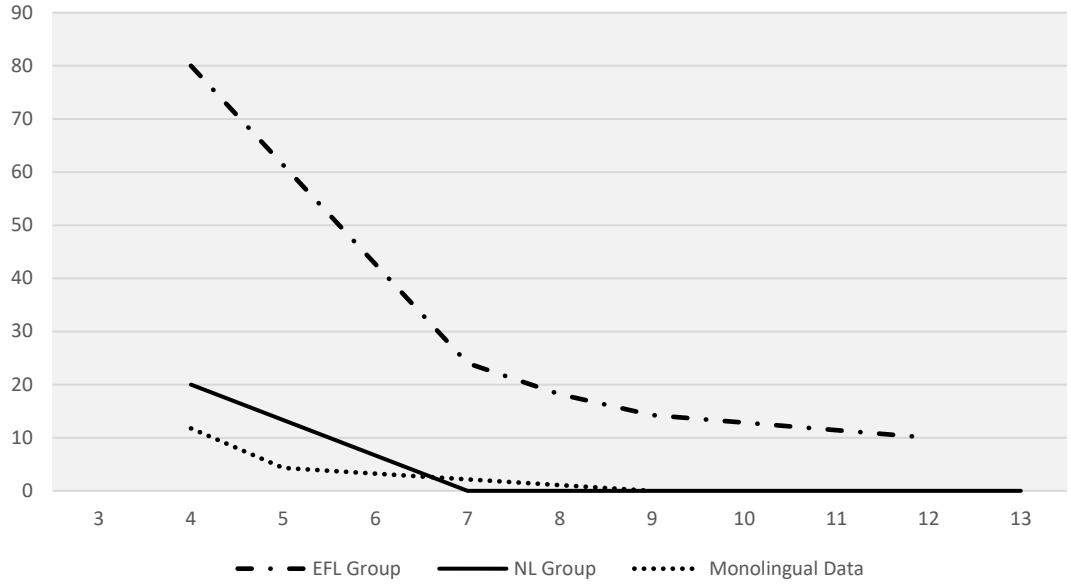
(18) *The deer **catched** the kid [EFLf-12]*
(The deer caught the kid)

The above data suggest that the EFL group had specific difficulties forming correct irregular past tense verbs. Table 20 presents the data for *over-regularisation* errors. Across all three groups of data, younger participants were much more likely to over-regularise, and over-regularisation appears to gradually decrease with age, a pattern previously observed in the literature (Marcus *et al.*, 1992), and demonstrated in Figure 17. However, the EFL Group provided a consistently and significantly higher percentage of over-regularisation errors in comparison with the NL Group (p = .008) and the monolingual data (p = .001).

Table 20: Percentage of over-regularisation errors, age, and language provision

	EFL Group (N=12)			NL Group (N=14)			Monolingual Data (N=30)		
Age	Irregular past tense verbs	Errors	% of Errors	Irregular past tense verbs	Errors	% of Errors	Irregular past tense verbs	Errors	% of Errors
4	10	8	80	5	2	20	51	6	12
5	-	-	-	-	-	-	70	3	4
7	50	12	24	18	0	0	-	-	-
8	11	2	18	1	0	0	-	-	-
9	21	2	14	28	0	0	96	0	0
10	-	-	-	0	0	0	-	-	-
11	-	-	-	13	0	0	-	-	-
12	10	1	10	29	0	0	-	-	-
Totals:	102	25	25	94	2	2	217	9	4

Figure 17: Percentage of over-regularisation errors, age, and language provision

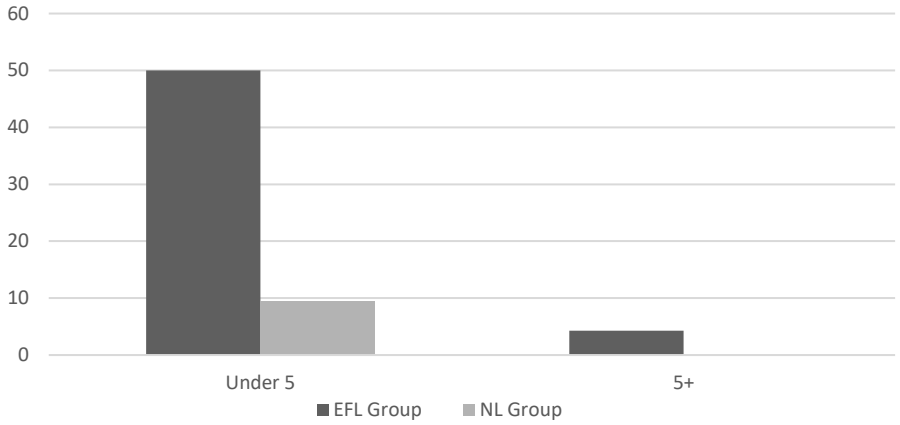


We have observed that both *language provision* and *age* affect the percentage of over-regularisation errors in the data, however we can also see a relationship between the percentage of over-regularisation errors and the *age of immigration*. Table 21 and Figure 18 show us that, for both groups, those participants who immigrated before the age of 5 were much more likely to over-regularise than those participants who immigrated from the age of 5. However, this finding was only significant for the EFL group (p = .050).

Table 21: Over-regularisation errors, age of immigration, and language provision

	EFL Group (N=12)			NL Group (N=14)		
Age of Immigration	Irregular past tense verbs	Errors	% of Errors	Irregular past tense verbs	Errors	% of Errors
2	0	0	0	-	-	-
3	23	13	57	6	2	33
4	15	6	40	41	0	0
5	32	2	6	5	0	0
6	32	4	13	28	0	0
7	-	-	-	13	0	0
8	-	-	-	1	0	0
9	-	-	-	0	0	0
Totals:	102	25	25	94	2	2

Figure 18: Percentage of over-regularisation errors, age of immigration, and language provision



Another observation that can be made from the EFL group data is that all children who immigrated before the age of 5 demonstrated irregular past tense verbs that they *were* able to use correctly, and those which they *were not* able to use correctly. For example, participant *EFLl-7* used *"falled"* throughout his entire narration, and never formed the verb correctly in the past tense. Participant *EFLh-4* consistently produced the over-regularised *"falled"* and *"runned",* but was able to consistently produce the correct form *"threw".* In contrast, the use of over-regularisation amongst the participants who immigrated from the age of 5 occurred for verbs that the participants also used correctly within the same narration, for example, participant *EFLe-9* used both *"breaked"* and *"broke",* and participant *EFLc-8* produced both *"falled" and "fell".* This difference in over-regularisation errors could be attributed to a variety of factors. Firstly, we might consider the difference between incomplete acquisition and language attrition. With regard to the participants who immigrated before the age of 5, we might consider that some irregular verb forms have not yet been acquired and stored in the mental lexicon, resulting in some irregular verbs being formed incorrectly and some being over-regularised. With regard to the participants who immigrated from the age of 5, we might consider that learning an L1 as an L2 has resulted in the attrition of certain irregular forms, leading to momentary difficulties in retrieval. However, the use of both the correct form and the over-regularised form has been documented in the literature as part of L1 development presenting a 'competition phase' between the two terms before the stabilisation of one of them. This is supported by the fact that the participants from the NL group and the monolingual data who over-regularised also demonstrated an alternation between correct and incorrect forms for the same verb.

4.4.2 Summary

To investigate the effects of learning an L1 as an L2 on grammatical production, we examined the domain of morphosyntax, or more specifically, the *Frequency of Morphosyntactic Errors*, with a hypothesis that predicted the EFL group participants to demonstrate a higher frequency of morphosyntactic errors than the NL Group. The data seemed to support our hypothesis, given that the NL group participants provided narratives with a much lower frequency of morphological errors, across all age-groups (although, it is important to consider that some age-groups contain very few participants, which may affect the reliability of the data). For the NL group and the monolingual group, we can also observe a steady decline in the frequency of morphological errors with increased age. However, the EFL group shows an increase in errors at age 8. The data also revealed three morphological errors types which occurred at a significantly higher frequency amongst the EFL group. The EFL group demonstrated a higher frequency of pronoun errors (in particular, pronoun omissions), prepositions errors, and verb tense errors. The data suggest that the EFL group had difficulties using irregular past tense verbs, often over-regularising, and that these errors occurred most frequently amongst children who immigrated before the age of 5 (although this finding was only significant for the EFL group).

4.5 Lexicalisation Patterns

As previously discussed in chapter II, in the lexicalisation pattern typology identified by Talmy (1985, 1991, 2000) and used by Slobin (1991, 1996, 1997, 2004), languages are classified as satellite-framed or verb-framed. These classifications correlate with particular elements of rhetorical style, such as the tendency to express complex motion in single vs. multiple clausal segments and to present descriptions of dynamic vs. static scenes (Slobin, 1997; 2004). Unlike the previous sections relating to the lexicon and morphosyntax, lexicalisation patterns are not related to a speaker producing correct or incorrect language, but with the speaker preference with regard to the characteristics associated with the language being spoken. For example, the use of Manner verbs is characteristic of satellite-framed languages, and if a child is speaking a satellite-framed language and not expressing Manner, even if her speech is grammatically correct, this is an indication that the speaker is not using the discourse patterns associated with that language, which may result in unnatural sounding language.

In this section of the study we aim to investigate whether learning an L1 as an L2 may cause the typological patterns for motion event encoding of the L2 (a verb-framed language) to impact on typological patterns for motion event encoding in the L1 (a satellite-framed language). We had put forward the following hypothesis:

Hypothesis 6: *The NL group will follow event lexicalisation patterns identified for S-languages (Talmy 1991), whereas the EFL group will demonstrate restructuring in the lexicalisation of motion events, providing narratives which follow patterns identified for V-languages (Talmy 1991).*

To investigate the hypothesis, we will examine the following areas:

i. The use of path verbs vs. manner verbs
ii. The owl scene: the use of trajectory details vs. static scenes
iii. Ground adjuncts: the description of path of motion
iv. The cliff scene: event conflation

4.5.1 The Use of Path Verbs vs. Manner Verbs

Berman and Slobin (1994) found that speakers of S-languages used a greater frequency and variety of motion verbs in contrast to speakers of V-languages. Furthermore, they found that speakers of S-languages provide more Manner information than speakers of V-languages. Slobin (1996) states that this is due to the higher frequency of motion verbs conflating motion and manner in S-languages as compared to V-languages. The greater use of manner verbs can be explained by the fact that S-languages have a larger lexicon of manner of motion verbs, which allows their speakers to make finer manner of motion distinctions than speakers of V-languages. Therefore, the aim of the present analysis was to investigate both the NL group and the EFL group for *percentage and frequency of motion verbs*, percentage *and frequency of manner verbs*, the *Type Token Ratio* for motion and manner, and the use of *first-tier* and *second-tier* manner verbs.

