INPUT FACTORS, LANGUAGE EXPERIENCES AND METALINGUISTIC AWARENESS IN BILINGUAL CHILDREN

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PRESENTATIONS ARISING FROM THIS THESIS

Parts of this thesis have been presented at conferences:

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ABBREVIATIONS

The following abbreviations were used in the text of this thesis:

APA	Anglophone Parents' Association at the International School
BICS	Basic interpersonal communication skills
BPVS	British Picture Vocabulary Scale (British English version of the Peabody Picture Vocabulary Test)
CALP	Cognitive academic language proficiency
CDI	MacArthur Communicative Development Inventory
CE1	Cours Elémentaire 1 – second year of primary school in France
CP	Cours Préparatoire – first year of primary school in France
ECIS	European Council of International Schools
EEa	Child or family with two native Anglophone parents who has been in France for more than three years
EEb	Child or family with two native Anglophone parents who has been in France for under 18 months
EFL	English as a Foreign Language
ESL	English as a Second Language
EVIP	Echelle de Vocabulaire en Images Peabody (French version of the Peabody Picture Vocabulary Test)
FE	Child or family with one native Francophone and one native Anglophone parent
FF	Child or family with two native Francophone parents who, having lived in an English-speaking environment for between three and five years, has been back in France for between four and 30 months
FFL	French as a Foreign Language
GCSE	General Certificate of Secondary Education
IS	International School – the school where the study was conducted
OPOL	One-parent-one-language strategy
SATS	Scholastic Aptitude Tests
SES	Socio-economic status
SLA	Second language acquisition
SOLOM	Student Oral Language Observation Matrix

ABSTRACT

Previous studies have examined either the input factors predicting language proficiency in bilingual children or the relationship between bilingualism and metalinguistic awareness. This thesis takes a novel approach exploring the two areas simultaneously. A study was conducted to investigate, first, the input factors that may cause variation in bilingual language proficiency and, secondly, the effects of differing levels of bilingualism on metalinguistic awareness. The participants were 38 French-English bilingual children aged six to eight, of middle to high socio-economic status, attending an international school in France. Data on the children's language experiences and family background were collected through questionnaires given to parents and children. Language proficiency was measured using the standardised French and English versions of the Peabody Picture Vocabulary Test. Metalinguistic awareness was assessed through seven metalinguistic tasks each given in both languages. The findings are discussed in relation to Bialystok's (1986a) analysis and control framework and Cummins' (1976) threshold hypothesis.

The results indicated a strong association between language exposure estimates and language proficiency measures for each language. Furthermore, the child's stronger language was shown to be a reliable predictor of variables related to language use, including the language used with peers and the language the child finds easier to speak.

The results for metalinguistic awareness were generally consistent with Bialystok's and Cummins' predictions. High level balanced bilinguals outperformed dominant bilinguals on high control tasks and on certain analysis tasks, but only when the child's best score, sometimes coming from the weaker language, was considered. A strong relationship was found between the language proficiency measures and the analysis tasks. Likewise, children scoring above the median on each of the Peabody tests generally outperformed those scoring below on analysis tasks. Overall, the results indicate that proficiency in each language, as well as degree of bilingualism, impact on metalinguistic awareness.

PART I:

PRESENTATION OF THE STUDY

CHAPTER 1 – INTRODUCTION

Several studies have investigated how language experiences impact on bilingual proficiency or how bilingualism affects metalinguistic awareness. These two areas in the field of bilingualism are explored simultaneously in this PhD thesis. The purpose of this study is, first, to determine whether certain linguistic and sociolinguistic factors can predict language proficiency in the bilingual child's two languages and, secondly, to identify how differing levels of bilingualism influence children's metalinguistic awareness which is investigated in terms of Bialystok's (1986a) theoretical framework, which describes metalinguistic performance in terms of two cognitive skill components – analysis of linguistic knowledge and control of linguistic processing.

In this study, we explore the bilingual proficiency of a group of 38 French-English bilingual children, aged six to eight, who attend an international school in France. They come from four types of bilingual family – families with one Anglophone and one Francophone parent; families with two Francophone parents who, having lived in an Anglophone environment for between three and five years, have been back in France for between four and 30 months; families with two Anglophone parents who have been in France with their children for more than three years; and families with two Anglophone parents who have been in France with their children for under 18 months. Having had different language experiences and contact, the children have attained differing levels of competence in French and English. We investigate how these input factors relate to the children's proficiency in each language, measured using a standardised test of receptive vocabulary and a criterion-referenced rating scale of oral competence. The children are then classified into two groups – balanced or dominant bilinguals. We define balanced bilinguals as having attained high levels of competence in both languages, whereas dominant bilinguals have attained a high level of competence in one language and a much lower level in the other. We then compare how differing levels of bilingualism impact on analysis of linguistic knowledge and control of linguistic processing.

In Bialystok's (1986a) metalinguistic awareness framework, analysis of linguistic knowledge is defined as the ability to construct and structure mental representations and ideas. This process is involved, for instance when detecting and correcting grammatical errors in a sentence. Control of linguistic processing is necessary to direct attention selectively to certain specific features while ignoring other distracting elements. This skill

is needed to solve problems which contain some kind of conflict or ambiguity. Research findings indicate a processing advantage for bilinguals, regardless of their level of bilingualism, over matched monolinguals on metalinguistic tasks requiring high levels of control of attention. Furthermore, certain studies which control for degree of bilingualism show that balanced bilinguals perform better than dominant bilinguals on control tasks. An early advantage for balanced bilinguals over dominant bilinguals and monolinguals has also been found on analysis tasks assessing syntactic awareness.

The research presented here is original in several ways. First, this study explores input factors predicting bilingual proficiency and the relationship between bilingualism and metalinguistic awareness in the same study and, therefore, it investigates these issues in the same participants. Other studies have tended to focus either on the relationship between input factors and bilingual proficiency (e.g. Verhoeven, 1991; Yamamoto, 2001; Gathercole and Thomas, 2005b), or on how bilingualism relates to metalinguistic awareness (e.g. Ben-Zeev, 1977b; Bialystok, 1986b; Ricciardelli, 1992a; Cromdal, 1999). By combining the two issues in a single piece of research, not only are language competence and metalinguistic awareness systematically assessed in French and English, but we also have rich and detailed data on the children, including their contexts of acquisition, language use, language experiences, cultural identity and attitudes to bilingualism; and on their parents, including their level of education, language skills, cultural identity, language use, language attitudes and attitudes to bilingualism. By having different sorts of data, we can gain deeper insights into childhood bilingualism and cognitive development.

This study is also innovative as it compares how metalinguistic awareness differs in balanced bilingual and dominant bilingual children. Whereas most studies compare the metalinguistic awareness of bilingual children to that of matched monolinguals (e.g. Ianco-Worrall, 1972; Bialystok, 1986a; Galambos and Hakuta, 1988; Ricciardelli, 1992a), we are particularly interested in seeing how differing levels of bilingualism relate to the two cognitive processing components of analysis of linguistic knowledge and control of linguistic processing as outlined by Bialystok and Ryan (1985) and Bialystok (1986a).

The originality of this study also comes from the participants of the study combined with the setting of the research. The bilinguals in our study can be classified as elite bilinguals, whom we define as children speaking two languages, from families of middle to high socio-economic status (SES) which place a high value on literacy related practices. They are also additive bilinguals in the sense that both their languages are considered to be

prestigious within their social context, with neither seeking to replace the other in the course of the child's development (Lambert, 1977). While numerous studies on bilingual children have been conducted in Dual Language Schools in the United States (e.g. Lindholm-Leary, 2001; Oller and Eilers, 2002a) or in immersion schools in Canada (e.g. Swain, 1997), to the best of our knowledge no other studies have investigated the fields of bilingualism which are the focus of this study in a sample of six to eight year old English-French elite and additive bilingual children who attend an international school in France.

This thesis is organised into three main parts – Part I is the presentation of the study; Part II is the literature review; and Part III addresses the study itself. Part I begins with the general introduction to the study in Chapter 1. Then in Chapter 2, the context of the research is outlined. Here, detailed background information is provided on the international school in France where the study took place, referred to throughout this thesis as the International School (IS). We consider that it is important to profile the school since the language experiences the children have there will contribute to our understanding of their bilingual competence and to the formation and development of their cultural identity and language attitudes.

Part II of the thesis provides an overview of the background literature related to our research questions. The input factors which have been shown to influence acquisition and development in bilingual children are addressed in Chapter 3. In Chapter 4 we take an overview of the studies which investigate the relationship between bilingualism and cognitive development. In Chapter 5, we continue exploring cognitive development by focusing specifically on the construct of metalinguistic awareness which is central to this research and we investigate how it relates to bilingualism.

Part III of the thesis concentrates on the study itself. Having explained the methodology and procedure in Chapter 6 in which we describe how the data were collected and processed, we then turn our attention to the results. In Chapter 7, the family background data of the 38 children are presented and analysed using information collected from the parents' and children's questionnaires. Examining the children's family background in detail, including their language exposure and language use, their cultural allegiance and parents' attitudes to bilingualism, should enable us to better understand, interpret and contextualise the results presented in the following chapters. Chapter 8 investigates the scores obtained by the children in the four different types of bilingual family on the Peabody Vocabulary tests and the Student Oral Language Observation Matrix in English and French. In Chapter 9, we investigate how certain input factors relate to the children's

performance in English and French. Finally in Chapter 10, the relationship between the children's bilingual proficiency and metalinguistic awareness is examined.

In the Conclusion, the main findings and implications of the study are assessed, methodological issues including the limitations of the study are addressed, and possible directions for future research are considered.

The main research questions of this study are addressed in Chapters 9 and 10. As can be seen below, those investigated in Chapter 9 relate to input factors and bilingual proficiency, while those explored in Chapter 10 relate to bilingual proficiency and metalinguistic awareness. Our hypothesis and choice of data analysis technique for each question may be found in the relevant sections of the study.

1) What is the strength of the relationship between overall language exposure estimates and the language proficiency measures in each language? (Section 9.3.3)
2) What is the strength of the relationship between the children's current language input and their scores on the language proficiency measures in each language? (Section 9.3.4)
3) What is the strength of the relationship between the children's current language output and their scores on the language proficiency measures in each language? (Section 9.3.4)
4) What is the strength of the relationship between the child's stronger language and a number of variables related to language use? The variables investigated are: the language the child finds easier to speak and prefers speaking; the language the child finds easier to read in and prefers reading in; the child's cultural allegiance; the languages used with friends in the school playground; the language used with toys; the language the child would choose to use in his/her perfect school. (Section 9.4)
5) Is there a significant difference in the mean scores of the balanced and dominant bilinguals, firstly on the English metalinguistic tasks and, secondly, on the French metalinguistic tasks? (Section 10.3)
6) Is there a significant difference in the mean scores of the balanced and dominant bilinguals when only their best score on each metalinguistic task is taken into consideration? (Section 10.4)
7) To what extent do bilinguals perform metalinguistic tasks better in their stronger language? (Section 10.4)

8) What is the strength of the relationship between the performance measures for each language as attested by the Peabody Picture Vocabulary test scores and the scores on the metalinguistic tasks for each language? (Section 10.5)
9) Is there a significant difference in the mean scores on the metalinguistic tasks of children who have scores on each of the Peabody Picture Vocabulary tests which fall above the median split and children who have scores which fall below it? (Section 10.5)

Our results show a close relationship between language exposure estimates and language proficiency measures for each language, with a particularly strong relationship between language output and language proficiency in the minority language. The results also indicate that the child's stronger language is a reliable predictor of all the variables related to language use that we investigate. The results for metalinguistic awareness are generally consistent with the predictions made by Bialystok's analysis and control framework and Cummins' threshold hypothesis, but only when the child's best score, which sometimes comes from the weaker language, is considered. Overall, our results indicate that proficiency in each language, as well as degree of bilingualism, impact on metalinguistic awareness.