As an initial point of analysis, in Table 22 we solely compared the data for *language provision*, considering motion verbs and manner verbs as a proportion of the total verb count. We discovered that 35% of the NL group verbs were motion verbs, in comparison to 29% for the EFL group. These data can be compared with the monolingual data figure of 37%. Furthermore, 5% of the verbs produced by the NL

group were manner verbs, in comparison to 3% for the EFL group. These data can be compared to the monolingual data figure of 6%. These results identify that the NL group values are much closer to the monolingual values. This was confirmed by establishing that the between-group differences for the EFL group and both the NL group and the monolingual data were significant for manner (p = .017 and p = .012, respectively), whereas the difference between the NL group and the monolingual data for manner was not significant (p = .297).

Table 22: Percentage of motion verbs and manner verbs in total verb count

	EFL Group (N = 12)	NL Group (N = 14)	Monolingual Data (N = 30)
Total Verbs	582	692	1,582
% Motion Verbs	29	35	37
% Manner Verbs	3	5	6

When we considered the *age* variable we discovered that it showed no correlation with the datasets. However, the data presented in Table 23 show that *age of immigration* has an impact on the data. As noted in earlier sections of this analysis, we discovered a difference between the values for those participants who immigrated before the age of 5 and those who immigrated from the age of 5. As we discovered in the *narrative length* section, there were considerable differences in the length of narratives provided by those children who immigrated before the age of 5, and those who immigrated from the age of 5 (the EFL data showed significant differences). Therefore, frequency of motion and manner was calculated as a proportion of the number of clauses.

Although the data was not significant for either group with regard to motion verbs, the data for the EFL group was significant for manner (p = .003). The data for the NL group showed no significance for age of immigration and manner (p = .200).

Table 23: Frequency of motion verbs and manner verbs to number of clauses for age of immigration

	EFL Group (N=12)		NL Group (N=14)	
Age of Immigration	Mean Frequency Motion Verbs	Mean Frequency Manner Verbs	Mean Frequency Motion Verbs	Mean Frequency Manner Verbs
Under 5	10.43	0.14	13.17	1.3
5 +	19.4	2.2	20.75	3.63

A further investigation to analyse the different types of motion verbs and manner verbs used within the data was done using a *Type Token Ratio* (Table 24). With regard to motion verbs, the NL group produced a TTR of 0.12, compared to a TTR of 0.09 for the EFL group. With regard to manner verbs, the NL group produced a TTR of 0.43, compared to a TTR of 0.33 for the EFL group. These data reveal that the NL group had greater lexical variation for both motion verbs and manner verbs in comparison to the EFL group.

Table 24: Type token ratio for motion verbs and language provision

	EFL Group (N=12)		NL Group (N=14)	
	Motion Verbs	Manner Verbs	Motion Verbs	Manner Verbs
Total Types	15	4	30	15
Total Occurrences	170	12	244	35
TTR	0.09	0.33	0.12	0.43

Slobin shows that S-languages "have a larger and more diverse lexicon of manner verbs, in comparison with V-languages" (Slobin, 1997: 458; 2006), but he also identifies two different types of manner verbs in the manner verb lexicon, stating that languages appear

to have a 'two-tiered' lexicon of manner verbs. Slobin (1997) distinguishes between neutral, everyday verbs used for everyday activities, such as *walk* and *climb* (first-tier manner verbs), and the more expressive or exceptional verbs, such as *dash* and *swoop* and *scramble* (second-tier manner verbs). Slobin (1997) claims that the largest amount of variety in manner verb lexicon size is found for the second-tier manner verbs, with S-languages having a more extensive class of this type of verb. In S-languages, second-tier manner verbs "make a distinction that does not play a role in the considerably smaller second-tiers in V-languages" (Slobin 1997: 459). Manner verb lexicons are therefore predicted to have different sizes, depending on the motion-encoding construction that is typically used in the languages being compared. The data, classified in accordance with Slobin's (1997) distinction between first and second-tier manner verbs, is shown in Table 25.

Table 25: Lists of Motion verbs, first-tier manner verbs, and second-tier manner verbs

EFL Group (N=12)			**NL Group (N=14)**		
Motion Verbs	**First-Tier Manner Verbs**	**Second-Tier Manner Verbs**	**Motion Verbs**	**First-Tier Manner Verbs**	**Second-Tier Manner Verbs**
Catch	Climb		Break	Climb	Crawl
Chase	Fly		Catch	Fly	Creep
Come	Jump		Come	Jump	Pop
Escape	Run		Drop	Knock	Smash
Fall			Escape	Push	Tiptoe
Get			Fall	Run	
Go			Get	Shove	
Move			Get Dressed	Stick	
Put			Go	Throw	
Stop			Hide	Walk	
Take			Leave		
			Put		
			Take		

The data in Table 25 supports our hypothesis as the EFL group provided a much lower variety of manner verbs, and more specifically, produced zero second-tier verbs. As Slobin (2004: 252) states, "If manner is easily accessible, it will be encoded more frequently. Consequently, learners will construct a more elaborate conceptual space for manner". These results show that manner is clearly more accessible amongst the NL

group, which could be due to the fact that, as can be observed with S-languages, there is "an accessible slot for manner in the language" (Slobin 2004: 250). In contrast, the EFL group demonstrate a less accessible slot for manner, as is consistent with V-language characteristics.

4.5.2 Trajectory Details vs. Static Scenes: The Owl Scene

Slobin (1996: 84) noted that "English tends to assert trajectories, leaving resultant locative states to be inferred; Spanish tends to assert locations and directions, leaving trajectories to be inferred". In other words, the two languages differ in what is asserted and what is implied. Thus, "English-speakers assert actions, implying results, whereas Spanish-speakers assert results, implying actions" (Slobin 1996: 84). This means that Spanish narrators tend to provide more static descriptions. For example, we can compare '*The deer threw them off over a cliff into the water'*, where the trajectories described allow one to infer that there is a cliff above the water, with '*Lo tiró. Por suerte, abajo, estaba el río. El niño cayó en el agua'* (Slobin 1996: 204) (['The deer] threw him). (Luckily, below, was the river. The boy fell into the water').

The two examples show that the languages differ in their attention to static vs. dynamic aspects of the scene. The aim of the present analysis was to examine the differences between the two groups with regard to elements of movement and setting. More specifically, we will analyse the extent to which the groups provided static descriptions or descriptions of trajectories in relation to the owl scene, where the owl flies out of the tree and the boy falls down.

Figure 19: The owl scene

Tables 26 and 27 show how the participants described the owl coming out of the tree. An NL group percentage of 43 used a manner verb, typical of an S-language speaker, to describe the owl scene, for example, "*an owl popped out of the hole of the tree*" [NLk-9] or "*an owl flew out of the tree*" [NLc-11]. Both examples describe the action of the owl coming out of the tree, leaving the fact that there was an owl and a tree to be inferred. Only 7% of the NL group used a static description whilst narrating the owl scene. Therefore, the NL group mostly provided explicit descriptions of trajectories, and only one narrator provided a static description. In contrast, none of the EFL group used a manner verb in their descriptions of the owl scene, with 25% using a single path verb, for example, *"the owl left"* [EFLk-7]. Furthermore, 25% used a static description leaving the actions to be inferred, a characteristic typical of a V-language speaker, for example, "*and there was an owl and a tree"* [EFLa-7].

Table 26. Static descriptions vs. descriptions of trajectories: EFL group

EFL Group					
Child	Age	Manner Verb	Single Path Verb	Static description	Owl not mentioned
EFLg-4	4				X
EFLh-4	4			X	
EFLi-7	7				X
EFLj-7	7			X	
EFLk-7	7		X		
EFLl-7	7				
EFLa-7	7			X	
EFLb-7	7				
EFLc-8	8		X		
EFLd-9	9				X
EFLe-9	9				X
EFLf-12	12		X		
Total %:		0.0	25	25	33

Table 27. Static descriptions vs. descriptions of trajectories: NL group

NL Group					
Child	Age	Manner Verb	Single Path Verb	Static description	Owl not mentioned
NLg-4	4	X			
NLn-7	7				
NLh-7	7			X	
NLi-8	8				X
NLj-9	9	X			
NLl-9	9				
NLk-9	9	X			
NLa-10	10				
NLb-11	11				
NLc-11	11	X			
NLm-12	12				X
NLd-12	12	X			
NLe-13	13				X
NLf-13	13	X			
Total %:		43	0	7	21

This data supports Slobin's 1997 study where 21% of V-language (French, Hebrew, Turkish) speakers provided a static scene-setting, in contrast to 8% of S-language (Dutch, English, German, Polish, Russian) speakers. It also, therefore, supports our hypothesis that the two groups have a different preference with regard to lexicalisation patterns.

4.5.3 Description of Path of Motion

The aim of this analysis was to investigate how both groups elaborate their description of path of motion. Berman and Slobin (1994) found evidence that speakers of S-languages show more elaboration in their description of path of motion as compared to speakers of V-languages, i.e., they demonstrate a richer and more detailed description of paths (trajectories), with a more frequent use of ground-adjuncts, i.e., prepositional phrases referring to the source, medium, or goal of movement (e.g., *fell into the pond* vs. *se cayó* 'fell down'). Therefore, the number of Ground elements attached to the verb is larger in S-languages than in V-languages (Slobin 1996, 1997). In Slobin's data (1996), adult native speakers of English tended to use more ground adjuncts than Spanish ones (in adult data, plus-Ground: Engish 82% vs. Spanish 63%). To discover whether our data supports this finding, each group was analysed for plus-ground clauses,

i.e., verbs with the source and/or the goal conveyed in prepositional phrases. The data are presented in tables 28 and 29:

Table 28: Ground adjuncts: EFL group

EFL Group				
Child	**Age**	**Age of Immigration**	**Total Motion Verbs**	**Number of Plus-ground Clauses**
EFLg-4	4	2	1	0
EFLh-4	4	3	12	0
EFLl-7	7	4	13	1
EFLk-7	7	3	17	1
EFLj-7	7	3	9	2
EFLi-7	7	3	5	2
EFLf-12	12	4	16	3
EFLb-7	7	5	19	4
EFLa-7	7	5	25	4
EFLc-8	8	6	19	4
EFLd-9	9	5	7	3
EFLe-9	9	6	27	4
		% Plus-ground clauses immigration age -5: **12**	Total number: **170**	Total number: **29**
		% Plus-ground clauses immigration age +5: **20**		Total % Plus-ground Clauses: **17**

Table 29: Ground adjuncts: NL group

NL Group				
Child	Age	Age of Immigration	Total Motion Verbs	Number of Plus-ground Clauses
NLj-9	9	3	13	2
NLi-8	8	3	7	3
NLg-4	4	3	11	5
NLm-12	12	4	20	4
NLn-7	7	4	11	2
NLb-11	11	4	16	3
NLh-7	7	5	13	3
NLa-10	10	6	25	5
NLk-9	9	6	23	7
NLl-9	9	6	29	7
NLc-11	11	7	22	2
NLd-12	12	7	17	3
NLe-13	13	8	16	2
NLf-13	13	9	21	13
		% Plus-ground clauses immigration age -5: **24**	Total number: **244**	Total number: **61**
		% Plus-ground clauses immigration age +5: **25**		Total % Plus-ground Clauses: **25**