CHAPTER 2 – CONTEXT OF THE STUDY

2.1 INTRODUCTION

The aim of this chapter is to outline the context of the study of 38 English-French bilingual children attending the same international school in France, referred to here as the International School (IS). We consider that a deep understanding of the context is essential before we can focus more specifically on the children who participated in the study. Indeed, by examining the context in some detail, we can build up a better and more meaningful picture of some of the key background variables that are shared by all the children since they are attending the same school. This includes the school's admission policy, the type of bilingual education they are receiving and the typical socio-economic status of their families.

In Section 2.2, an overview of bilingual education in the world will be provided in order to establish what type of bilingual instruction the IS provides. In Section 2.3, we will outline the French primary and secondary education system before looking specifically at the organisation of those French state schools which have international sections like the IS. In Section 2.4 our focus moves to the IS itself. We begin by explaining its general organisation and functioning before providing information on its economic, social and educational context. Then the school's admissions policy will be examined so that we can have a clearer understanding of the linguistic profile of the children when they join the school. After discussing the school's linguistic and cultural objectives, we will consider the school's recruitment policy for English and French teachers. Next, having addressed the curriculum content and classroom organisation, language use and communication in the school is reviewed. Finally, we assess the typical linguistic outcomes of the children attending the IS.

In profiling the school, we aim to provide a detailed picture of the educational environment in which the data for our study were collected. Although the focus of this research is not on bilingual education, we consider that the language experiences children have in school are crucial to the understanding of their bilingual competence. Furthermore, these experiences can contribute to the formation and development of their cultural identity and language attitudes. Indeed, Bialystok (2001a) has highlighted the importance of considering the whole environment of bilingual children in order to have a deeper understanding of the factors influencing their bilingual competence and

development. Throughout this profile we will compare and contrast the IS to models of bilingual education reported on in the literature, to assess whether this school fits into any particular existing model. Moreover by comparing the IS to successful models of bilingual instruction, we hope to identify key factors related to the school environment which may impact on the acquisition of bilingualism, biliteracy and cultural identity.

2.2 BILINGUAL EDUCATION IN THE WORLD

The term *bilingual education* may be misleading as it is not used in exactly the same way in different educational settings. As Cazden and Snow (1990: preface) remark, the term is "a simple label for a complex phenomenon". Several typologies which attempt to classify the various types of bilingual education have appeared in the literature (e.g. Mackey, 1970; Fishman, 1976; Brisk, 1998). Mackey's (1970) typology is particularly complex, with ten different types of programme, each divided into a number of subgroups. Such complex typologies can be criticised since existing examples of bilingual education do not necessarily fit neatly into any one particular category. Baker (2006) subdivides bilingual education into three main types. The first and second types, referred to as monolingual and weak forms of bilingual education, do not attempt to develop children's first or native language within the school environment, but rather aim to assimilate minority language children into mainstream monolingual education rapidly. Thus, children undergo a sort of language submersion as the majority language gradually replaces their home language. Such programmes are also referred to in the literature as subtractive forms of bilingual education. The third category, according to Baker's classification, covers strong or additive forms of bilingual education which aim to promote both bilingualism and biliteracy. For Hamers and Blanc (1989:189) only this type of programme should be considered as bilingual education, which they define as:

> Any system of school education in which, at a given moment in time and for a varying amount of time, simultaneously or consecutively, instruction is planned and given in at least two languages.

Our particular interest henceforth lies in this type of bilingual programme since the setting in which this research was conducted has similar educational objectives.

Baker (2006) identifies four forms of strong or additive bilingual education. The first is Dual Language Education also known as two-way immersion. In these programmes, present principally in the United States, groups of majority and minority language

children are educated through their two languages. Instruction is given most frequently in English and Spanish. This form of bilingual education has been reported on extensively by Lindholm-Leary (2001) and Oller and Eilers (2002a). Heritage language bilingual education is the second form of strong bilingual education presented by Baker. Such programmes, which educate bilingual children in both the majority and minority languages, aim to maintain or revitalise an indigenous language and culture while continuing to develop the majority language. Examples reported on in the literature include education through Navajo and Spanish in the United States (Valdés *et al*., 2006), Basque in the Basque Country (Lasagabaster, 2001), Welsh in Wales (Baker and Jones, 2000) and Aboriginal languages in Australia (Nicholls, 2005). Immersion programmes for majority children are Baker's third form of strong bilingual education. In these programmes, in which immersion can range from partial to total, children from the same first language backgrounds are educated in a second language with which they generally have had no contact before entering school. The best known immersion programmes and, indeed, those which have been most widely researched, are in Canada (e.g. Lambert and Tucker, 1972; Harley, 1991; Swain and Lapkin, 1991). These programmes were initially designed to offer English-speaking children the possibility of being educated through French. Bilingual education in majority languages, in which children are taught through two or more majority languages, is Baker's fourth type of strong bilingual education. He reports that such programmes are established in societies where a large part of the population is already bilingual or multilingual (e.g. in Belgium or Singapore), or where large numbers of natives or expatriates wish to become bilingual (e.g. learning through English and German in Germany). Within the category of bilingual education in majority languages, Baker considers international schools and European Schools. Apart from Mejía (2002) and the European Council of International Schools' (ECIS) biannual *International Schools Journal*, there is little published research relating to international schools which offer what is referred to in the literature as 'elite' bilingual education (Mejía, 2002:5). European Schools have been reported on more extensively in particular by Baetens Beardsmore (1993a), Bulwer (1995) and Hoffmann (1998) although overall the literature on this type of bilingual instruction is sparse compared to what has been written on the other types of strong bilingual education and on subtractive forms of bilingual education.

This study was conducted in a school which falls into Baker's fourth type of strong bilingual education. Before profiling the school in Section 2.4, we will first give a brief

overview of primary and secondary education systems in France and then will turn our attention to international sections in French state schools, since the IS falls into this category.

2.3 PRIMARY AND SECONDARY EDUCATION IN FRANCE

2.3.1 Overview

All educational programmes in France are regulated by the *Ministère de l'Education Nationale, de l'Enseignement Supérieur et de la Recherche*[1]. Access to the teaching profession in state nursery, primary and secondary schools is through national competitive examinations which, when completed, give teachers the status of certified civil servants. All state nursery, primary and secondary schools follow the French national curriculum imposed by the Ministry of National Education which ensures national uniformity. Schooling is compulsory in France from age six, the first year of primary school (*Ecole élémentaire*), although many children attend nursery school (*Ecole maternelle*) from age three. The last year of nursery school is an important one in the educational process as pre-reading skills are taught. However, according to the French national curriculum, it is not until the first year of primary school that the teaching of reading officially begins. In France, as in many other educational systems such as the United Kingdom and the United States, a single teacher instructs all disciplines in nursery and primary school classes. Table 2.1 shows how the French school classes correspond to those in the United Kingdom and the United States.

[1] "The Ministry of National Education, Higher Education and Research"

Table 2.1 Comparison of school organisation in France, the United Kingdom and the United States

French school	*French class*	*UK equivalent*	*US equivalent*	*Typical entry age*
Ecole maternelle	Cycle 1, year 1		Pre-K	3
	Cycle 1, year 2		Pre-K	4
	Cycle 2, year 1	Year 1	Kindergarten	5
Ecole élémentaire	Cycle 2, year 2 (*Cours préparatoire*, *CP*)	Year 2	Grade 1	6
	Cycle 2, year 3 (*Cours élémentaire 1*, *CE1)*	Year 3	Grade 2	7
	Cycle 3, year 1 (*Cours élémentaire 2*, *CE2)*	Year 4	Grade 3	8
	Cycle 3, year 2 (*Cours moyen 1*, *CM1*)	Year 5	Grade 4	9
	Cycle 3, year 3 (*Cours moyen 2*, *CM2*)	Year 6	Grade 5	10
Collège	Sixième	Year 7	Grade 6	11
	Cinquième	Year 8	Grade 7	12
	Quatrième	Year 9	Grade 8	13
	Troisième	Year 10	Grade 9	14
Lycée	Seconde	Year 11	Grade 10/11	15
	Première	Year 12	Grade 11/12	16
	Terminale	Year 13	Grade 12/13	17

2.3.2 International sections in French state schools

International sections were first established in French state schools in 1981. French Ministry of National Education official texts[2] state that these sections may run from primary school through to the end of secondary school (*Lycée*) at age 18. International sections have two major objectives. The first is to facilitate both the integration of foreign pupils into the French education system, and their possible return to the school system in their home country. The second objective is to create an environment enabling French pupils to attain high levels of competence in a foreign language. To achieve these aims, French certified teachers work alongside foreign, home-country qualified teachers.

[2] Decree number 81-594 of 11 May 1981 and Ministerial Order of 11 May 1981 published in the *Journal Officiel* of 19 May 1981 and in the *Bulletin Officiel* of 4 June 1981.

Regarding admissions to international sections, ministerial publications state that:

> Les sections internationales sont ouvertes aux élèves dont l'aptitude, linguistique notamment, à suivre un enseignement de ce type a été vérifié et estimée suffisante par l'établissement d'accueil[3].

These ministerial guidelines are open to interpretation since no explanation is provided as to the level or type of linguistic abilities considered to be sufficient. Thus, each school is responsible for setting its own linguistic standards and entrance tests.

Although internal organisation may differ from school to school, there are certain ministerial guidelines that schools are expected to follow. In primary school from three to six hours' tuition per week should be offered in the foreign language. In secondary school the teaching of the standard French history and geography curriculum (taught as one subject in France) is shared between the French and the international sections, with two hours per week taught in French by a French certified teacher, and two taught in the relevant foreign language by the foreign member of staff. In addition, pupils are taught language and literature in the language of their international section for a minimum of four hours per week by the foreign qualified teaching staff. Pupils take the standard French external examinations, the *Brevet* at the end of *Collège* when they are around 15 years old, and the *Baccalauréat* at the end of *Lycée* with a special international option.

Although the languages taught in international sections in French state schools are varied, English is offered most widely, followed by Spanish, German and Italian. A small number of schools offer other languages such as Dutch, Portuguese and Japanese. Around 30 state schools in France currently have English-speaking international sections, with new ones opening each year[4].

Now that a general presentation of international sections in French state schools has been given, we can focus specifically on the IS where this study was conducted.

[3] "International sections are open to pupils whose linguistic ability in particular to follow this type of teaching has been evaluated and is considered to be sufficient by the establishment in question".
[4] See http://www.education.gouv.fr/int/fiches/secinter.htm (consulted 30.3.2006)

2.4 PROFILE OF THE INTERNATIONAL SCHOOL

2.4.1 Introduction

This study was conducted in the English-speaking section of the IS which we will refer to henceforth as the Anglophone section. A fact sheet distributed by the school to families of children in the Anglophone section in 2005 indicated a total of 535 students in the section, with 142 in primary, 223 in *Collège* and 170 in *Lycée*. Our particular interest lies with the primary school since the data for this study come from CE1 children in the Anglophone international section. These six to eight year old children are in their second year of primary school as is shown in Table 2.1. The Anglophone section is the largest in the primary school, accounting for around 40 percent of its population. At the time this study was carried out, there were also five other language sections and all the children attending the primary school were in one or other of them. Although it is a state school which is fully accredited by the French Ministry of National Education, the Anglophone part of the curriculum is sponsored by a non-profit making parents' association, henceforth referred to as the APA (Anglophone Parents' Association). It is fee-paying, unlike most of the other sections in the school, since there are no bilateral teacher exchange programmes between France and any English-speaking countries. When this study was conducted, annual English tuition fees were around 1,350 euros (£1,200) per child.

The APA is under the authority of the headmaster of the *Lycée* and has an elected parent board. As in other bilingual or international schools reported on in the literature, such as the John F. Kennedy School in Berlin (Mackey, 1972), the board oversees the functioning of the section. It is an active parent association with a welcome committee, composed of parents of children enrolled in the section, whose role is to assist new families to settle in the city. In addition, the APA publishes a newsletter which is sent to families in the section four times a year, giving news within the Anglophone section about activities both in and out of school. The APA parent volunteers also run the English section of the school library.

The standard French national curriculum, taught by certified French primary school teachers, is covered in 20 hours per week rather than the usual 26 hours in standard French primary schools. Irrespective of the language section in which they are enrolled, all children are taught together during these hours. Thus, each class may contain children

from the full range of language backgrounds in the school. Each French-medium class normally has around 25 children. In the Anglophone section, the language and literature part of the British national curriculum is taught at native-speaker level by home country qualified native English-speaking staff for the remaining six hours of instruction, spread over three different days of the week. English-medium classes with around 15 children are smaller than the French. Non-French-speaking children arriving from abroad may be taken out of normal French classes to receive special tuition in French as a foreign language (FFL) for six hours a week for up to two years. Thereafter, with few exceptions, children are expected to be able to integrate into the French education system fully.

Having given an overview of the setting of this study, we will now profile the IS primary school in detail to have a better understanding of the context of the research. The information collected for the IS profile was gathered over several years. Before the start of this study the researcher was already in contact with the school since her two children joined the Anglophone section in CP, the first year of primary school, in 1998 and 2000 respectively. The researcher has, therefore, been in a privileged position, being able to talk extensively and informally to staff members, parents and children in the school for a number of years.

In Section 2.4.2 the economic, social and educational context of the school will be examined. In Section 2.4.3 we will consider its admissions policy which will enable us to appreciate better the linguistic profile of children when they join the school. The linguistic and cultural objectives of the school will be addressed in Section 2.4.4 before we turn our attention to staff recruitment and training in Section 2.4.5. Having investigated the curriculum content and classroom organisation in Section 2.4.6, we will consider language use and communication within the school in Section 2.4.7. Finally the typical linguistic outcomes of children who attend the IS will be considered in Section 2.4.8. Throughout this profile we will compare and contrast the IS to other examples of additive bilingual education that have been reported on in the literature.

2.4.2 Economic, social and educational context

The IS is in a large, economically prosperous, industrial and commercial city which is home to numerous international companies and organisations. Like many schools offering bilingual education such as the John F. Kennedy school in Berlin (Mackey, 1972) or the Brussels European School (Baetens Beardsmore, 1993a), one of the main reasons for the

creation of the IS was to respond to an economic and educational need. The school was founded at the beginning of the nineties primarily to provide temporary education in their home language to the children of the foreign families employed by the numerous international companies based in the city, enabling them, thus, to reintegrate to their home education system at a later date but also to acquire some French. Since there were not enough children with this profile to fill the school, local children were admitted on condition that they were already highly competent in one of the languages of the international sections. Concerning the Anglophone section of the school, these were for the most part either children from families with one Anglophone and one Francophone parent, children of two Francophone parents who had lived abroad in an English-speaking environment, or children of two Francophone parents who had attended one of the city's private English-French bilingual nursery or primary schools. Furthermore, it was hoped that the school's existence would encourage more foreign companies to establish themselves in and around the city, in the knowledge that their children could be educated in their home language.

As was noted above the IS is a state school like the schools discussed in Beatens Beardsmore's *European Models of Bilingual Education* (1993b.). However, it differs from many of the international schools and schools offering bilingual education, including those presented in Mejía's *Power, Prestige and Bilingualism* (2002), as according to Baker and Jones (1998:533), these schools offer "private, selective, independent education ... mainly for the affluent". Although the IS is public, many of the parents of the children in the Anglophone section are similar in profile to those of children attending such private establishments. These parents tend to have a relatively high SES, are literacy oriented, put a high value on educational achievement, are academically ambitious for their children's future, and have a very positive view of bilingualism and biculturalism. The IS is regularly placed at the top of published league tables of state schools in the city, based on results obtained at the *Baccalauréat*. It is considered to be a prestigious school and is, thus, much sought after by parents. Furthermore, the parents of the children in the school are generally highly educated, typically working in scientific and medical research, multinational organisations, international management or business, education, finance or engineering. Although many of the parents of children in the other international sections of the school are comparable to those in the Anglophone section described above, there are proportionally more children from lower SES families in certain sections which are not fee-paying.

At the time this research was conducted, within the Anglophone section of the school there were four main family profiles. The first composed of children who have one Francophone and one Anglophone parent, generally represents a fairly stable population within the school, with children usually remaining there to complete the whole of their primary and secondary education. We refer to these as FE families. The second profile consists of children of two Francophone parents who wish to maintain their children's English level, having lived in an English-speaking environment usually for between two and five years. Depending on their age on returning to France and the amount of contact with English that they have outside the school, children from this group may or may not remain in the school for a long period, as will be shown in Section 2.4.8. We call these FF families. Children of Anglophone parents living in France on a longer-term basis make up the third profile, referred to as EEa families. The final profile is the most mobile and transient population within the school and typical of many international schools worldwide (Mejía, 2002). Indeed, it is composed of children of Anglophone parents, living temporarily in the city, generally for between two and five years, referred to as EEb families.

Having provided some indicators as to the typical family profiles in the Anglophone section of the IS, including parents' SES and expectations of their children's education, we will now consider the school's admissions policy in order to appreciate the linguistic and general academic requirements of pupils joining the school.

2.4.3 Admissions policy

Unlike standard state schools in France which serve particular catchment areas, this school serves the whole of the city and its suburbs since it recruits students according to a particular linguistic profile. Children applying to the Anglophone section of the school therefore, have to satisfy linguistic and general academic entry requirements for both the Anglophone and the French sections, as will now be shown.

2.4.3.1 Entry requirements for the Anglophone section

Admission to the Anglophone section is based on linguistic competence. To be admitted to the school, children are, therefore, required to have at least near-native proficiency of English which they are expected to maintain as long as they remain in the school. The

school does not offer any English as a Foreign Language (EFL) tuition. All children applying to enter the school in the first year of primary are interviewed in small groups by two members of the English staff. However, there is no written test since children do not officially start learning to read and write until the first year of primary school, as we noted in Section 2.3.1. From the second year of primary onwards, all children also sit a written entrance test in English.

2.4.3.2 Entry requirements for the French section

There are no entrance tests for standard state primary schools in France. However, entrance to the IS is selective because in addition to the foreign language curriculum, the school considers that its French curriculum is more intensive and academically demanding as it has to be covered in 20 hours per week, rather than the usual 26 in standard primary schools. For entry into any level of primary school, children coming from other French state schools are required to submit a detailed report on their educational performance written by their current teacher. These children also have to attend an individual interview with a member of the French staff. Children applying to CP (see Table 2.1) who, either attend a private school in France, or are coming from abroad and already speak French, have a compulsory interview with a member of the French staff which includes an evaluation of their mathematical and pre-reading skills. Children from either of these backgrounds applying for entry into CE1 or above also have to sit a written test in French and mathematics. Children coming from abroad who speak no French cannot be tested in French but are required to submit a detailed report card on their educational performance, written by their current teacher.

Now we have given a more precise idea of how children are admitted to the IS based on their linguistic and general academic profile, we can examine how the school defines its linguistic and cultural objectives.

2.4.4 Linguistic and cultural objectives

Private international and bilingual schools across the world often produce prospectuses to influence future parents since competition is fierce amongst such schools which usually depend heavily on private investment for their survival. These prospectuses provide detailed information on the school's history, its linguistic and cultural objectives and

ethos, and extra-curricular activities and can be very persuasive (Mejía, 2002). In contrast, the IS which is a state school, has no difficulty attracting suitable candidates and perhaps as a consequence does not feel the need to publish a prospectus. Indeed, at the time our research was conducted in the school, the only documents we were able to find giving information on the school came from the school's small official Internet site and the APA website. In order to preserve the school's anonymity, we will not quote directly from these websites but rather will provide English paraphrases of their contents where appropriate. As we will see, although reference is made to the school's linguistic objectives, this is done much less explicitly than in the brochures and reference documents of many of the models of strong bilingual education discussed in the literature.

We have seen that models of additive bilingual education aim to preserve, valorise and reinforce the child's first language, while developing high levels of competence in the second. Several of these models provide opportunities for frequent contact between native and non-native speakers of each language in order to promote bilingual or multilingual competence and intercultural awareness and identity. The linguistic and cultural objectives of Dual Language Schools in the United States are clearly stated. As Lindholm-Leary (2001) and Oller and Eilers (2002a) remark, they aim to produce bilingual, biliterate and multicultural children. Likewise, European Schools "are committed to a philosophy of first language maintenance and the promotion of academic multilingualism in at least two languages for *all* students during their school career" (Mejía, 2002:25). By contrast, the IS's linguistic objectives are never stated in such explicit terms.

The French Ministry of National Education web page presenting international sections in state schools simply states that:

> Les sections internationales ont été conçues pour accueillir dans des classes françaises des élèves étrangers … faciliter tant leur insertion dans le système scolaire français que leur éventuel retour dans leur système scolaire d'origine, ainsi que pour créer, à la faveur de leur présence, un cadre propice à l'apprentissage par les élèves français d'une langue vivante étrangère à un haut niveau[5]. [6]

While the term 'bilingualism' does not appear, it is clear that a high level of competence in French may be acquired by non-Francophone pupils, while a high level of competence in a foreign language may be attained by Francophone pupils. The IS website states that

[5] "International sections were created to welcome foreign pupils into French classes.....to facilitate, as much their integration into the French school system, as their possible return to their school system of origin, thus creating through their presence, an environment for French pupils which is conducive to learning a foreign language to a high level".

[6] See http://www.education.gouv.fr/int/fiches/secinter.htm (consulted 30.3.2006)

the acquisition of two languages is facilitated by the fact that pupils from diverse linguistic backgrounds are taught together, using teaching methods from different countries and are, therefore, exposed to a bilingual and bicultural education. However, no indication is given as to the degree of competence pupils may reach, even if they are given a bilingual education.

The APA website which covers the whole school, from primary through to the end of secondary school, states that children are recruited into the international sections of the school as long as they are already fluent in one of the sections' languages. Similarly the school's webpage in the ECIS directory[7], states that the Anglophone section of the IS accepts children who have native or near-native competence in English and will, thus, benefit from being taught in the French state system. Although it is not stated explicitly on any of the school websites, high level bilingualism and biliteracy are clearly essential when we consider the linguistic and academic demands of both the French and English curricula from primary through to the end of secondary school. These include the French national external examinations that pupils prepare in secondary school, the French *Brevet* and *Baccalauréat* with an international option, and the British English Language and English Literature General Certificates of Secondary Education (GCSE) and the American Scholastic Aptitude Tests (SATS).