Although the difference between the data for the two groups is just above the level for statistical significance (p = .085), the NL group produced a total of 61 plus-ground clauses with a total percentage of 25%, and the EFL group produced a total number of 29 plus-ground clauses with a total percentage of 17%. In other words, the NL group provided a richer and more detailed description of paths, with a more frequent use of ground-adjuncts. Some examples from the NL Group are as follows

(19) *The boy and the dog fell down the cliff and into a pond [NLa-10]*

(20) *He falls off with his dog into a pond [NLc-11]*

(21) *The deer dropped him into the lake [NLh-7]*

Sebastian and Slobin's data (1994) confirmed that examples such as (19) with more than one Ground element (cliff and pond), are often found in English but rarely produced in Spanish. The above examples contrast with the following examples from the EFL group, with descriptions of path and no use of ground adjuncts:

(22) *Then he falled [EFLc-8]*

(23) *They go down [EFLf-12]*

(24) *He falls down [EFLj-7]*

The data also demonstrates a connection between the number of plus-ground clauses and the age of immigration for the EFL group. Within the NL group, the percentages of plus-ground clauses for participants who immigrated before the age of 5 and those who immigrated after the age of 5 are 24% and 25% respectively, a result that is not statistically significant (p = .345). However, the data for the EFL group shows that the difference in the percentage of plus-ground clauses for children who immigrated before the age of 5 (12) compared to the percentage of plus-ground clauses for children who immigrated after the age of 5 (20), is statistically significant (p = .003).

4.5.4 Event Conflation

The aim of this analysis was to examine whether the groups make use of event conflation, i.e., to investigate whether different composites of locative trajectories (path, ground-source, medium, and goal) were or were not incorporated within a single clause. This analysis was of interest given that research within L1 acquisition has shown clear differences among speakers of typologically different languages (Berman & Slobin, 1994). Thus, while English native speakers tend to make references by means of event conflation using complex path expressions, i.e., where both the cliff-source and the water-goal are combined within a single clause (e.g., *The deer dropped the boy off a cliff into the water*), Spanish and Catalan native speakers very rarely specify *both* source *and* goal within a single clause.

This analysis was conducted on the "cliff scene", which comprises three pictures, as shown in Figure 20. The first picture shows the deer standing at the edge of the cliff and the boy and the dog in mid-air. The second picture shows the boy and the dog fall down from the cliff, and the third picture shows the boy and the dog fall into the water below. Tables 30 and 31 highlight the participants who narrated the scene using a single verb phrase mentioning both the source (*from the cliff*), the goal (*into the river*), in addition to a path satellite (*down*). E.g. *he fell down from the cliff into the river*:

Figure 20: The deer scene

Table 30: Complex path expressions: EFL group

		EFL Group
Child	Age	'X' indicates single verb phrase containing source, goal and path satellite
EFLg-4	4	
EFLh-4	4	
EFLi-7	7	
EFLj-7	7	X
EFLk-7	7	
EFLl-7	7	
EFLa-7	7	
EFLb-7	7	
EFLc-8	8	
EFLd-9	9	
EFLe-9	9	X
EFLf-12	12	

Table 31: Complex path expressions: NL group

NL Group		
Child	Age	'X' indicates single verb phrase containing source, goal and path satellite
NLg-4	4	
NLn-7	7	
NLn-7	7	
NLi-8	8	
NLj-9	9	X
NLk-9	9	
NLl-9	9	X
NLa-10	10	X
NLm-12	12	
NLb-11	11	
NLc-11	11	X
NLd-12	12	X
NLe-13	13	
NLf-13	13	

The data show that the NL group were much more likely to use a complex path expression to describe the scene, with 57% of participants using a single verb phrase containing source, goal and path satellite, for example, '*The deer made them fall off a little cliff into a pond' [NLd-12]*, and '*the deer dropped him from the cliff into the lake'* [NLh-7]. Only one of the EFL group provided a complex path expression, '*then the deer throwed the dog and the boy over the cliff to the lake'* [EFLa-7], but the majority segmented the phrase, for example, '*the deer, he stop, then the dog, the boy, falled in the lake'* [EFLl-7], and '*the deer made the boy and the dog fell over the cliff. Then they fell in the water'* [EFLb-7]. These results, again, support our hypothesis, showing that the EFL group are following styles associated with V-languages, separating the descriptions into separate predicates, whereas the NL group make more use of event conflation, using complex path expressions.

4.5.5 Summary

Within this section we set out to investigate whether learning an L1 as an L2 may cause the typological patterns for motion event encoding of the L2 (a verb-framed language) to impact on typological patterns for motion event encoding in the L1 (a satellite-framed language). We put forward the hypothesis that the NL group would follow event

lexicalisation patterns identified for S-languages (Talmy, 1991), whereas the EFL group would demonstrate restructuring in the lexicalisation of motion events, providing narratives which follow patterns identified for V-languages (Talmy, 1991). This hypothesis was constructed on the basis that EFL participants are more influenced by the language of the environment (a V-language) due to the lack educational support in their L1 (an S-language), while the participants who attend private schools are educationally supported in the L1 (an S-language), meaning the language of the environment (a V-language), has less of an impact (when other variables are controlled for). We analysed the use of motion verbs and manner verbs, the use of trajectory details vs. static scenes, the use of ground adjuncts (the description of path of motion), and the use of event conflation.

The results support the hypothesis. Firstly, the NL group provided a significantly higher proportion of both motion and manner verbs in comparison to the EFL group. However, the age of immigration was also a significant variable for the expression of manner within the EFL group. The NL group also provided a greater variety of both motion verbs and manner verbs, including a greater variety of both first-tier and second-tier manner verbs (the EFL group did not produce a single second-tier manner verb). With regard to the owl scene, the NL group mostly provided explicit descriptions of trajectories, and only one narrator provided a static description. In contrast, none of the EFL group used a manner verb in their descriptions, with the majority of the participants using a single path verb or a static description. Furthermore, the NL group produced a much higher percentage of plus-ground clauses in comparison to the EFL group, confirming that they are able to provide a richer and more detailed description of paths. With regard to event conflation, the EFL group tended to separate the descriptions into separate predicates, whereas the NL group made more use of event conflation, using complex path expressions.

Therefore, the data show that children attending NL classes produced narratives which followed basic lexicalisation patterns typical of satellite-framed languages, while children attending EFL classes followed basic lexicalisation patterns typical of verb-framed languages (when all other variables were controlled for). Thus, the results have led us to conclude that the type of L1 language provision the children receive affects their production and L1 conceptualisation patterns (Brown & Gullberg, 2010; Hohenstein *et al.*, 2006).

CHAPTER V: DISCUSSION

5.1 Introduction

This study investigated various components of linguistic knowledge for the effects of particular first language education provisions in a second-language environment, or more specifically, provided a comparison of two groups of early sequential bilingual / multilingual children learning (1) L1 English as an L2 in state schools and *colegios concertados*, and (2) L1 English as a native language in private schools, in Catalonia, Spain. In the present study, evidence of L2 influence on the L1 was found in the areas of *narrative length*, *the lexicon*, and *morphosyntax*, and *lexicalisation patterns*, and the results showed, as predicted in the hypotheses, that the EFL group were outperformed by both the NL group and the monolingual group, across all data sets (although the monolingual data were consistently, if only minimally, higher than the NL group data). This chapter will discuss the findings of the study in reference to the linguistic outcomes of learning an L1 as an L2, but will also consider the variables other than language provision that had an effect on the data.

5.2 The Lexicon and Narrative Length

There were several reasons why the researcher chose to focus on the lexicon. Firstly, according to Nation (1993: 115), initially, learners' skill in using language is heavily dependent on the number of words they know. Secondly, the bilingual lexicon is one of the most thoroughly studied domains within investigations into bilingualism, with a considerable part of the research into language attrition dealing with the attrition of lexical knowledge (Bahrick, 1984; Cohen, 1986; Geoghegan, 1950; Godsall-Myers, 1981; Grendel, 1993; McMahon, 1946; Messelink & Verkuylen, 1984; Olshtain, 1989; Scherer, 1957; Weltens, 1989). Although, it is important to note that these studies showed a great deal of variation in their findings. For example, Scherer (1957) and Weltens (1989) found no lexical attrition; Bahrick (1984) and Verkaik and Van der Wijst (1986), among others, found some lexical attrition; and Geoghegan (1950) even found an improvement in lexical knowledge. Lastly, as previously discussed, it is generally assumed that certain aspects of the linguistic system are relatively more sensitive to deterioration than others (Anderson, 1982), and in the literature review (see section 2.5.5.1), it was confirmed that the lexicon has been identified as the place where "bilinguals report the most dramatic changes in their first language after acquiring a

second language" (Boyd, 1993: 386). One reason for this is that, compared to morphosyntax, the vocabulary of a language has a looser structure.

To investigate the effects of learning an L1 as an L2 on narrative length and the lexicon, we analysed the narratives for *number of words, number of clauses, words per clause*, and the areas of *lexical diversity* and *lexical accessibility* with hypotheses predicting that the EFL group participants would demonstrate narratives with fewer total words, fewer clauses per narrative, and a lower mean length of clause, as well as lower lexical diversity, a lower ability to use the infrequent, specific nouns chosen for analysis, and a higher rate of errors and compensatory strategies in retrieval of these nouns. The data seem to support all of the above hypotheses, given that the NL group participants provided longer narratives demonstrating richer vocabularies, significantly higher percentages in correct noun usage, and a much lower use of compensatory strategies, revealing that narrative length and the lexicon were found to be consistently and significantly affected by the type of language provision.

According to the previous literature on the differences between acquiring an L1 and learning an L2 (see section 2.4.1), initially young children learn all their L1 words from their spoken environment, however, around age 4 children's metalinguistic ability develops through emergent literacy and continues at school, where children learn to read and write, expand their vocabulary, and acquire more complex structures. Exposure to rich oral and written input allows children to learn to communicate in different registers and styles, both orally and in writing. Adams (1990) estimates that 800 to 1,200 new words are learned from reading each year. The rest of the estimated 3,000 new words (an acquisition rate of around 8 news words a day) are picked up from the oral language around children, from teaching, direct explanations of the words, etc. For most school-age children, in addition to spoken input, written communication in the L1 plays an increasingly important role. Once children begin to read, their language development becomes more individualised, guided more by personal interests. This is most obvious in vocabulary development. Montrul (2008: 133) states that, "children interested in animals will read more and learn words for a variety of animals, whereas children interested in sports will have a larger vocabulary in that particular semantic field". With regard to this study, a participant from the NL group openly stated after narrating the story that he liked the part with the owl as it 'reminded him of the Harry Potter books'. Considering the importance of literacy on building and developing the vocabulary, it is not surprising that Montrul (2008: 274) states that, "bilingual children schooled in the

majority language who develop little to no literacy in their L1 fail to reach age-appropriate levels of linguistic competence in the L1". The shorter, less diverse vocabularies demonstrated by the EFL group are representative of their lack of L1 literacy skills, a result of the subtractive approach to L1 English education within Catalan state schools. In contrast, the additive approach to the teaching of the NL group has resulted in the production of longer narratives with richer vocabularies.

Montrul (2008: 133) argues further that, "one of the main functions of school is to teach children how to read and write and to turn them into mature and literate speakers/writers. Not only do reading and writing contribute to the reinforcement and expansion of children's lexical and grammatical growth, but these activities also make children aware of different uses and functions of language". Populations without first language literacy have been overlooked in second language acquisition research literature (Bigelow & Taron, 2004), however, Scholes (1998) showed that an effect of English preliteracy is the inability to segment speech into units. His research, although carried out with adult participants, showed that the participants could not tell where the word boundaries were, affecting their ability to form sentences. Scholes concluded that the knowledge of words and word boundaries in one's native language is something one gains from alphabetic literacy, learning to see language represented on the page as discrete words. Similarly, Ong (1988) and Olson (2002) have both concluded that phonemic awareness and explicit awareness that there are linguistic units called 'words' are a result of literacy. Second language acquisition research with low-literate adult L2 learners has found similar results. Kurvers, Hout and Vallen (2007) found in research with non-literate and low-literate adults learning Dutch as an L2 that alphabetic literacy correlated with awareness of the word as a unit as well as awareness of the phoneme. Therefore, not only are metalinguistic awareness and increased ability to think abstractly reflected in vocabularies, but they are also reflected in the use and understanding of complex and less frequent syntactic structures like relative clauses, conditionals, and counterfactuals, among others. Philp, Oliver and Mackey (2008) confirm that "literacy entails the development of metalinguistic awareness, including the knowledge that language can be divided into bits such as words or sentences". This work offers us an explanation of why the EFL group provided fewer clauses: with low literacy knowledge, the participants simply use language as a referential system and a means of communication, but not as a string of elements that could be divided into linguistic units.

With regard to the results obtained for lexical accessibility, we can refer to Paradis' Activation Threshold Hypothesis (1994, 2001, 2007), detailed in the literature review (see section 2.5.5.1). The Activation Threshold Hypothesis confirms that in order for an item to be retrieved, it must surpass a certain activation threshold. If an item is used frequently, its threshold is constantly lowered, making retrieval faster and less effortful. However, if an item is low frequency to start with, then lack of maintenance will result in fewer opportunities for them to be activated, particularly in the presence of 'stronger' competitors, and in the falling below minimum activation level required for retrieval. Our findings for the EFL group support the Activation Threshold Hypothesis. When telling the story and coming across the infrequent nouns selected for analysis, certain features of the EFL group data, such as delay whilst searching the mental lexicon, overtly stating that a word is 'unknown', and L2 interference (lexical borrowing from the L2), may result from the proposed interaction of activation thresholds in bilingual systems in an L2 environment, in which the entire language system is assumed to become less active due to infrequent L1 use, or to be inhibited through regular L2 use. The much lower rate of correct noun usage and higher use of compensation strategies for the EFL group in comparison to the NL group suggest that the difficulties in retrieval may be brought about by too high an activation threshold of the L1 overall and/or of particular infrequent language items that might not be used in daily life and whose activation threshold therefore is higher to start with.

Similarly, the lower lexical diversity of the EFL group may also be explained by a higher L1 activation threshold for such items, with the children only being capable of recalling more frequent items. Furthermore, the conscious use of lexical borrowing observed in the data most likely resulted from the presence of a more available L2 competitor whose activation threshold was below that of the English target. On the other hand, the data obtained for the NL group shows very little evidence of high activation thresholds for L1 terms, with the data containing no evidence of delay in retrieval or examples of lexical borrowing. Thus, our data may be read as tentative evidence for the proposition that under specific circumstances, namely the learning of an L1 as an L2, the L2 activation threshold may fall below that of L1, causing specific effects in language processing.

Patterns in the data (see Figure 11, Section 4.3.2) also demonstrate an effect of receiving instruction in a third language. The results show a dramatic reduction in the EFL group's ability to use the nouns after the age of 6, the age at which Spanish is

introduced as a third language at school, indicating competition from another linguistic system which may have further negative impact on the activation levels of the unsupported L1. The NL group, on the other hand, demonstrate an increased ability in noun retrieval after the age where Spanish is introduced as an L3. This increase can be explained by the documented positive cognitive effects of learning an L3 on the L1, which has been developed to age-appropriate levels (Cook, 2003; Singleton, 2003; see section 2.3.3).

The above observed differences between the data for the EFL group and the NL group demonstrate that in bilingual children the balance of languages is constantly in flux due to the fact that the command of the two languages is highly susceptible to sudden and abrupt changes in the input received (Montrul, 2008). For example, Kravin's (1992) study investigated an English-Finnish bilingual child living in the United States whose parents used the one-parent / one-language method. Kravin documented the progressive weakening of the child's use and competence in Finnish after the child began day care in English, the mother noticing a dramatic shift towards English. The child used English words in Finnish sentences, as well as omission of obligatory elements. This indicates that language dominance (see section 2.2.2.3) is by no means static: dominance patterns may change over time depending on individual experiences (Romaine 1995: 84, 191). For example, Gollan *et al.* (2012) showed that the dominant language of the participants in their 2005 study did not correspond to their first acquired language (Spanish) but rather to a language that was acquired later (English acquired at the age of 3.5-4 years). Furthermore, Kohnert, Bates and Hernández (1998) investigated how long it takes sequential bilingual children who are Spanish-dominant to shift language dominance to English while learning English as an L2 at school. They too investigated aspects of the lexicon, which is often used as a predictor of language proficiency and academic success in bilingual children. The study tested bilingual children on both languages as they gained proficiency in English by attending English-only schools in the United States. It investigated the speed of lexical access and the ability to resist the interference from the other language when naming nouns in English or Spanish. The greater gain in English than in Spanish suggested a developmental cross-over in proficiency and fluency representative of a shift in language dominance from L1 to L2. Kohnert and Bates (2002) also investigated developmental changes in lexical comprehension in the same English-Spanish bilingual children, this time with a timed

picture-word verification task. Results showed that gains were made in the two languages across age groups, but more gains were made in English than in Spanish.

When considering the lack of literacy in the EFL group's L1 caused by the restriction in language input and use, and the subsequent "creation of gaps in the individual's linguistic repertoire" (Andersen, 1982: 87), it is not surprising that the EFL group may be demonstrating a shift in language dominance from the L1 to the L2, as per the above studies. This can be observed in the greater use of compensatory strategies employed by the EFL Group. As Cook confirms (2003: 21), "a person whose L2 is becoming dominant may begin to experience some difficulties with retrieving L1 words for use". For example, lexical borrowing could be attributed to developmental factors, such as lexical gaps in one language, which could serve as an index of dominance. Montrul (2008: 106) claims that, "the weaker language clings to the structure of the stronger language for support – like an Ivy". Lexical borrowing, therefore, can be seen as a compensatory strategy for filling lexical gaps in the child's linguistic competence. Furthermore, Grosjean (1982) concluded that the avoidance of difficult words and constructions in the weaker language is found repeatedly in bilingual children. Avoidance was a strategy employed much more frequently amongst the EFL Group. Referring back to language mode (see section 2.3.1), Grosjean (1998: 137; 2008: 252) confirms that "because the mode a bilingual is in corresponds to a state of activation of the bilingual's languages and language processing mechanisms, it has an impact both on language production (maintenance or change of the base language, amount and type of language mixing that takes place, etc.) as well as on language perception (speed of processing of a language, access to one or to both lexicons, role of the less activated language, etc.)." Thus, with increasing activation of the non-base language(s), higher amounts of code-switching and borrowing behaviours are expected.

The above section of the discussion has established explanations for the differences between the EFL group data and the NL group data with regard to narrative length and the lexicon, but we must also discuss the differences between the data for the NL group and the monolingual data. Even though the NL group outperformed the EFL group across all datasets, the values for the monolingual group were generally higher (if only minimally) than those of the NL group. This can be explained by the fact that the NL group is exposed to more than one language, and therefore, receives less input in the two languages than the monolingual children receive in one. As a result, there is evidence to suggest differences in lexical access in speech production. For example,

Kohnert, Hernández, and Bates (1998) showed that on the Boston Naming Test, bilinguals scored below monolingual norms (and this was later confirmed by Roberts, Garcia, Desrochers, & Hernández (2002)). Furthermore, in a study conducted by Gollan, Montoya, Fennema-Notestine, and Morris (2005), bilinguals were slower and less accurate in naming pictures in their dominant language than monolinguals. Gollan's 2005 study also indicated that even bilinguals speaking in their first and dominant language showed a delay in lexical access in comparison with monolingual speakers. As Cook (1991) confirmed in her perspective of multi-competence, people who know more than one language have a distinct compound state of mind that is not the equivalent of two (or more) monolingual states, and therefore, a bilingual and a monolingual will differ with regard to how they access language, regardless of the domain under investigation.

5.3 Morphosyntax

Analysing morphosyntax for effects of attrition was deemed important since morphosyntactic rules and properties are generally considered more resistant than lexical ones to the influence of L2 (Andersen, 1982; Gürel, 2002; Myers-Scotton, 1993; Schmitt, 2001; Thomason & Kaufman, 1988), and therefore evidence of morphosyntactic attrition may represent a more advanced process. The study showed that the EFL group provided a higher *frequency of morphosyntactic errors* than the NL group, and the data revealed that morphosyntactic errors were found to be consistently and significantly affected by the type of language provision.

One of the earliest research projects documenting a loss of morphosyntax in the minority language in bilingual children was carried out by Merino (1983), who also looked into minority language loss due to a lack of educational support. Merino (1983) reported the results of two studies on language loss in Spanish-speaking children of Mexican origin, attending English school, with no support for Spanish. Results from the study showed a continuous improved performance in English, while performance in Spanish deteriorated dramatically. The results also showed that a lack of academic support (as well as the use of English in the home), contributed to the loss of morphosyntactic features of Spanish (gender and number, tense, word order, relative clauses, conditional and subjunctive).