The school's websites are more explicit concerning cultural objectives. The main school website states that intercultural awareness and exchange are two of the school's strong points. The primary school section of the IS website says that tolerance, respect and intercultural exchange amongst pupils are encouraged at all times. Similarly the APA website states that the school aims to create teaching and learning environments which foster understanding and respect for other people and cultures. As do many international schools and schools within the European Schools movement, the IS primary school actively encourages intercultural understanding and exchange by mixing children from the different language sections not only in class, but also in numerous cultural activities throughout the year. Traditional festivals are celebrated by the whole school such as Saint Martin for the Germans, the Befana for the Italians and Halloween for the Anglophones. As Swan (1996) has remarked with regard to European Schools, such exchanges promote feelings of cultural pluralism. There is also an intercultural parents' association which

[7] http://www.cois.org/Directory (consulted 17.04.2004)

aims to promote exchanges between families in the different language sections within the school by organising social events for parents and pupils throughout the year.

2.4.5 Staff recruitment and training

2.4.5.1 Anglophone primary staff

The primary school teachers in the Anglophone section come from various English-speaking countries and have national teaching qualifications from them. The section recruits only native speakers, as the teachers are considered to be role models of English. A similar recruitment policy is adhered to by European Schools (Baetens Beardsmore, 1993a) and Dual Language Schools (Lindholm-Leary, 2001).

Unlike Dual Language Schools in the United States where teachers are expected to be fully bilingual in English and Spanish (Lindholm-Leary, 2001), European Schools where new teachers must be fully bilingual in the appropriate languages (Baetens Beardsmore, 1993a), and the International Kungsholmen's Gymnasium in Stockholm where newly recruited teachers must have high levels of proficiency in Swedish and English (Mejía, 2002), the Anglophone teaching staff are not expected to be fluent speakers of French, although those who are long-term residents usually are. On the other hand, teachers who arrive from abroad tend not to be very comfortable speakers of French. Like staff in European Schools (Baetens Beardsmore, 1993a), on being recruited, teachers in the Anglophone section are not required to have any particular background knowledge on bilingual children, bilingual research theory or second language acquisition (SLA) and development, but rather are expected to adapt gradually to these special circumstances through hands-on classroom experience. This is in contrast to the policy of Dual Language Schools where such knowledge is considered essential for understanding the specific needs of children acquiring two languages. Once recruited by the Anglophone section, teachers are not offered any specific pedagogical training in teaching bilingual children.

2.4.5.2 French primary staff

The headmaster and French teachers in the IS primary school, like all teachers in French state schools, are civil servants, as we noted in Section 2.3.1. Teachers working in standard French primary schools do not apply to work in any particular school, although as they gain more experience, they have more choice as to the general geographical area in which they wish to work. Rather they are appointed by the Ministry of National Education depending on the number of points they have accumulated[8]. The situation is different for teachers who wish to work in primary schools with international sections, since they apply directly to the schools of their choice in response to job advertisements which define a specific job profile, appearing in the *Bulletin Officiel*[9]. Prospective candidates are interviewed by a panel, which includes the headmaster of the school and the school inspector for that area, and they are expected to display a strong motivation for working with a less traditional population. Members of the teaching staff may have had some experience of teaching non-Francophone children in France or abroad. Like the Anglophone teaching staff, the headmaster and French class teachers are not required to have high levels of proficiency in any one of the school's foreign languages, nor are they expected to have any prior knowledge of bilingual children or of bilingual and SLA research. Once they begin working in the school, they receive no specific training on how to work with bilingual children, or indeed how to work with children who join the school with little or no French whatsoever.

The teachers who are employed specifically to teach FFL to non-Francophone children are primary school teachers who, having taught in the IS primary school for several years, have opted to teach FFL instead when a position becomes available. Although they will have had several years of teaching bilingual children in the school, they are not required to have any additional recognised qualifications to teach FFL. This is a sharp contrast to the extensive training that EFL and English as a Second Language (ESL) primary school teachers undergo in English-speaking countries before being authorised to teach their subject.

[8] Points are awarded according to various criteria, such as the number of children the teacher has, the geographical location of the teacher's partner's job and positive classroom inspections by national inspectors.

[9] A monthly publication of the Ministry of National Education.

2.4.5.3 Discussion

We have seen above that teachers in the Anglophone and French sections of the IS are not required to be bilingual themselves, nor are they required to have prior knowledge of bilingual pedagogy or bilingual and SLA research theory on joining the school, nor are they offered any particular training on teaching bilingual children. Søndergaard remarks that such cases reveal that "the basis for the schools is in ideology not pedagogy" (1993:83). Indeed, this lack of knowledge may do a disservice to numerous children in the school. If teachers were required to be bilingual, they would have a much deeper understanding of what it means to function in more than one language. This would offer them greater insights into both the specificities of bilingual children and the potential difficulties faced by children learning two languages. This lack of knowledge may prevent some teachers from being able to perceive the type of support that certain children require in order to overcome problems they may be experiencing. Moreover, they may have unrealistic expectations about the children they are teaching. Indeed, it takes some time for new teachers who have had no prior experience of teaching bilingual children to adapt to working in this new environment and to appreciate the differences between teaching monolingual and bilingual children, and it can take time for them to realise that bilingual instruction can delay the rate of learning.

Lack of knowledge about SLA and bilingualism has led certain French teachers, including those teaching FFL, to advise non-Francophone parents to speak to their children in French rather than in English, their home language, in order to accelerate their children's acquisition of French. Some parents, through their own lack of knowledge on the subject, keen to do what is best for their children, often follow this advice. The same lack of knowledge about SLA research has led the school to offer FFL classes to non-Francophone children for just two years. Yet extensive research conducted in additive and subtractive educational contexts in Europe, North America and elsewhere has concluded that it typically takes immigrant children a period of five years or more to catch up academically with native speakers of the target language, as we will see in detail in Section 4.2.1 in relation to Cummins' hypotheses (Cummins, 1981; Klesmer, 1994; Thomas and Collier, 1997; Shohamy, 1999; Hakuta *et al*., 2000). Expecting children to be able to integrate fully into the French curriculum after just two years of tuition in FFL is both ill-informed and potentially dangerous, since many children may have attained reasonable conversational fluency, usually including an authentic accent, but are far

behind their native speaker peers in academic aspects of language. In Section 2.4.8 we will examine the possible linguistic outcomes for children in this profile.

We presume that a lack of knowledge about bilingualism and SLA may also explain why EFL tuition is not available to children at the IS, as we noted in Section 2.4.3.1. Indeed, children are expected to maintain the level of English they had, when they were admitted to the IS, throughout their schooling. While this is quite feasible for the EEa and EEb children who are surrounded by English in the home, it can be more problematic for certain FE children depending on the amount of English contact they have in the home. More importantly, it is the FF children who are highly proficient in English when they enter the IS who are at much greater risk of language attrition once they return from abroad as a result of their very limited contact with English compared to when they were living in an Anglophone country. The typical linguistic outcomes for children in this profile will also be addressed in Section 2.4.8.

Having considered how the IS staff are recruited and trained, we will now investigate how English and French are distributed across the curriculum and how the different language classrooms are organised.

2.4.6 Curriculum content and classroom organisation

Language boundaries are clearly established in the curriculum at the IS. English is used to teach English language and literature and some arts and crafts. French is used to teach French language and literature, mathematics, history, geography, science, physical education and arts and crafts. Some models of bilingual education function in a similar way to the IS with different subjects being allotted to each language. In others, such as Dual Language Schools both languages may be used to teach all subjects on different days of the week or different times of the day for instance (Lindholm-Leary, 2001; Oller and Eilers, 2002a).

EFL tuition is not available, as we noted above, whereas FFL tuition is offered to non-Francophone children who are taken out of their normal French classes several times a week. During this time the rest of the class works on more complex aspects of the French language which are considered too demanding for children in the early stages of acquiring French. Two levels of FFL classes are offered: level one for children arriving from abroad with no French, and level two for children who have reached an intermediate level. In both cases, French is taught as a subject but also used as a medium of instruction.

It is not easy to compare how languages are distributed in the curriculum at the IS to other models of bilingual education, since to the best of our knowledge no other models discussed in the literature have the same school entry requirement of native or near-native competence in the foreign language as discussed in Section 2.4.3.1 above. In European Schools, where local children do not necessarily speak the second language, this is taught first as a subject before being used as a medium of instruction, while children who have no knowledge of the national language of the country attend foreign language classes (Baetens Beardsmore, 1993a). In certain Dual Language Schools both languages are initially taught as subjects, while in others they are used solely as media of instruction. In the latter case children are expected to acquire the two languages informally through exposure to them in the curriculum and through normal interaction with their peers who are already highly competent speakers of at least one of the languages of the curriculum (Lindholm-Leary, 2001; Oller and Eilers, 2002a).

One of the main objectives of the IS is to develop a love of reading in all pupils. The importance of reading is reinforced by weekly visits to the school library. Both in the English and French curricula children are taken out of class in small groups by parent volunteers who help the children to choose appropriate books to borrow. The library visits are language specific so the children are accompanied by English-speaking parents on English library visits and French-speaking parents for French visits.

It is interesting to contrast the teaching approaches in the French and English classrooms of the IS. Baetens Beardsmore's remark with reference to classes at the European School in Brussels could equally apply to the IS. He observes that differences in approach:

> Might be explained by different intellectual and teacher-training traditions in the countries from where the teachers came and which were reflected in the lessons, the French lesson reflecting a quest for abstraction and generalisation whereas its English counterpart reflected pragmatic considerations. (Baetens Beardsmore, 1993a:139)

At the IS, French classes are generally much more teacher-centred. By contrast, the children are constantly placed at the centre of the learning process in English classes and have a much more active role during class time when pair and group work is encouraged and project work often integrating IT is frequent. Indeed, the striking differences in the physical appearances of the classrooms reflect the contrasting teaching approaches. The English classrooms are more child-friendly and informal with tables arranged in small squares seating four to six children. This classroom layout allows for differentiated teaching and project work which is very widespread in Anglo-Saxon primary and secondary education systems. In contrast from CE2 onwards, the French classrooms, with

the exception of the FFL classrooms, are much more formal in appearance with tables often arranged in parallel lines all facing the front of the classroom.

To illustrate the differences in teaching approaches, it is striking to contrast the representations of writing for the French and English staff. In the French section, learning to write means learning to copy letters, words and sentences in a calligraphic style. Creative writing is rare and not encouraged until firstly, the children's cursive handwriting is of a good standard and, secondly, they can write linguistically correct sentences. In the Anglophone section children are encouraged to express themselves in writing as early as possible by writing stories, poems and diaries. Since the focus is on creativity, hand-writing, spelling and other linguistic errors are not considered to be problematic. It can take time for Anglophone children arriving from an Anglophone country to adjust to the rather dry and strict approach to the acquisition of literacy in France.

Numerous studies in the literature into successful monolingual and bilingual education programmes across the world have underlined the importance of the role of parental interest and involvement in the education process (Tizard *et al*., 1982; Bermúdez and Márquez, 1996; Met and Lorenz, 1997). Artigal (1993) has reported on the key role played by parents in the development of Basque and Catalan immersion programmes, while Leman (1993) has noted the importance of involving parents in school events with regard to Foyer projects for immigrant children in Dutch-language primary schools in Brussels. Likewise, Lindholm-Leary summarising research findings from successful Dual Language Schools in the United States, claims that:

> When parents are involved, they often develop a sense of efficacy that communicates itself to children, with positive academic consequences, especially in the case of language minority children. (2001:74)

Many parents are extremely active participants in IS school life. Several reasons account for the great availability of numerous parents in this school. First, for the very mobile French or non-French families who are in the city on a temporary basis for professional reasons, frequently one parent, usually the mother, does not have a professional commitment. Secondly, as regards families who are permanent residents in France, many women choose to stop working when they have young children. This option is particularly attractive because of France's generous state benefits which undoubtedly encourage many mothers to stay at home until each child is two and a half years old. Teachers at the IS are generally very willing to involve parents in school events, such as

library visits, craft and sporting activities and school trips. A number of volunteer parents also run various craft workshops open to all children during the lunch break throughout the year.

2.4.7 Language use and communication

We have already seen that the French headmaster and teaching staff are not required to be competent in any foreign languages. Official letters and documents sent to parents from the school are written in French alone. Official documents posted on the notice boards, such as the school rules, the dates of school holidays, the weekly canteen menus, local public transport information and details of how to contact the school nurse, local speech therapists, parent teacher representatives or the local education authority, are in French only. Most official documents from the APA, such as requests for school fees and invitations to the annual general meeting, are written in both English and French, while the APA newsletter is in English only. Office staff on the French side are not required to have any foreign language skills, whereas in the Anglophone section they are also expected to have a good level in conversational French. Termly meetings of the Parent Teacher Association attended by the headmaster, all the French teachers, teachers from all the foreign language sections and elected parent representatives, are conducted in French, as are primary staff meetings. School reports are written in French by the French staff and English by the English staff.

The predominance of French in the school is a clear indication that the school is a French school which has international sections. Although the languages of most of the international sections within the school may be considered as high prestige languages, since French is the majority language of the wider society, it is undoubtedly the language of power within the school. This type of situation is clearly not uncommon within bilingual education systems, as Cummins remarks:

> Lurking behind the veneer of vacuous multicultural rhetoric in many Canadian (and other) school systems is the reality of coercive relations of power. (2000:252).

This is different from the European and Dual Language Schools in which administrative personnel, medical staff, headmasters, teachers and support staff are all bilingual or multilingual (Baetens Beardsmore, 1993a; Lindholm-Leary, 2001). This is more reassuring for parents and children who can seek assistance within the school at any time in their stronger language.

We saw in Section 2.4.1 that all children in the IS primary school follow 20 hours of instruction in French, the majority language, and six hours in English per week. Therefore, around 77 percent of instruction is in French compared to 23 percent in English. The dominance of French language tuition at the IS, accounting for over three-quarters of curriculum time, is another indication that the IS is a French school with international sections and that French is clearly the language of power within the school. In other models of strong bilingual education, exposure time to the two languages is much more balanced. Dual Language Schools attempt to offer the minority language for at least 50 percent of instruction for up to six years (Lindholm-Leary, 2001). In the primary section of European Schools, children study initially through their dominant language which may or may not be the majority language of the wider community. Learning through the dominant language is considered to be an essential basis for the later development of other foreign languages. Although teaching through children's first language is maintained throughout schooling in European Schools, it is gradually reduced as teaching through the foreign language increases (Baetens Beardsmore, 1993a).

Studies conducted in Canada on students in immersion programmes have shown that a minimum of 50 percent foreign language instruction is required to promote high level proficiency in the target language (Lindholm-Leary, 2001). The situation of non-Francophone children acquiring French at the IS differs from that of children acquiring a foreign language in immersion programmes. In particular, apart from the FFL classes, the non-Francophone children at the IS are being taught in a French classroom environment alongside children who are native or near-native speakers of French. Unlike immersion programmes in which all children are learners of the target language, teacher output at the IS is not generally modified or simplified to make it more comprehensible. This may well initially slow down acquisition of French for non-Francophone children despite the high proportion of French tuition in the curriculum, as they struggle to understand and appropriate the content of the French classroom which is cognitively demanding. The low proportion of English tuition at the IS is problematic for those children who lack exposure to English outside school, as we will discuss further in Section 2.4.8 below.

Research into child bilingual acquisition in the home has often argued that more balanced high level bilingualism can be achieved if the 'one-parent-one-language' approach is adhered to (e.g. Hoffmann, 1985; De Houwer, 1990; Döpke, 1992; Lanza, 1997). This approach aims to establish clear boundaries for the child in the exposure to, and use of, the two languages according to person, as we will see later in Section 3.3.3.1.1.

Sociolinguists offer additional support in favour of fixing strict language boundaries, arguing that minority languages require quite distinct and separate domains of use in society in order to survive (e.g. Welsh Language Board, 1998). The same idea of maintaining strict language boundaries to achieve high levels of bilingualism lies behind the language separation across the curriculum at the IS and indeed in Dual Language Schools. As Baker observes, "for a minority language to have purpose and strength, it must have a distinct language allocation in transmitting the curriculum" (2001:274-5). Thus, at the IS, languages are separated with Anglophone teachers using only English with their pupils in and outside the classroom, and Francophone teachers only French. Moreover the teaching spaces are quite distinct, with separate classrooms for French and English. Wall displays in and around each classroom are language-specific as are the library corners in each classroom. Although teachers cannot stop children from communicating with each other in the 'wrong' language in private conversation within the classroom, the English teachers tend to separate those children who are clearly more comfortable speaking to each other in French. The approach of the French teachers varies depending on what is being taught. At certain times a fully bilingual child may be deliberately seated next to a non-Francophone child. In this case, the former will be encouraged to assist the latter by acting as a sort of tutor translating, interpreting and explaining what is said by the teacher. Such peer cooperation can be extremely gratifying for both parties as the non-Francophone child is able to access the curriculum content more rapidly and effectively, while the bilingual child feels a sense of achievement at enabling the other to do so.

In both the French and English IS classrooms, as in some other bilingual schools reported on in the literature, such as the Kungsholmen's Gymnasium in Stockholm (Mejía, 2002) and Dual Language Schools (Lindholm-Leary, 2001), code switching and code mixing are discouraged, in order that the two languages remain separate. It is not uncommon for bilingual children to insert single words from one language into a stretch of discourse in the other without actually making a complete switch to the other language. The most common reasons for this type of code mixing in the IS classroom are either a total lack of a particular lexical element in one language or the greater saliency of a lexical element in one language because of greater frequency of use. In these cases, children are first encouraged by the teachers to push themselves cognitively in order to try to find an alternative formulation of the same idea, rather than resorting to a translation. If this fails, the appropriate lexical items may be supplied either by another child at the teacher's

request, or by the teacher. Outside the classroom during break times, code switching and mixing are heard more frequently in the playground and school canteen.

Distinct extra-curricular activities are organised during the lunch time period both by the English and French staff. As well as providing recreational activity for the children in the Anglophone section, the English activities such as arts and crafts, drama, and the film club are designed to offer an additional opportunity for children in the Anglophone section to interact in a totally English-speaking environment, thereby increasing their language contact time with English. English activities are not, therefore, open to children from the other sections who are offered similar activities in their own language section. By contrast children from all language sections can attend the activities organised by the French staff, such as choir, video club and various arts and crafts.

Having presented a detailed profile of the IS, we can now assess the typical linguistic outcomes of the children from the four different family profiles who attend the school.

2.4.8 Typical linguistic outcomes of children attending the school

According to Cummins (1991a), over a thousand studies have been carried out on the outcomes of immersion education in Canada, while research on the consequences of European forms of bilingual education, Dual Language programmes in the United States and bilingual education in international schools is more limited. Nevertheless findings from research conducted into bilingual education programmes across the world show that high levels of first and second language competence can be attained but will be dependent on the complex interaction of several variables. As Baker concludes:

> The effectiveness of bilingual education needs to consider children, teachers, the community, the school itself and the type of program. One particular factor cannot be isolated from another. We need to consider a whole variety of ingredients at the same time, all of which can make for a successful recipe. (2001:265)

While recognising the interplay of several variables, Lindholm-Leary has highlighted the importance of adequate exposure to both languages as a key factor in determining the level of linguistic competence reached (2001).

To the best of our knowledge no studies have been carried out at the IS to track the linguistic outcomes of children who arrive in the primary section and go through to the end of the secondary school. Here we will make some broad generalisations concerning the levels of bilingual competence reached by the children attending the primary section of the IS, based both on our observations of and conversations with children in the school,

and on informal discussions with IS teachers and parents over several years. We will consider this question in depth in Chapter 9 in relation to the group of CE1 children who participated in the empirical part of this study. In Section 2.4.2 we classified the children at the IS into four main family profiles, FE, FF, EEa and EEb. The typical linguistic outcomes of children from each family profile will now be considered.

In the FE profile consisting of children who have one Francophone and one Anglophone parent, competence in French is generally high, particularly if the children have spent all, or the greater part, of their life in France. In contrast, there is more variability in English competence which can be explained to a large extent by the amount of time the children spend using English productively. Therefore, children who are obliged to engage in two-way negotiation of meaning have higher levels of productive competence in English than those who are exposed to large quantities of input but who produce significantly less output.

For the FF children who have two Francophone parents and who have lived in an English-speaking environment usually for between two and five years, the main motivation for attending the IS is the maintenance of English. Yet this is no easy task as we mentioned in Section 2.4.5.3. On their return to France, the children's contact with French increases rapidly whereas their contact with English decreases. French is generally more present than English in the home, although siblings may initially communicate in English. Furthermore, a large proportion of the school day is spent in French, as we noted above. Unless parents manage to construct wide and varied English-speaking social networks for their young children outside school, in which they receive rich native input but also have to use English productively and extensively with native speakers in a range of linguistic domains, inevitably many children in this group struggle to maintain their English. Indeed the younger the children are when they return to France the more vulnerable they are to language loss. Even very young children become quickly conscious of this rapid loss of English and of their growing inability to communicate easily and spontaneously. This may result in feelings of frustration, a diminishing commitment to English and in some cases, a strong desire to avoid it altogether. Made aware of this problem by the child's English teacher in school, parents in this group often employ English language tutors who give private classes to their children, often several times a week outside school time, in order to increase contact with English, but this in itself is not usually sufficient to reverse language loss. A certain proportion of FF children who arrive back in France early in primary school do not in fact complete their studies at the IS because they are unable to

maintain adequate levels of spoken and written English to cope with the demands of the curriculum. We mentioned in Section 2.4.2 that the IS is a prestigious state school which is renowned for its excellent academic results. For this reason many parents are very reluctant to withdraw their children from the school even when it is quite clear that they can no longer cope with instruction in two languages. Depriving their children of the opportunity to maintain their English, considered by many as the prestigious world language, is seen by many parents as a failure.

The EEa children have two Anglophone parents and are living in France on a medium- to long-term basis. Generally the parents are well integrated into French life and the children have attended three or four years of French-medium nursery school prior to joining the IS. So although English remains the home language at least between the children and their parents, even if siblings may sometimes communicate in French, the children have had sufficient input and output in French through the wider community to ensure high levels of competence by the time they arrive at the IS. English competence in children in this profile is generally native or near-native.

The fourth profile, referred to as the EEb families, is a group composed of a transient population of children of Anglophone parents living temporarily in France. Here, we can observe that the level of proficiency attained in French depends on the amount of exposure that the children have to the language both inside and outside the school. Although a large part of the curriculum is taught in French, if children are not motivated to learn the language, the time they spend actually using French productively may be minimal, since they can establish solely English-speaking friendship groups both inside and outside school if they wish, thereby considerably slowing down the acquisition of French. English remains the language of communication within families in this profile at all times. Many children in this family profile have private French lessons outside school in order to assist acquisition. Once tuition in school in FFL is withdrawn after two years, certain children in this profile may struggle to keep up with their French-speaking peers. In extreme cases, this can result in two unfortunate outcomes. Either the families are advised by the French staff to withdraw their children and put them into an all French school in order to oblige them to acquire French; or they are held back and made to repeat the school year regardless of their competence in English. Similar scenarios have been described in European Schools when children fail to meet educational grade goals (Mejía, 2002).