Like Merino's (1983) study, the EFL group in the current study demonstrated a higher rate of verb tense errors in comparison with the NL group, providing a

significantly higher rate of over-regularisation errors. As detailed in the literature review, the Words and Rules (WR) theory (Pinker & Ullman, 2002; see section 2.5.5.2) claims that language offers two ways of representing the grammatical category of past tense: regular past-tense forms are generated by rule, while irregular forms are said to be acquired and stored in the lexicon. Taking this theory into consideration, the way in which irregular past tense forms are learned is not assumed to differ from the way in which any other word is acquired, the only difference is that they are stored with a grammatical feature like 'past tense' incorporated into their lexical entries. Regular forms, by contrast, have the signatures of grammatical processing and are productively generated by a rule that suffixes *-ed* to the stem. In summary, WR theory depends on two systems – lexicon and grammar – for producing past tense. The WR theory accounts for the over-regularisation of past tense verb forms and their eventual disappearance by proposing a *blocking* mechanism that connects lexicon and grammar. On this account, when an irregular form like *drank* is retrieved from the lexical memory, an inhibitory signal is sent from the lexicon to the grammar, thereby suppressing the regular process (*drink* + *ed*). *Blocking* is said to prevent the occurrence of past tense errors; however, errors do occur and are present in both the EFL group data and the NL group data as well as the monolingual data.

Marcus *et al.* (1992) suggest that over-regularisation errors are representative of L1 development and occur because *blocking* is vulnerable in young children, due to their immature memory retrieval system that sometimes lets them down. If the child fails to retrieve the verb form *drove*, the regular rule proceeds unhindered, to give *drived*. This would explain the over-regularisation errors amongst the NL Group and the monolingual data, as this type of error only occurred amongst the younger participants. However, an important question to consider is how we can account for the significantly higher number of over-regularisation errors within the EFL Group, and more specifically, those that occur amongst older participants.

We have already discussed the effects of learning an L1 as an L2 on lexical accessibility in the previous section, and observed how the participants were significantly less likely to be able to produce the nouns and much more likely to use a compensatory strategy. As the WR theory suggests that irregular past tense forms are stored in the lexical memory, we may also consider that the difficulties in lexical retrieval identified in the previous section can be applied to the issues in the retrieval of irregular past tense forms. An alternative explanation brings us back to the differences

between acquiring an L1 and learning an L2 (see section 2.4.1). In learning a second language, students are exposed to a more conscious and explicitly sequenced process of language learning, focussing on the patterns of language (Krashen, 1982; Schmidt, 1983; Yule, 1985). Since the EFL group are developing their native language in classes designed for those learning a foreign language, they will be significantly more exposed to the patterns associated with English, and this in turn may cause them to attend more to the *-ed* pattern associated with the English past tense, than to the irregular form. However, we must also consider that the literature points out that the period in which a child over-regularises is a long-drawn-out process, not one which quickly seizes upon one or two properties of the language as heard (Maratsos, 1988: 19).

Further differences observed between the NL group data and the EFL group data with regard to morphosyntax were in the production of preposition and pronoun errors, neither of which were produced within the monolingual data, suggesting that this type of error is not developmental. Referring back to the literature review and the section on language typology (see section 2.5.3.2), Odlin (1989) suggests that structural differences between languages equal difficulty and it is this difficulty that leads to errors. English prepositions are often referred to in the literature as being particularly difficult for Spanish speakers due to the sheer number of them and their polysemous nature (Lorincz & Gordon, 2012). Prepositions are a very common area of transfer that has been documented in Catalan and Spanish speakers acquiring English as a second language. For example, the English prepositions “in” and “on” are both represented in Spanish by “en”. Thus, a Spanish speaker acquiring English might mix up the use of the corresponding English prepositions because they are not differentiated in Spanish. The fact that the EFL group demonstrated a much greater difficulty with English prepositions than the NL group may be representative of the increased rates of L2 to L1 transfer occurring amongst the EFL group.

Furthermore, as covered in the literature review (see section 2.5.3), one of the differences between English, and Catalan and Spanish, is that English is a non-pro-drop language whereas Catalan and Spanish are pro-drop languages. The EFL group produced a considerably higher proportion of pronoun errors, and were the only group to produce pronoun omissions. Since null subjects are permitted in pro-drop languages, the omission of pronouns by the EFL group can be considered a form of transfer from the L2 to the L1. Due to the large quantity of pronoun omissions, it is worth considering the possibility of a re-setting of the pronoun parameters of the L1. White (1985)

investigated whether Spanish and Italian learners of English transferred the L1 value of the pro-drop parameter into their L2. Evidence was found for the transfer of null subjects. Further studies on the re-setting of the pro-drop parameters (Phinney, 1987; Tsimpli & Roussou, 1991; Yilmaz, 1996) also found evidence of transfer.

The literature also highlights the fact that pronoun omissions can be linked to a low level of literacy in the first language. Guasti and Cardinaletti's (2003) study of relative clauses found that children's relative clauses are syntactically derived in the same way as adults. However, children do not use the same types of relative clauses as adults until the relative pronouns are learned at school. Guasti and Cardinaletti (2003) concluded that children learn relative pronouns only during the school years, through explicit teaching. Hence, Guasti and Cardinaletti (2003) show that complex aspects of syntax, morphology and semantics, are not fully mastered by children until they go to school and receive explicit teaching and exposure to the written register.

The potential re-setting of the pro-drop parameters by the EFL group may be another indication of a shift in dominance from the L1 to the L2. According to Montrul (2008: 102), "fluctuations in input affect structural knowledge in young bilingual children, in particular the syntax and the morphology". Patterns of language shift and dominance in sequential bilinguals at the level of morphosyntax have previously been reported in the literature. For example, Jia and Aaronson (2003) looked at morphosyntax in a longitudinal study of 10 Chinese children as they learnt English. At the beginning of the study, all children were Chinese-dominant in terms of language preference, use and proficiency. However, during the first two years of the study, there was an emerging switch towards English as the younger children acquired and began to use English, whereas older children maintained Chinese as their dominant language.

5.4 Lexicalisation Patterns

The section of the study on lexicalisation patterns aimed to investigate the relationship between a child learning an L1 as an L2 and motion event lexicalisation, with a hypothesis that children provided with native English classes are more likely to adhere to the pattern identified for English, namely the satellite-framed pattern (Talmy 1991), and children attending EFL classes will provide narratives which follow patterns pertaining to the L2, which belongs to the verb-framed languages group (Talmy 1991). Lexicalisation patterns were chosen for analysis since they have been confirmed in the literature to be extremely resistant to restructuring in the L1. The data were discussed

and analysed following Berman and Slobin (1994), who used Talmy's semantic typology to produce summaries of consistent typological differences in the way motion events are narrated in both V-languages and S-languages.

Our data seem to support our hypothesis, given that the narratives provided by the NL group showed characteristics in motion event lexicalisation typically associated with S-languages (a higher frequency and variety of motion verbs and manner verbs, the use of second-tier manner verbs, a lower use of static descriptions, a higher use of ground adjuncts, and a higher use of complex path expressions). The EFL group, on the other hand, demonstrated characteristics more associated with V-languages (a lower frequency and variety of motion verbs and manner verbs, no use of second-tier manner verbs, a higher use of static descriptions, a lower use of ground adjuncts and complex path expressions).

According to Slobin (1996), our first language trains us in early childhood to focus on particular details and to "relate them verbally in ways that are characteristic of that language" (Berman & Slobin, 1994: 611). He suggests that this training might be resistant to restructuring in second language acquisition, which has been called "re-thinking for speaking" (Robinson & Ellis, 2008). However, Haugen (1978: 37) proposes that "as a learner builds new systems in the language he acquires, he dismantles and reorders the systems of the language he already knows". The results of this study demonstrate that the linguistic patterns characteristic of our native language are, in fact, susceptible to change under particular circumstances, and that learning an L1 as an L2 may indeed be one of these circumstances.

In Thinking for Speaking studies, it was shown that typological preferences for motion event lexicalisation were so robust that they tended to transfer from a first language to a second language in second language acquisition (e.g., Cadierno, 2004; Cadierno & Ruiz, 2006; Navarro & Nicoladis, 2005; Stam, 2006; see Cadierno, 2017 for an overview). The influence of the native language on the acquisition of an additional language has been a constant focus of analysis in SLA research (Han, 2004). Hendricks, Hickman and Demagny (2008) suggest that the type of knowledge underlying the capacity to express motion events in a second language in strongly influenced by learners' native system, and that once acquired during first language acquisition, their native system provides a prototypical "window" onto events which is quite resistant to change. For example, Treffers-Daller & Tidball (2009) studied how L1 English learners of French conceptualise motion. They focused on two groups of native speakers of

English learning French and two control groups: a group of French students and a group of native speakers of English. Their study showed native speakers of English encoded motion using, as predicted, significantly more manner verbs than the French control group, which used simple path verbs. Traffers-Daller & Tidball (2009) made the observation that it is difficult for native speakers of English to learn the way manner is expressed in French. This observation contrasts with the findings of this study, given that the EFL group seemed to have developed L2 characteristics of manner expression when speaking their L1.

Furthermore, in her study of motion events among Danish L2 learners of Spanish, Cadierno (2004) found evidence of L1 transfer; the influence of the learners L1 seemed to be present in some aspects of their L2 use, such as a high degree of complexity, but not in others, such as the absence of event conflation. Kellerman and van Hoof (2003), Negueruela *et al.* (2004), and Stam (1998, 2006, 2008) examined Spanish and English speech and gesture to determine whether learners' thinking for speaking patterns change when they acquire an L2. Kellerman and van Hoof (2003) and Negueruela *et al*. (2004) concluded that L1 Spanish speakers' gestures indicated that they were still thinking for speaking in their L1 Spanish when narrating in L2 English, whereas Stam (1998, 2006, 2008) claimed that when English L2 learners narrated in English, their thinking for speaking patterns were a mixture of L1 and L2 patterns, reflecting their interlanguage systems. Furthermore, Lewis (2012), looking at L1 English learners of L2 Spanish in a study abroad programme in Spain, found that the majority of the participants showed L2 thinking for speaking patterns for path in their L2 after 6 months abroad.

There have been few studies relating to the effects of the L2 on the L1 in motion event lexicalisation. For example, Brown and Gullberg's study (2010) investigated the robustness of typological preferences in the first language, by examining whether patterns in an L1 can change after acquisition of an L2. This study supports their findings that L1 preferences do not appear to be impervious to change, with their results suggesting that established typological patterns in the L1 might be influenced by patterns being acquired in the L2.