2.5 CONCLUSION

Our aim in this chapter has been to provide a detailed background to the context of our study, because we believe that the experiences the children have at the IS influence their bilingualism, biliteracy and cultural identity. We identified that the IS offers a strong form of additive bilingual education according to Baker's (2006) classification, similar to that offered by certain international schools and European Schools which offer tuition in two prestigious languages. Clearly, children attending the IS are at an advantage compared to certain bilingual children discussed in the literature, who are taught through just one language which is often their weaker one. Having tuition in two languages not only shows the children that both are valued by the school, but also contributes to their development of bilingualism and biliteracy.

We noted that the children in the Anglophone section of the IS tend to come from fairly high SES families who are literacy oriented, place a high value on educational achievement and are generally very involved in school activities such as library visits. These children are in a privileged position because they are growing up in this type of family and are, therefore, encouraged to succeed academically thanks to their parents' constant support and input.

We showed that the linguistic and academic demands of the school are clearly high for both English and French, in view of the French and foreign external examinations that children are expected to take in secondary school. However, paradoxically, the school provides no EFL tuition, while FFL classes are offered to non-Francophone children but are withdrawn in all but exceptional circumstances after two years. This lack of additional language support is clearly questionable in view of the school's linguistic and academic demands. Indeed, many bilingual children go through periods in which they need some extra help in one of their languages because of changes in language contact patterns, for instance. At the IS, those children who have more limited contact with English outside school, particularly children from FF families, may require EFL classes periodically to boost their English. Similarly, FFL classes should be provided, for as long as is required, for children who have only recently begun acquiring French. As will be shown in Section 4.2.1, while children may acquire conversational ability within two or three years, it takes considerably longer for them to acquire more academic language skills, hence the need for additional language support.

We observed that while the IS teachers are expected to be native-speakers of the language they are teaching, they are not expected to be bilingual, nor are they required to have prior knowledge of bilingual pedagogy and bilingual and SLA research theory when they join the school, nor are they offered specific training on teaching bilingual children once working there. Clearly, if the teachers were better informed about bilingual and SLA research, they would be more conscious of the types of problems facing children acquiring two languages and would be able to develop more effective techniques to transmit knowledge to this type of learner. They would also be able to offer more appropriate language support. Furthermore, by having regular training, they might become more aware of the differing linguistic, cultural and emotional needs of the children. The fact that the French Ministry of National Education and the APA do not feel the need to provide specific training to their teachers in the teaching of bilingual children suggests a worrying lack of knowledge about issues related bilingualism, language and literacy development in two languages, and bilingual education generally.

We have seen that while there is a strict separation of languages at the IS, French is clearly dominant in the school. Indeed, over three quarters of the curriculum is taught in French, and French is much more present in the different spaces within the school, apart from in the English classrooms. This limited English contact can be problematic for certain children, particularly those from FF families, who may have very limited exposure to English outside school. Since EFL tuition is not available, unless the parents succeed in increasing the children's English-speaking social networks outside school, proficiency in English may gradually be lost.

Through this profile of the IS, we have identified a number of factors that have a crucial influence on bilingual competence and development, which will be relevant for the empirical study conducted in the school. These factors will be investigated further in the literature review on the input factors which influence bilingual acquisition in Chapter 3, and in the empirical study in Chapter 9. First, quality and quantity of language contact and use in both languages are essential for the development of bilingual competence. Secondly, family background including SES and parents' educational level and expectations of, and involvement in, children's education, can have a determining role in their ultimate educational attainment. Thirdly, the children's cultural identity is developed in part by the IS through the cultural input they receive there. Finally, we have shown that because of a lack of sound knowledge of bilingual and SLA research theory underlying certain aspects of the IS's pedagogy and staff recruitment and training policies, children

from certain family profiles are not necessarily given the means to attain the school's very ambitious, though only implicit, linguistic objectives.

PART II:

LITERATURE REVIEW

CHAPTER 3 – INPUT FACTORS INFLUENCING BILINGUAL LANGUAGE ACQUISITION

3.1 INTRODUCTION

This chapter investigates a number of input factors which have been shown in the literature to influence language acquisition and development in bilingual children. In Section 3.2 we explain how the process of acquisition is to be understood for the purpose of this thesis. Then in Section 3.3 we will address a number of key factors which have been shown by research findings to have a role to play in the acquisition and maintenance of bilingualism in young school age children. In Section 3.3.2, the linguistic factors related to language exposure and use will be investigated by considering the importance of the quality and quantity of input and the quantity of output for the development of two languages in young children. In Section 3.3.3, we will turn our attention to a number of key sociolinguistic factors that have been identified in the literature as having a potential influence on the acquisition and maintenance of bilingualism. We will begin in Section 3.3.3.1 by considering language use in the home. Here we will first examine how parents' language strategies may have an effect on children's bilingual acquisition and maintenance. Then we will investigate to what extent birth order can play a role in the level of bilingualism attained by a child. Finally the strategies employed by parents to maintain and develop their children's bilingualism will be considered. In Section 3.3.3.2, we will look at how a bilingual child's peers may influence his/her acquisition and maintenance of two languages. In Section 3.3.3.3, we will consider how the language(s) of instruction in the bilingual child's school may influence bilingual acquisition, maintenance and development. Then in Section 3.3.3.4, the issue of language attitudes will be discussed. We will not only investigate how children feel about their languages and how this can affect how their languages are maintained and developed, but also, and perhaps more importantly, how the attitudes of their parents and the wider community may impact on the children's language attitudes. Linked to the question of language attitudes is the question of cultural identity which will be examined in Section 3.3.3.5. There we consider what cultural identity is and how young children acquire a cultural or

bicultural identity and how this may relate to bilingual language acquisition. The final sociolinguistic factor reviewed in Chapter 3 is the role played by SES in predicting academic success in monolingual and bilingual children.

Thus, before investigating the factors which may impact on bilingual language acquisition, we consider our understanding of the process of acquisition for the purpose of this thesis.

3.2 THE PROCESS OF ACQUISITION

At a very general level, the process of developing competence in a language is referred to as acquisition. The term is used both for infants acquiring their first language (or languages) and for those learning a second or foreign language. Whereas acquisition is associated with and seen to be supported by the linguistic theory of Universal Grammar, language development appears to be a more general term that reflects the progressive element involved in learning to talk and learning to speak a language. The difficulties arise when one attempts to determine at what point a particular item has been acquired and considers what factors – cognitive, psychological and social – have a bearing on the acquisition process.

A clear distinction between the terms language acquisition and language development is frequently not made in the literature. While it is generally accepted that, by the age of four, most children have mastered the basic structures of the language to which they are exposed, and by the age of five they are able to tell a short and simple story, the language acquisition process is far from complete (Berman, 2004). Indeed, as De Houwer (2009:38) points out, "the very fact that no adult wants to sound like a five-year-old in any language is clear evidence of that". Beyond age five, children continue to develop their language, extending their vocabulary, developing more accurate and complex syntax and broadening their linguistic registers and their understanding of pragmatic and semantic patterns.

With regard to syntactic development, we can illustrate this with reference to research conducted on the amount of time that is required to acquire certain grammatical structures. Gathercole (1985) has argued that the acquisition of particular structures is conditioned by their relative transparency or opacity. Thus, it takes children longer to acquire more opaque structures than it does to acquire more transparent ones. She gives the example of the acquisition of much and many with various nouns by monolingual

English children. The difference between these quantifiers is extremely opaque in English because it is necessary to identify and distinguish between types of nouns that are characterised by certain features which makes them either countable or uncountable. She reports that children do not fully master the syntactic distribution of the mass/count distinction until after the age of 8;6. This example illustrates the difficulty of distinguishing between language acquisition and language development.

This problem is complicated further when we consider these two terms in relation to children acquiring two languages at a very young age, as is the case in our study where we consider bilingual acquisition in children aged six to eight. Indeed, the children may be acquiring their two languages simultaneously from birth or successively in their early years. The amount of time they are exposed to each language may be quite different and may vary from one period of their life to another. The experiences the children have in each language will provide them with different types of input and social interactions, different learning conditions and different communicative needs (Bialystok, 2001). So the acquisition of each language will proceed at variable rates and, as a consequence, they may develop different levels of proficiency in each, which may vary at different times of their life. It is for these reasons that little distinction will be made in our study between our use of the terms language acquisition and language development.

In Section 3.3, we will investigate several key factors which are thought to influence bilingual acquisition in young school age children.

3.3 INPUT FACTORS IMPACTING ON BILINGUAL LANGUAGE ACQUISITION

3.3.1 Introduction

It is widely recognised that a large number of individual factors can account for a child's success or failure in becoming bilingual as the following quotations illustrate. Eilers *et al*. remark that:

> At the level of the individual, whether the child will develop two languages involves a complex inter-relationship between language attitudes, language use, and language proficiency. (2006:71)

Concluding her review of the literature on the factors which influence a child's bilingual development, Yamamoto states that:

> The findings taken together suggest that children's bilingual development and children's language use are both influenced by factors in the linguistic environment as well as by sociocultural and familial factors. (2001:18)

Indeed Bialystok highlights the importance of understanding children's language experiences before one can attempt to evaluate their language proficiency.

> The point is that assessing children's linguistic skill requires understanding children's language experiences, and the objective outcomes of such assessments are uninterpretable without knowing about the context. (2001a:60)

and Gutiérrez-Clellan and Kreiter (2003:267) refer to "the impact of language exposure or language use variables on bilingual performance". This involves first analysing the different variables which affect children's dual language acquisition, and secondly considering their relative importance in the acquisition and maintenance of bilingualism.

The analysis of the roles played by the different environmental factors is further complicated by the fact that the bilingual language acquisition process is dynamic rather than static. Thus, as the bilingual child's linguistic environment changes over time, the roles played by the different factors evolve and the balance between the two languages can shift. Indeed, dominance can shift from one language to the other throughout the bilingual's life. As Herdina and Jessner point out, "language change in the individual results from adjusting one's language system(s) to one's communicative needs" (2002:74). Numerous examples of shifting dominance are given in the literature on child bilingualism both in the early studies (e.g. Ronjat, 1913; Leopold, 1939-1949) and in more recent ones (e.g. Fantini, 1985; Hoffmann, 1985; Saunders, 1988; Barron-Hauwaert, 2004). Even relatively balanced bilinguals can be dominant in one language in particular domains in which they tend to use one of their languages rather than the other.

Thus, when assessing the roles played by the different factors in dual language acquisition, we must take into consideration not only the linguistic configuration of children's environments at the moment we are conducting our research, but also the linguistic configurations of these environments since birth.

In the following sections, we will begin by investigating further the linguistic factors which can impact on bilingual acquisition, development and maintenance by considering the role played by language input and output. Then we will turn our attention to a number of sociolinguistic factors which are language in the home, peer influence, language of instruction in school, language attitudes, cultural identity and SES.