All of the above contradictory results show that it is possible for Thinking for Speaking patterns to change, although it is not clear to what extent. What is clear is that they all support the view of L1 cross-linguistic influence as a complex phenomenon which manifests itself in multiple ways, and which interacts or is constrained by a

number of factors. With regard to the central focus of this research, in order to maintain the L1, it is important that it is supported from an educational approach. Pavlenko (2011), explains that the process of learning additional languages causes speakers to internalise different cognitive perspectives and, thus, restructure the thinking patterns they already have to describe reality, such as events and scenes, thus causing them to rethink for second language speaking (Ekiert, 2010). Individuals who are in the process of acquiring a second language may have opportunities to notice new patterns that entail conceptual distinctions that they were not aware of in their L1s (Stam, 2006). When the L1 is used less than the L2, and the L1 does not receive support at school, it does not have the chance to develop much further; that is, at age-appropriate levels. This results in children having linguistic gaps that resemble the patterns attested in second language acquisition (Kondo-Brown, 2004; Montrul, 2011; Montrul *et al*., 2012; O'Grady *et al.*, 2011). These linguistic gaps may be filled by new patterns acquired in the L2, causing transfer (Montrul, 2008), and may cause a "shift in the functional dimension of the languages as the child grows up" (Montrul, 2012: 3), causing the first language to become the secondary language in terms of use. This functional shift of dominance, in turn, affects the linguistic competence and fluency in the L1, which can end up resembling a second language. This finding seems to be reflected in the EFL group data: when the language users wish to express movement, they are restricted to the available linguistic resources which are most pervasive in that language (Stam, 2006), even if those resources have been transferred from the L2.

In addition, according to Bialystok and Hakuta (1999: 171), "the acquisition of literacy inflicts permanent change on children's conception of language (…) All children, irrespective of the language they read, advance rapidly in their metalinguistic concepts as literacy is established". Therefore, having not been taught literacy in their L1, the EFL group may be more susceptible to the transfer of conceptual patterns from the L2.

5.5 The Effects of Age of Immigration

Several studies show that immigrant children who arrive at the country early eventually switch their primary and dominant language from L1 to L2 while children who arrive later in childhood keep their L1 as their primary, strong and dominant language (Flege, Munro & MacKay, 1995; Jia & Aaronson, 2003; Jia, Aaronson & Wu, 2002; Kohnert, Bates & Hernández, 1998). This is reflected in the study's EFL group data for manner

verbs and ground adjuncts, which showed a considerable difference between the data for participants who immigrated before the age of 5, and those who immigrated from the age of 5. These results can be explained by considering that the participants who immigrated before the age of 5 may have immigrated before certain aspects of their language had fully developed, and acquisition of the native language was incomplete when the participants immigrated and were immersed in the L2 speaking environment. A lack of appropriate educational support in their L1 then prohibited the participants from developing those areas of their L1 which were not fully developed before immigration (Montrul, 2008; O'Grady *et al*., 2011; Polinsky, 2006). In contrast, the participants from the NL group who immigrated before the age of 5 have been appropriately supported from an educational perspective both before and after they immigrated to the L2 environment.

Another area of the data that supports this theory is the use of compensatory strategies amongst the EFL group, which show evidence that both *incomplete acquisition*, and loss, or *attrition*, may be taking place. EFL group participants who immigrated to Catalonia before the age of 5 show higher levels of lexical borrowing, avoidance or pointing, and stating that they don't know a term, strategies which may suggest that the property was never learnt. EFL group participants who immigrated from the age of 5 tended to use different compensatory strategies such as long retrieval processes and overtly stating that they were unable to remember a term. Taking a long time to think of a particular term, and overtly expressing that one cannot remember what something is called, are both indications of a "reduction in accessibility" of lexical items (Smith, 1983), the main assumption being that the subject's systematic and consciously directed search of their semantic memory for the lexical items indicates that the subject was, at some point in the past, capable of using the specific lexical items. It is possible that the children have been able to sufficiently develop their native language in their native country to an age-expected level of proficiency before immigrating to Catalonia, however the insufficient native language input provided (EFL provision) has caused their existing knowledge to attrite.

Similarly, Flege, Yeni-Komshian and Liu (1999) and Yeni-Komshian, Flege and Liu (2000) examined pronunciation and morphosyntactic proficiency in both the L1 (Korean) and the L2 (English) of 240 Korean native speakers. The Korean participants arrived in the United States between the ages of 1 and 23 years. The study found that the poorest pronunciation ratings were assigned to the earliest arrivals, whose scores were

significantly lower than all other groups. These were the individuals who had never receive schooling in Korean before they came to the United States. Furthermore, several studies show that immigrant children who arrive at the country early eventually switch their primary and dominant language from L1 to L2, while children who arrive later in childhood keep their L1 as their primary, strong and dominant language (Flege, Munro & MacKay, 1995; Jia & Aaronson, 2003; Jia, Aaronson & Wu, 2002; Kohnert, Bates & Hernàndez, 1999; McElree, Jia & Litvak, 2000; Yeni-Komshian, Flege & Liu, 2000).

A study by Kohnert, Bates and Hernàndez (1999) on sequential bilingual children also indicated that the older the child at immigration, the less likely they are to lose skill in their L1 while they gain proficiency in their L2. In addition, Anderson (1999, 2001) looked into morphosyntactic loss in two normally developing Spanish-speaking siblings. The results showed that after only two years of contact with English, gender agreement in Spanish was affected, more in the younger child than the older child. The older sibling represented a case of language attrition, since at the beginning of the study she appeared to control agreement with 100% accuracy, and two years later she was producing almost 6% errors. On the other hand, the younger sibling represented a case of incomplete acquisition, since she produced 8% errors at the beginning of the study, a figure which more than doubled over the two years.

Finally, there is no doubt that becoming part of the L2 society is a priority of immigrant children and their parents, and children have a strong motivation to fit in. However, Wong-Fillmore (1991) strongly articulates the dangers of starting L2 instruction too early. Wong-Fillmore (1991) reports on a national large-scale survey of 1,100 Spanish, Korean, Japanese, Chinese, Khmer and Vietnamese families whose children had attended English preschool programmes in the United States. A group of 311 Spanish-speaking families who had not sent their children to English pre-school programmes served as a control group. The purpose of the study was to discover the extent to which early English instruction affected children's language patterns in the native language. The parents were asked whether they noticed a change in patterns of language use once the children started preschool, and if so, whether these changes were positive or negative. Wong-Fillmore (1991) reported that 50.6% of the main sample reported a negative change, or a shift from the native language to English, as opposed to 10.8% of the families who reported a negative change in the comparison group. Furthermore, families within the comparison group reported more positive changes than parents in the main sample, especially for bilingual and native language programmes.

Furthermore, younger children showed greater loss than older children. Wong-Fillmore (1991) concluded that the younger the immigrant children when they learn English, the more minority loss occurs.

Although Wong-Fillmore's (1991) study was based exclusively on parents' views, and there were no independent measures of linguistic proficiency used to show that children indeed underwent language loss in the native language, the current study *does* provide independent data supporting the existing evidence that insufficient educational support of the native language, or in the context of this study learning an L1 as an L2, can clearly affect a child's native language ability, and that this impact can be further influenced by the age of immigration.

5.6 Policy and/or Pedagogical Recommendations

The above discussion of the findings obtained in this study leads us to various recommendations with regard to maintaining the L1 in an L2 environment. The first recommendation generated from this research would be for the Catalan government with regard to their language policy. It is clear from the data that furthering L1 education in classes designed for those learning a foreign language is detrimental to both L1 development and maintenance. Without support in the L1, children cannot reach the threshold of competence required to successfully learn an L2 without losing competence in both languages (Skutnabb-Tangas & Toukomaa, 1976). L2 learning should be additive, not subtractive, and with this in mind, additive bilingualism should be encouraged in the form of maintenance / bi/multilingual programmes that ensure ongoing support for children to become academically proficient and literate in their L1.

Another recommendation would be for parents whose children are attending EFL classes. This study emphasises the importance of one of the significant differences between learning an L1 and an L2 in the classroom: the teaching of literacy skills. Literacy skills play an important role in preventing language attrition (Baker, 1996: 52; Hansen, 2001), change in language dominance (Davies, 1986) and language death (Ammerlaan *et al*., 2001), due to the impact that learning a written code has for the status of the language (Davies, 1986: 124; Pan & Gleason, 1986: 197), and also because of its role in "fixing" the corresponding language in the mind (Köpke & Schmid, 2004). Therefore, to prevent L1 deterioration, it is imperative that if literacy skills are not being taught within an educational setting, they are developed in the home through reading materials appropriate to age and competence, and writing practise. This is especially

relevant for children who immigrated before the age of 5, who had not been exposed to literacy skills in school before moving to the L2 environment.

A final recommendation, also to parents, relates to the child's exposure to the L1. Although variables such as *language spoken at home*, *nationality of friends* and *extra-curricular activities* were not found to be relevant within this study, a more qualitative, detailed investigation of all language interactions may find evidence of their influence. Quantity of input in the L1 has been proven to impact on language proficiency, and therefore the researcher would recommend increasing exposure to the L1 wherever possible. The detailed analysis of different sub-components for language input outlined in the literature review (see section 2.5.4) indicates the different opportunities that immigrant parents can use to expose their children to their native language.

5.7 Summary

This section discussed the findings of the research in relation to the existing literature. Firstly, the data support the previous literature which emphasises the importance of first language literacy in second language acquisition (Kurvers, Hout & Vallen, 2006, 2007; Montrul, 2008; Ong, 1988; Philip, Oliver & Mackey, 2008; Scholes, 1998; Tarone & Bigelow, 2005). Without first language literacy, the literature claims that a child living in an L2 environment will struggle to reach age-appropriate levels of linguistic competence in their L1, which was apparent in the EFL group's underdeveloped vocabulary, demonstrated by their struggle to name the specific nouns chosen for analysis, and from their inability to segment speech into units (Scholes, 1998), demonstrated by their lower number of clauses.

The data also supports the literature confirming that dominance patterns may change over time depending on individual experiences (Romaine 1995: 84, 191). The EFL group's lack of L1 literacy as a result of their restriction in language input and use, has resulted in the "creation of gaps in the individual's linguistic repertoire" (Andersen, 1982: 87), and a subsequent shift in language dominance from the L1 to the L2 (Gollan *et al.*, 2011; Kohnert, Bates & Hernández, 1999, 2002; Kravin, 1992).

Furthermore, the data for the EFL group support Paradis' Activation Threshold Hypothesis (1994, 2001, 2007). The much lower rate of correct noun usage and higher use of compensation strategies for the EFL group in comparison to the NL group suggest that the L1 is becoming less active due to infrequent L1 use, or being inhibited through

regular L2 use. Thus, the difference in data between the EFL group and the NL group may be evidence that learning an L1 as an L2 may cause the L2 activation threshold to fall below that of L1, causing specific effects in language processing.

The clear difference between the EFL group and the NL group with regard to over-regularisation errors can also be linked to gaps in the lexicon as the WR theory suggests that irregular past tense forms are stored in the lexical memory. Alternatively, by developing their L1 in L2 classes, the EFL group will be significantly more exposed to the patterns associated with English, and this in turn may cause them to attend more to the *-ed* pattern associated with the English past tense, than to the irregular form, thus leading to over-regularisation errors.