3.3.2 Linguistic factors

Clearly, input and output have a key role in the bilingual acquisition process (e.g. Deuchar and Clark, 1988; De Houwer, 1990; Lanza, 1997). Indeed, the linguistic production of bilingual children cannot be fully understood unless researchers can provide clear indications about the input to which the children they are studying are exposed and the amount of output they produce (De Houwer, 1995). We will examine the roles played both by quality and quantity of input and then consider the importance of output.

3.3.2.1 Quality of input

To acquire two languages, it is important that the child has constant exposure to quality models of rich linguistic input in each language (Hoffmann, 1985; Döpke, 1992; Yamamoto, 2001). Döpke (1992) recommends that parents of the minority language employ what she refers to as 'teacher-oriented input' which is an enriched form of input incorporating techniques such as elaboration, expansion and paraphrasing. This type of input is particularly useful for children who hear less of the minority language than the majority language in their daily life (Lanza, 1988; Döpke, 1992). Pearson *et al*. argue that:

> Parents may have to compensate for the difference with more active language teaching strategies than are normally associated with first language acquisition. (1997:56)

Döpke's study of German-English bilingual families living in Australia following the one-parent-one-language principle also shows that children are more likely to attain high levels in German, the minority language, if the minority language parent has a very child-centred approach which encourages the child to participate actively in conversational exchanges. She goes as far as to suggest that minority language speaking parents should spend more time playing with their children than the majority language speaking parents do. Similarly, Kielhöfer and Jonekeit (1983) observed that the interactive styles of the parents with the child have a real influence on a child's dual language acquisition. Pearson *et al*. (1997) conducted a study on vocabulary acquisition in babies and toddlers aged between eight and 30 months who were acquiring English and Spanish in Miami. They found that two of the children in their study spent much more time with their carers, who spoke one language, than with their working mothers who spoke another. Yet the children's vocabulary size in their mother's language was considerably higher. They argue that:

> The differing affective strength for the child of the language model in each language might ... diminish the association of input quantity alone. (1997:54)

This is probably because these working mothers provided their children with particularly rich, emotionally satisfying child-centred input which compensated for the fact that they were present for less time in their children's lives than their minders. Döpke makes a similar observation to account for children's success in acquiring the minority language in her study quoted above:

> The children acquired the minority language in those families where the interaction with the minority language-speaking parent was a generally rewarding experience for them. Where, however, the interaction with the majority language-speaking parent proved to be more enjoyable for them than that with the minority language-speaking parent, the children were not interested in using the minority language actively. (1992:190)

While the above examples show the importance of the quality of input, it is the quantity of input, i.e. the amount of exposure children have to each of their languages, which is often cited (e.g. Harding and Riley, 1986; Harley *et al.*, 1990; Oller and Eilers, 2002a) as the most important factor influencing bilingual language acquisition, maintenance and development. This question will be considered in the following section.

3.3.2.2 Quantity of input

The essential role of input is implicit in Grosjean's observation that:

> Bilingualism in childhood usually occurs because of the need to communicate with those who play an important role in the child's life – parents, siblings, other family members, peers, and teachers. As long as these factors are important to the child, he or she will remain bilingual; when they lose their importance or are removed altogether, the child will just as naturally revert to monolingualism. (1982:179)

In their handbook for parents bringing up bilingual children, Harding and Riley are quite unequivocal about the essential role played by the quantity of input:

> In very general terms, the common-sense idea that the more you use a language, the better you get at it, holds true. This precept also seems to apply to two languages, with the logical corollary that our mastery of each of the two will be in direct proportion to the time we are exposed to them. (1986:72)

This is supported by numerous case-studies carried out by linguists who have investigated the development of bilingualism in their own young children. They have noted that if input in one of the two languages is suddenly reduced, the child's competence in that language seems to decrease while the contrary occurs when language input increases (e.g. Ronjat, 1913; Leopold, 1939-1949; Burling, 1959; Saunders, 1982; Fantini, 1985; Hoffmann, 1985).

The data from numerous large-scale studies confirm that higher levels of input in a language correlate with higher levels of performance particularly when children are young. For example, results from the study of English-Spanish second grade (aged six to seven) and fifth grade (aged nine to ten) bilingual children in Miami schools reported in Oller and Eilers (2002a) demonstrate that the children's level of performance, both on standardised tests and other measures in each of their languages, was directly related to the amount of exposure they had to each language. This was particularly true for the younger age group in the sample. For English, bilinguals from homes in which English and Spanish were spoken outperformed bilinguals from Spanish only homes, and children attending English immersion schools outperformed children in two-way bilingual schools. The reverse was true for Spanish, with children from Spanish only homes outperforming children from bilingual homes, and children at two-way bilingual schools outperforming children in English immersion schools. Similarly, in a study by Harley *et al*. (1990) on 191 grade seven (aged 11 to 12) Portuguese-Canadian children attending a Portuguese heritage language programme in Toronto, higher levels of performance in Portuguese correlated with higher input levels in Portuguese. The results from these studies clearly show how critical it is for researchers to investigate not only who speaks which language to the bilingual child, but more importantly, how much time the child spends with the speakers of each language (De Houwer, 1995).

Studies have been conducted to investigate more precisely the relationship between exposure time and learning. We will begin by reviewing a number of studies which examine the relationship between quantity of input and early acquisition of vocabulary in young bilingual children. Then we will review studies exploring the relationship between quantity of input and the acquisition of various aspects of morphosyntax.

3.3.2.2.1 Early vocabulary acquisition

Research investigating the relationship between the quantity of input and vocabulary acquisition in babies and toddlers is fairly recent. Investigations on monolingual children have shown a high correlation between the size of children's lexicon at various ages and the number of words that children hear from their carers (e.g. Huttenlocher *et al*., 1991; Hart and Risley, 1995).

De Houwer (1995) has pointed out that studying vocabulary acquisition in young bilinguals provides researchers with a unique opportunity to investigate how quantity of

input affects learning. Indeed, she says that the bilingual child is his or her own matched pair in whom the effects of input can be studied with much greater precision. Several studies led by Barbara Pearson on babies and toddlers aged eight to 30 months acquiring Spanish and English in Miami have investigated the association between amount of exposure to each language, and the amount of active vocabulary produced by the child in each language (e.g. Umbel *et al*., 1992; Pearson *et al*., 1993; Pearson and Fernández, 1994; Pearson *et al*., 1997). Parents estimated children's active vocabulary using the MacArthur Communicative Development Inventory (CDI) (Fenson, *et al*., 1993) for English, and the Spanish equivalent (Jackson-Maldonado and Bates, 1988). Like the studies conducted on monolingual children, the data from these studies on simultaneous bilingual children confirm that there is indeed a strong association between the time children spend with speakers of each language and the quantity of vocabulary they acquire in each. Similar findings have been reported in Bernardini and Schlyter (2004) who investigated the link between vocabulary acquisition and language dominance in five Swedish-Italian or Swedish-French bilinguals, and in David (2004) who investigated the development of the bilingual lexicon in English-French bilingual toddlers.

Researchers in this field have also examined what proportion of exposure time is necessary for children to acquire each of their languages. In Pearson *et al*. (1997), parents were asked to estimate how much time per day or per week their child spent with speakers of each language or, if the child spent time with bilingual speakers, what percentage of each languages was spoken. The results of the study showed that babies and toddlers who were exposed to one of their languages for as little as 20 percent of their waking hours continued to acquire items of vocabulary, as shown in the completed CDIs in each language, in proportion to the amount of time they were exposed to that language. However, the researchers are careful to point out that "whether children can acquire a grammar and a sound system from low levels of exposure to a language cannot be inferred from vocabulary learning" (1997:55). Their data reveal that at the end of the study, those children who were exposed to one of their languages for less than 20 percent of their waking hours were very unwilling to use it with the researchers. Furthermore the children who were exposed to less than 25 percent of input in Spanish could not be considered to be balanced bilinguals. They generally became receptive bilinguals who were able to understand when they were addressed in Spanish but did not seem able or prepared to speak the language spontaneously.

3.3.2.2.2 Acquisition of morphosyntax

In this section we will consider how quantity of input in each of the bilingual child's languages affects the speed of acquisition of certain constructions. This question has been investigated in depth by Gathercole in bilingual populations in Wales (2007) and Miami (2002a and 2002b).

Her data show that frequency of input has an essential role to play in the acquisition of grammatical structures, particularly those which are more complex and opaque. Thus, the more input a bilingual child receives in a particular language, the more likely the child is to acquire the structure more rapidly compared to a child who is exposed to lower levels of input in that language. Logically then, bilinguals will take longer to acquire particular constructions in each language than matched monolinguals since they receive less input in each of their languages. However, monolinguals and bilinguals follow the same developmental stages although the bilinguals may be slower than the monolinguals to attain the different stages (Gathercole, 2007). Gathercole investigated a number of elements of morphosyntax considered to be relatively opaque and complex. She found that in each of the grammatical structures she investigated in bilingual Welsh and English children living in Wales, those children who had more exposure to Welsh in the home and school acquired the given structures earlier than those who had lower levels of exposure to Welsh. Similarly, in the Miami studies she investigated the acquisition of the mass/count distinction in English and *that*-trace in Spanish and English, in English-Spanish bilinguals in grades two (aged seven to eight) and five (aged ten to eleven). She found again that the rate of acquisition was closely linked to the amount of exposure the children had to each language (Gathercole, 2002a and 2002b).

However, while Gathercole's studies show that there is a relationship between the early differences in the rate of acquisition of the various structures and the frequency of exposure to each of the languages, they also indicate that these differences gradually diminish and are finally eliminated by around fifth grade. By then the children should have accumulated a critical mass of data enabling them to extract the relevant patterns and make generalisations for each given structure. As she remarks, "the effect of differences in exposure is most critical at *early* stages of development" (2002b:218). Once children have gained this critical mass for the different items of morphosyntax in each language, it does not matter so much if time of exposure is less balanced as long as the two languages continue to be used regularly (Gathercole, 2002b).

While we cannot yet be sure of the precise role that input plays in the development and maintenance of bilingualism in young children, Kessler's claim that "bilingualism requires the continued use of both languages in communicative naturalistic settings" (1984:35) seems reasonable. Likewise, Genesee *et al*. (2004:84-85) highlight the importance of input, stating that:

> In order to ensure full dual language development, it is important that children be given consistent, continuous, and rich exposure to both languages on a regular basis. What appear to be delays in the development of one or both languages could be due to inadequate exposure. Input is important.

Having looked at the role played by quality and quantity of input, we will now consider the role played by output for the development and maintenance of bilingualism.

3.3.2.3 Output

While a reasonable balance in the exposure to two languages is clearly essential for the development and maintenance of bilingualism, the importance of producing output in each language should not be underestimated. Children have to feel the need to use their two languages productively to the people who play an important role in their lives, such as their parents, siblings, child-minders, extended family and friends. As Pearson *et al*. affirm:

> The exposure must be direct, not indirect; watching people speak ... is not enough to cause a person to speak .... Rather, the learner needs to interact with speakers using the language. (1997:41)

Arnberg (1981) and Döpke (1992) argue that it is important for children to have contact with a wide range of speakers of each language for the maintenance of active bilingualism. If a child's only contact with the minority language is with the minority language parent, the child will be exposed only to one particular register of language. Furthermore, the child will gradually realise that the minority language has a very limited use, particularly if, in addition, the minority language parent is also a highly competent speaker of the majority language. In this case, the child may quite naturally begin using the majority language to his/her minority language speaking parent, particularly if he/she is schooled through the majority language. On the other hand, by having a broad range of interlocutors in both languages, of different ages and in different social networks, the bilingual child will quickly see the communicative needs for both languages. This should provide sufficient motivation to maintain and develop his/her bilingualism.