The findings also support the literature (Odlin, 1989) suggesting that structural differences between a speaker's languages cause difficulty which leads to errors. However, the difference between Catalan and Spanish, and English, with regard to their use of prepositions proved much more of an obstacle for the EFL group, who provided a much higher rate of preposition errors. Therefore, the data represents evidence that learning an L1 as an L2 creates increased rates of L2 to L1 transfer. Furthermore, with regard to the use of pronouns, the EFL group produced a considerably higher proportion of pronoun errors, and were the only group to produce pronoun omissions. Since null subjects are permitted in pro-drop languages, the omission of pronouns by the EFL group can also be considered a form of transfer from the L2 to the L1, perhaps even supporting the evidence in the literature of a possible re-setting of the pronoun parameters of the L1 (Phinney, 1987; Tsimpli & Roussou, 1991; Yilmaz, 1996).

The data also showed distinct differences in lexicalisation patterns between the EFL group and the NL group. The narratives provided by the NL group showed characteristics in motion event lexicalisation typically associated with S-languages, whereas the EFL group demonstrated characteristics more associated with V-languages, indicating that the EFL group has developed L2 characteristics of manner expression when speaking their L1. This finding is extremely interesting given that L1 lexicalisation patterns have been considered so robust that they tend to transfer from a first language to a second language in second language acquisition (e.g., Cadierno, 2004; Cadierno & Ruiz, 2006; Navarro & Nicoladis, 2005; Stam, 2006; see Cadierno, 2017 for an overview).

Although the type of language provision was the only statistically significant variable throughout the study, an interesting discovery was that the EFL group

participants who immigrated before the age of 5 (before certain aspects of the L1 had been developed), demonstrated the effects of incomplete acquisition, whereas the EFL participants who immigrated from the age of 5 (after certain aspects of the L1 had been developed) demonstrated the effects of attrition. The NL group, however, was much less affected by the age of immigration variable. This can be explained by the fact that they have been appropriately supported from an educational perspective both before and after they immigrated to the L2 environment. Therefore, depending on the age of immigration, the data suggest that learning an L1 as an L2 appears to hinder the development of the L1 either by preventing the child from learning what they have not yet acquired, or by causing the child's L1 knowledge to attrite.

CHAPTER VI: CONCLUSION

6.1 What the study achieved

Every day throughout the world, children arrive in a new linguistic environment where their native language is not the language of their broader social world. Minority language children are often left unsupported in their native language, leading to first language loss, and often low academic achievement.

The issue of insufficient L1 support in an L2 environment has been raised by the *English Language Association of Catalonia,* out of their concern for the lack of L1 support their native English-speaking children receive within the Catalan education system. These children, who must further develop their L1 English in *English as a Foreign Language* classes (despite the fact that native language programmes are offered to native child speakers of 10 other languages), are failing to develop age-appropriate levels of grammar in their native language, often demonstrating hesitant, non-nativelike English, which is prone to lexical borrowing, combined with weak reading and writing skills. Key questions are arising as to the pedagogical approaches to teaching native English-speakers within Catalan schools, and their contribution to these delayed and underdeveloped grammatical systems.

The issue of learning an L1 as an L2 is a fundamental one when we consider that a reduction in exposure to a child's L1 within an L2 environment can cause the grammatical system of the L1 to be dramatically compromised. As Montrul (2008: 136) states, "the ability of language minority children to acquire an L2 and maintain proficiency in their L1 is in part related to the type of support the minority language receives in the school environment … when the minority language is not fully supported at school, it runs the risk of being lost". Therefore, the aim of this study was to investigate the effects of the Catalan Language Policy and its resultant language provision for first language education (English) in a second-language-speaking environment (Catalan and Spanish), on the first language competence of native English-speakers living in Catalonia, Spain.

In order to investigate this issue, the study used recorded narratives from 26 native English-speaking child immigrants living in Barcelona. The participants were split into two groups based on the English language provision at school: (1) children who attend state schools, and continue to develop their L1 English within foreign language classes (EFL group), and (2) children who attend private schools and continue

to develop their L1 in native language classes (NL group). The narratives were elicited using the Frog Story picture book (Mayer, 1969) as visual stimuli, and the elicited descriptions were transcribed and analysed. In addition, the parents of the participants responded to a language use questionnaire, where biographical information and information on general language usage was gathered so that other factors of the children's home environment, that could cause variability in the results, could be taken into consideration. For comparison with typically developing native English-speakers, the study incorporated monolingual data taken from the CHILDES database. The study addressed the following key research questions:

1. *Does learning an L1 as an L2 affect the English language competence of native English-speakers?*
2. *If so, which language domains are affected most significantly? How? Why?*
3. *Are there any factors other than type of language provision that cause variability in the results?*

In order to answer these questions, the study examined various linguistic domains. Firstly, to measure the complexity of the narrations, the study investigated *narrative length*, including *total narrative word length*, *number of clauses per narrative*, and *mean length of clause*. The study hypothesised that in comparison with the NL group, the EFL group narratives would provide fewer total words, fewer clauses per narrative, and a lower mean length of clause.

Secondly, the study examined the lexicon, or more specifically, *lexical diversity* and *lexical accessibility*. The lexicon was considered an important domain for investigation since it is one of the most thoroughly studied domains within investigations into bilingualism, and according to Nation (1993: 115), the lexicon has been identified as the place where "bilinguals report the most dramatic changes in their first language after acquiring a second language" (Boyd 1993: 386). The study hypothesised that in comparison with the NL group, the EFL group would provide narratives with lower lexical diversity, a lesser ability to correctly use the infrequent specific nouns, and a higher error rate and use of compensatory strategies in retrieval of the infrequent specific nouns.

Thirdly, the study looked at morphosyntax. The domain of morphosyntax was deemed important since morphosyntactic rules and properties are generally considered

more resistant than lexical ones to the influence of L2 (Andersen, 1982; Gürel, 2002; Myers-Scotton, 1993; Schmitt, 2001; Thomason & Kaufman, 1988), and therefore evidence of morphosyntactic attrition may represent a more advanced process. The *frequency of morphological errors* was investigated, with a hypothesis that in comparison with the NL group, the EFL group would demonstrate a higher *frequency of morphosyntactic errors.*

Finally, the study explored the area of lexicalisation patterns. The domain of lexicalisation patterns was investigated since it has been confirmed in the literature that these patterns are extremely resistant to restructuring in the L1. This section examined the use of *path verbs vs. manner verbs*, the use of *trajectory details vs. static scenes* within the owl scene, the use of *ground adjuncts*, and *event conflation* within the cliff scene. The hypothesis predicted that the NL group would follow event lexicalisation patterns identified for S-languages (Talmy 1991), whereas the EFL group would demonstrate restructuring in the lexicalisation of motion events, providing narratives which follow patterns identified for V-languages (Talmy 1991).

The results confirmed all of the above hypotheses to be correct with the NL group outperforming the EFL group across all data sets, and thus, answering our first research question by confirming that, yes, learning an L1 as an L2 does affect the English language competence of native English-speakers. With regard to our second research question, all of the domains under investigation were affected by the type of language provision. With regard to narrative length, the EFL group averaged fewer *words per narrative,* fewer *clauses per narrative,* and a lower *mean length of clause* in comparison to the NL group. The investigation into the lexicon showed us that the EFL group use less diverse vocabulary and more high-frequency words than the NL group by providing a significantly lower *Type Token Ratio,* a lesser ability to correctly use the nouns chosen for analysis and a higher error rate and use of compensatory strategies than the NL group. Concerning the domain of morphosyntax, the NL group participants provided narratives with a much lower frequency of morphological errors, across all age-groups. Finally, the data analysed for lexicalisation patterns showed that children attending NL classes produced narratives that followed basic lexicalisation patterns typical of satellite-framed languages, while children attending EFL classes followed basic lexicalisation patterns typical of verb-framed languages: the NL group provided a significantly higher proportion of both motion and manner verbs, more explicit descriptions of trajectories,

and a much higher percentage of plus-ground clauses and event conflation in comparison to the EFL group.

With regard to our third research question, although language provision was the only consistently significant variable throughout the study, both age and age of immigration were variables that impacted on the data. Therefore, the results of this study constitute an important contribution to the field of bilingual and multilingual language acquisition and our understanding of the bilingual and early L2 acquisition process, providing a clearer picture of the significance of age of acquisition, and subsequently giving us an insight into whether a child's L1 is incompletely acquired, or whether the process of language attrition is underway.

Furthermore, these results are significant and important since they demonstrate the detrimental effects that insufficient educational support, or in this case, learning an L1 as an L2, has on a child's L1. Populations without first language literacy have been overlooked in second language acquisition research literature (Tarone & Bigelow, 2005), and this is especially relevant since this study has discovered distinctive patterns in the restructuring of previously labelled "robust" (e.g., Cadierno, 2004; Cadierno & Ruiz, 2006; Navarro & Nicoladis, 2005; Stam, 2006) L1 lexicalisation patterns, as well as cross-linguistic influence from the L2 to the L1 in the linguistic domain of morphosyntax, characterised as "more resistant" to L2 influence (Andersen, 1982; Gürel, 2002; Myers-Scotton, 1993; Schmitt, 2001; Thomason & Kaufman, 1988) than those such as the lexicon. Data demonstrating transfer from the L2 to the L1 in these areas will provide a much-needed contribution to the literature.

In addition, our current knowledge about how multilingual minds work is impoverished due of the lack of real, authentic and significant data sets. This study provides much needed data on the interplay between cross-linguistic differences and potentially universal features of cognitive processing, leading to a better understanding of how the relevant similarities and differences in language, cognition and culture work together. Consequently, this understanding will help us resolve communication conflicts and promote mutual understanding between different communities, particularly the multilingual community in Catalonia.

6.2 Limitations

Although this study appears to have identified various interesting areas for research, there is still much to be examined and there are limitations. Firstly, the small sample

sizes of the participant groups suggest that this may impact on the generalisability of the data. However, due to the number of variables that could have impacted on the results, a smaller number of participants was used to maintain homogeneity throughout the investigation. Although, replication with other languages and with larger populations would strengthen the findings.

The findings may also be affected by the differences between the EFL group, the NL group and the monolingual data with regard to the number of children representative of each age-group. For example, the CHILDES database does not include data from 10-12 year olds and therefore the EFL group data and the NL group data for this age-group could not be compared to the monolingual data. Furthermore, some of the age-groups contains very few participants, which is likely to affect the reliability of the data. Again, a future study involving a larger number of participants would strengthen the findings.

Furthermore, it is possible that the parents of the EFL group participants who agreed for their child to be part of the research were the ones who have witnessed most the effects of their child learning an L1 as an L2, and were therefore more willing and eager to take part in the study. Therefore, selecting a more random sample would represent the general population.

A further area of the study which could have led to discrepancies in data is the Language Use Survey. As detailed in the methodology chapter, the richness of the immigrant's experience cannot be reduced to a few constructs and generalisations, as made available by a survey-based methodology. Furthermore, parents' attitudes towards their children learning their L1 as an L2 may have impacted on their answers. Perhaps if the scope of the project had been wider, interviews could have been carried out to complement the surveys, which would provide the participants with more control over the data revealed and would provide the researcher with a more detailed background of participants.

Another limitation to the study is the fact that proficiency levels in the L2 (and L3), were not investigated. Although beyond the scope of this study, recording narratives in the L2 (and L3), would allow the researcher to test the theory that an unsupported and underdeveloped L1 can affect competence in both languages, or that a decreased ability in L1 is due to an increased ability in L2. This could be implemented in future research.

6.3 Future Research

In the present study I have attempted to answer several research questions and to combine insights from the relevant theory, but many of the findings from this study offer potential areas for future development.

Firstly, this study discovered that learning an L1 as an L2 does, indeed, affect the English language competence of native English-speakers, emphasising that appropriate L1 input is crucial in an L2 environment. Although this offers an extremely useful contribution to the literature on multilingual education, this contribution could be strengthened by similar research expanded to other language groups (that are typologically different or similar) and/or within other geographic locations. Furthermore, with regard to other languages, it would be interesting to analyse the speech of the child immigrants in Barcelona who *do* receive native language programmes. If these programmes result in significantly improving or developing the native language, then they can be recommended within similar linguistic contexts.

In addition, this study focused on three main areas of language: the lexicon, morphosyntax and lexicalisation patterns, discovering that all three were affected by the type of language provision. Future studies could include investigations into a greater variety of linguistic domains to further assess how changes and disruptions in input affect multilingual development from early childhood.

In addition, the study questioned whether there were any factors other than language provision that caused variability in the results, and in doing so discovered the importance of the age of immigration with regard to language acquisition and language attrition. The discovery that the EFL group participants who immigrated before the age of 5 show effects of incomplete acquisition, and those who immigrated from the age of 5 shown effects of attrition, has created the need for future research that would allow the researcher to establish the English language ability of the participants prior to immigration, which would create a clearer picture as to whether certain areas of language were incomplete or fully acquired before moving to the L2 environment. This clearer picture would contribute to the incomplete acquisition / attrition literature, an area of research that often produces contradictory findings.

Finally, as previously discussed, Grosjean (1989) states that someone who knows two or more languages is a different person from a monolingual, and therefore needs to be looked at in their own right rather than as a deficient monolingual. Therefore,

future studies could include comparing the data with different multilinguals rather than contrasting with monolingual standards.

The above section offers areas of potential future research, but these do not detract from the importance of this project. This has been the first empirical study of its kind to date. It will benefit both English-speaking communities and Spanish government institutions through important implications in the area of language policy, clearly illuminating the best practice in pedagogical approaches to bilingual education and helping immigrant parents with the difficult process of maintaining and developing their child's L1 in an L2 environment. However, it is also important within the broader context: using this research as a template for future studies will enrich our understanding of the need to preserve a child's native language and support equality in the approach to native languages, regardless of the status of that language.

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APPENDIX I: THE LANGUAGE USE SURVEY

- Parent's name_____
- Parent's email address_____
- Parent's nationality_____
- Parent's profession_____
- Parent's first language_____
- Parent's English language proficiency (if English language not L1) _____
- Language/s used at home_____

- Child's age_____
- Child's age of immigration_____
- Child's gender_____
- Child's nationality_____
- Child's school_____
- Type of school_____
- Language used at home_____
- If known, what is your child's attitude towards the languages he/she speaks? Do they have a preference? Why? _____

- Age when child started learning English_____
- Details of child's English proficiency and grades received before immigration (if possible) _____
- Does your child code-switch / borrow words from their other language/s when speaking English?
- Do you feel that your child's English language ability has deteriorated since immigrating to Catalonia? _____

- Age when child started learning Catalan_____
- Catalan proficiency_____

- Age when child started learning Spanish (if applicable) _____
- Spanish proficiency_____

- Does your child have experience with other foreign languages? Please provide details_____

- At what age did your child first start their education within the Catalan Education System? ____
- How many native English speakers attend the school? _____
- Does your child receive native language classes or EFL classes? _____
- If the only English classes available to your child are EFL, does the teacher offer any additional tuition / more advanced work for native English speakers? E.g. does the teacher divide the class into proficiency groups and work accordingly with each group? _____
- How many classes/hours per week are dedicated to the study of English at school? _____
- In which language are the classes taught? _____
- What is the average class size? _____
- If known, please provide details of the content of the English classes_____

- How often does your child receive English language homework? _____
- Does the school offer any additional tuition, e.g. an afterschool club? Please provide details: ____

- Is your child's English teacher a native English speaker? If not, please provide details: _____
- Is your child's English teacher a competent English speaker? _____

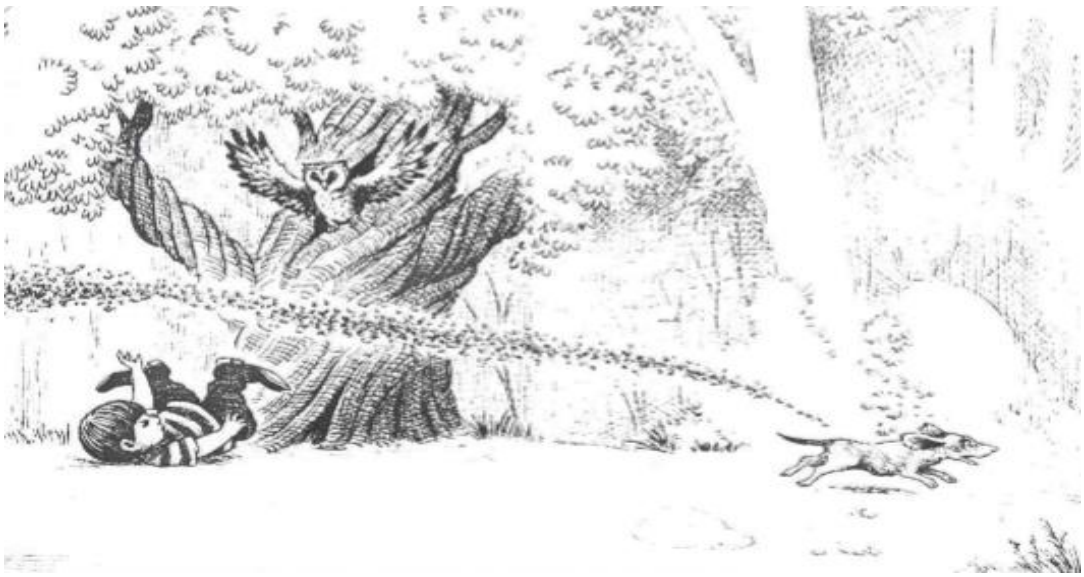
- Does your child mainly socialise with other native English speakers or local children? _____
- How many hours per week are dedicated to the study of English at home? _____

- Does your child receive any additional English language home schooling or extra tuition? If so, please provide details of the type of tuition and the number of hours: _____
- With regard to the media, does your child watch English television channels / films, or local media / Catalan and Spanish language films? _____

Please use the space below to provide any other information you believe to be relevant to my study:

_____

APPENDIX II: THE FROG STORY (MAYER, 1969)



APPENDIX III: CONSENT FORM

Department of Politics, Philosophy, Language and Communication Studies

Title of research

First language education provisions in a second language environment: The effects of learning L1 English as an L2 in Catalonia, Spain

Participant Information Sheet

Thank you for your interest in this study. Before you decide whether to take part, please read the following information carefully (this sheet is for you to keep). You may ask me any questions if you would like more information.

What is this research looking at?

The purpose of the study is to provide a better understanding of how the lack of provisions in first language education (English) within a second-language-speaking environment (Catalan and Spanish) affect the performance in the first language.

Do I have to take part?

It is up to you to decide to join the study. We will describe the study and go through this information sheet. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw at any time, without giving a reason. This would not affect you in any way.

What will happen if I agree to take part?

After you have given consent for your child to take part in the study, the researcher will arrange a visit. This will occur shortly after the beginning of the autumn term, 2014. Your child will be given a short picture book to look at for a few minutes. After a few minutes, the researcher will ask the pupil to narrate the story in English, in the past tense. The narration will be recorded with a Dictaphone for analysis.

Are there any problems associated with taking part?

There will be no psychological discomfort or embarrassment.

Will it help me if I take part?

The lack of provisions in first language education (English) is something which affects many families with native English-speaking children in Catalonia. With the help of participants in the area, the researcher can provide a concrete study which will reveal the factors that affect the performance in the first language. This study will provide important information on multilingual language education in the area and will provide a better understanding of English-Spanish-Catalan multilingualism in children.

How will you store the information from the pupil?

All information provided during the study will be stored in accordance with the 1998 Data Protection Act and kept strictly confidential. The principal investigator will be the custodian of the anonymous research data. All data will be kept for 3 years, and will then be securely disposed of. Electronic data will be kept on a password protected computer and paper data will be stored in the principal investigators filing cabinet in a locked office. It will be stored anonymously and will not be linked to any participants' names. All data will only be accessible by members of the research team.

How will the data be used?

Data collected from this study will be written up for publication in academic journals and possibly for presentation at academic conferences. However, group data will always be presented so that individual participants can never be identified.

What happens if I agree to take part, but change my mind later?

If, at any point, you no longer wish to take part in the study, you have the right to withdraw from the study without giving any reason. Data will be destroyed and will not be included in the final report. If you wish to withdraw after participating, email the researcher within 1 month and inform him of your decision. After that time, it may no longer be possible to withdraw your data.

How do I know that this research is safe for me to take part in?

This research was approved by the General Research Ethics Committee at the University of East Anglia on 13th August 2014.

You are under no obligation to agree to take part in this research.

If you do agree you can withdraw at any time without giving a reason.

Researcher Contact details:
Louisa Adcock
l.adcock@uea.ac.uk
Phone +44 (0) 1603 39 5505

Project Supervisor / Senior Lecturer:
Dr. Luna Filipović
l.Filipović@uea.ac.uk
Phone +44 (0) 1603 59 2397

Do also contact us if you have any worries or concerns about this research:

General Research Ethics Committee
grec@uea.ac.uk
Phone +44 (0) 1603 59 1478

Head of School:
Dr Roger Baines
r.w.baines@uea.ac.uk
Phone +44 (0) 1603 59 3353

Consent Form

First language education provisions in a second language environment: The effects of learning L1 English as an L2 in Catalonia, Spain

Name of Researchers: Louisa Adcock and Dr Luna Filipović

Please initial all boxes

1. I have read and understand the information sheet and have had the opportunity to ask questions and have had these answered satisfactorily. ☐

2. My participation is voluntary, and I know that I am free to withdraw at any time, without giving any reason and without it affecting me at all ☐

3. I know that no personal information (such as my name or a child's name) will be shared outside of the research team or published in the final report(s) from this research ☐

4. I agree to take part in the above study ☐

Participant's signature……Date……..