Numerous case studies have shown that young bilingual children often go through stages in their development when they have more difficultly using one of their languages. If children get into the habit of replying in the majority language to the people who address them in the minority language, they run the risk of gradually becoming receptive bilinguals (Harding and Riley, 1986). Therefore, maintaining children's productive use of the minority language in the home is essential for them to remain productive bilinguals, as numerous studies have shown. A study by Cahill (1987) found that the bilingual English-Italian children living in Australia with the highest performance levels in Italian came from families who insisted that the children replied in Italian when they were addressed in Italian. Similar findings are reported by Döpke (1992) and Yamamoto (2001). In the conclusion of her study of Japanese-English bilingual children in Japan, Yamamoto says:

> The more that the parents use the minority language and the less that the minority language parent uses the mainstream language in speaking to the child, the greater the likelihood that the child will use the minority language to the parent who is a native speaker of it. (127:2001)

In the Miami study, the children who maintained the highest levels of performance in Spanish were those who used Spanish productively in the home. Eilers *et al*. emphasise how important it is to preserve the minority language as the family language in the home in order for children to remain balanced bilinguals:

> When Spanish is weakened in the home, there is little prospect for language maintenance, even though there is a cultural desire for it. Even in Miami, the general Spanish ambiance outside the home supports only a minimal level of 'passive' Spanish when its use is progressively weakened, generation by generation, in the home. (2006:87)

They go on to underline the importance of productive language use:

> When parents and grandparents insist that children use the minority language in daily discourse, proficiency improves. Homes that allow English to replace Spanish in a growing number of familial contexts lose Spanish without a notable boost to English. (2006:88)

Clearly then, if bilingualism is to be maintained and developed, not only do both languages have to be used consistently and on a regular basis but, also, the bilingual has to have constant exposure to quality models in both languages. In other words, input and output in both languages are essential for the maintenance of high level balanced bilingualism.

While experts in the field agree on the importance of productive and receptive use of both languages if bilingualism is to be maintained, several other sociolinguistic factors have also been identified as having an important role to play. These will be considered in Section 3.3.3.

3.3.3 Sociolinguistic factors

Researchers have stressed the importance of analysing the social contexts in which children acquire two languages in order to identify factors which may contribute to encouraging or impeding their bilingual development. This includes investigating the parents' and children's social networks, language attitudes and cultural identity and SES and parents' levels of education. Researchers underline the importance of collecting information on sociolinguistic factors both from parents and children, in order to compare their relative representations which may well diverge (Lindholm-Leary, 2001; Oller and Eilers, 2002a; Baker, 2006).

It is essential to investigate bilingual children's social networks since the people with whom they interact provide their language models. If the minority language is present in a range of social networks, clearly the children's exposure to input in that language will be increased, enabling them to interact with a wider range of interlocutors of the language and thus improve their proficiency. Children's key social networks include the immediate and wider family, friends and school. As Gathercole and Thomas remark in relation to the use of Welsh:

> Language use by a child is determined by language use by others in speech to the child .... The greatest encouragement for speaking a language is an interlocutor speaking that language to the child .... The greater the 'constellation' of speakers of the given language, the greater the language abilities will be in that language" (Gathercole and Thomas, 2005a:82).

This in turn can help reinforce positive attitudes to the minority language.

Several sociolinguistic factors will be investigated in the following sections. We will begin by examining language in the home. Here, we will consider parents' language strategies, the role of birth order and the different means parents have at their disposal for maintaining and developing their children's bilingualism. Then having considered how peers can influence children's bilingualism, we will examine how the language of instruction in school can impact on it. Following this we will explore how language attitudes, cultural identity and SES may influence the acquisition, maintenance and development of bilingualism.

3.3.3.1 Language in the home

We saw in section 3.3.2.3 that maintaining productive use of the minority language within the home is essential for the maintenance of bilingualism as numerous studies have demonstrated. Indeed, Cobo-Lewis *et al*. (2002b) have highlighted the importance of fully investigating the factor of language spoken at home given the considerable influence it has on oral language outcomes. In the Miami study, children who had English and Spanish at home outperformed those with only Spanish at home in assessments of English oral language (Cobo-Lewis *et al*., 2002a). A range of studies conducted in different bilingual environments have highlighted the role played by the language spoken at home. Investigating the proficiency of Dutch, the majority language, in ethnic minority children in Holland, studies by Vermeer (1985) and Verhoeven (1987) found that children who had greater exposure to Dutch in the home were more proficient in this language than children who had less exposure. On the other hand, the children's skills in the minority language suffered as a result since their exposure to it in the home was reduced.

A study by Umbel *et al*. (1992) which assessed English and Spanish vocabulary knowledge found that language spoken at home was a key variable in bilingual vocabulary acquisition. Similarly, Hakuta and Pease-Alvarez (1994), investigating Mexican-American families, found that maintaining proficiency in Spanish was mainly linked to high levels of Spanish input in the home rather than to language contact outside the home. They found that when parents chose English as the home language, the children's proficiency in Spanish gradually declined. Research from Wales (Gathercole, 2005a) also underlines that levels of proficiency in Welsh are related to patterns of language use within the home.

Clearly it is essential to assess language spoken at home when investigating how bilingualism is acquired and maintained. Part of what we understand by language spoken at home includes parental language strategies. In other words, what languages do parents use to communicate with their children? Are they consistent in their strategies? How do parents' language strategies affect their children's acquisition and maintenance of bilingualism? Much has been written in the literature on child bilingualism on the significance of parents' language strategies. This will now be reviewed.

3.3.3.1.1 Parents' language strategies

Data from Gathercole's Welsh study show that, generally, parents talk to their children in the language(s) that their own parents spoke to them when they were children. Indeed, she says that:

> Research has suggested that Child-Directed Speech across cultures is a learned phenomenon, conventionalized within a given culture .... What we learn about how to speak to children is specific to the language we have learned .... Learning child-directed speech is like learning any other linguistic code. Thus, these data may be suggesting that what feels 'natural' to parents is to speak to their children in the language or languages that they heard themselves as children. (Gathercole, 2005b: 33-34)

This sounds very logical and is no doubt one of the arguments behind the one-parent-one-language approach. In Section 3.3.2.1 we underlined the importance of the quality of input that children are exposed to in each of their languages for the development of bilingualism. Clearly another advantage of using one's strongest language is that the quality of input will be richer. If, on the other hand, parents use a language in which their competence is more limited, depending on their level, they may be exposing their children to impoverished non-native input containing syntactical, lexical and phonological errors. If the child has few native models of this language in his/her social networks, he/she may integrate these errors into his/her own language. Furthermore, from a psychological point of view, communicating with children in a language in which one's competence is limited may also impoverish the parent-child relationship since parents may be unable to express themselves fully in all the situations in which they find themselves and may also at times be unable to understand fully what their children are saying to them. Wong Fillmore highlights the dangers in extreme cases, warning that:

> When parents are unable to talk to their children, they cannot easily convey to them their values, beliefs, understandings, or wisdom about how to cope with their experiences. They cannot teach them about the meaning of work, or about personal responsibility, or what it means to be a moral or ethical person in a world with too many choices and too few guideposts to follow. (Wong Fillmore, 1991:343)

Many studies on bilingual children are conducted in what is known as one-parent-one-language families. The term *une personne, une langue* originally came from the French linguist Maurice Grammont, who in 1902 recommended Ronjat (1913) employ a strict language separation according to person as the best and easiest way for his child to acquire two languages simultaneously. In this case, each parent had a different native language. Grammont maintained that this approach would limit confusion and language

mixing. Today, the term 'one-parent-one-language' is used in the literature on child bilingualism and is sometimes abbreviated to OPOL.

Döpke (1992) notes that the OPOL approach is often chosen by middle class families living in the Western world. Indeed, it is quite common for OPOL families to live in the country where the language of one of the parents is the majority language, for example a Francophone mother and an Anglophone father living in England. In this case, the child has plenty of exposure to the majority language not only from the majority language speaking parent but also once outside the house in the wider community, for instance in the street, in the shops, at school, with friends and family. It is more difficult to have contact with the language of the minority parent since there may be little support for it in the wider community. The amount of input the child will have in this language, other than from the parent who speaks it, will thus depend on his/her social networks. Maintaining and developing the minority language will require a great deal of effort on the part of the parents and the children themselves as we will see in Section 3.3.3.1.3.

De Houwer (1995) has suggested that in the OPOL family, we can imagine a continuum with, at one end, a total separation of languages with each parent only speaking his/her own language to the child and the child replying in the appropriate language, and at the other extreme, a total lack of separation. Döpke (1998) refers to the former as the monolingual strategy whereby the parent pretends to be monolingual and tries to create a purely monolingual context with the child, sometimes going so far as to refuse to understand what the child says if he/she uses the 'wrong' language. In reality, as Idiazábal (1984) has pointed out, absolute separation of the languages according to the parent is perhaps not possible. At the other end of the continuum, in what Döpke (1998) refers to as the bilingual strategy, there is very great flexibility, with frequent mixed utterances from the parent and the child.

De Houwer (1999) has highlighted how important it is for parents to realise that their own language choice can have a direct influence on their children's language use. She refers to this as 'impact belief' which she defines as "the parental belief that parents can exercise some sort of control over their children's linguistic functioning" (1999:83). She explains that children are more likely to become productive bilinguals if their parents have impact belief concerning their own crucial roles in the bilingual acquisition process.

Many researchers acknowledge that in situations where there is limited contact outside the home in the wider community with the minority language, parents raising bilingual children should be consistent in their language choice to encourage active bilingual

development, at least in the early years until each language is well established (e.g. Ronjat, 1913; Leopold, 1939-1949; Arnberg, 1979; Saunders, 1982; Taeschner, 1983; Clyne, 1987). Bain and Yu hold that if the languages:

> Are kept distinctly apart by the parents over approximately the first three and a half years of the child's life, nativelike control of both languages tends to accrue. (1980:313)

Döpke (1992) and Arnberg (1987) have argued that having a strict separation of the two languages according to person enables children to process the two languages independently which in turn helps them to construct two distinct language systems (Döpke, 1992). Furthermore, Arnberg (1987) advises parents to use the minority language with each other as an additional source of input and support for the children. A similar suggestion is made by Yamamoto (2001) who claims that this approach can help promote active bilingualism. Of course it is important that if this strategy is adopted, each parent should be a highly competent speaker of the language.

Harding and Riley (1986) point out that being consistent does not necessarily mean that each parent must always speak to the child in the same language. They suggest it can also mean having one language in the home and another outside, for example, or one language on weekdays and another at the weekend. This might be a solution for older children but we believe that infants and younger children would not be able to respond to such external factors influencing their parents' language choice.

There are nevertheless examples in the literature of children who succeed in becoming productive bilinguals despite being exposed to mixed language input from their parents (e.g. Doyle *et al*., 1977; Bain and Yu, 1980; García, 1983). For example, García (1983) investigated the utterances of Spanish-English pre-school children who were exposed both to Spanish and English from their mothers yet they were able to communicate effectively in each language separately with only a small percentage of mixed utterances (between one and 15 percent).

However in situations where children have limited access to the minority language outside the home, numerous studies have shown that they are more likely to become receptive rather than productive bilinguals if they are exposed to mixed input from the minority language speaking parent. In this case, the communicative need for the minority language diminishes as the child knows that his/her minority language speaking parent is quite able to function in the majority language. As a result, the majority language is likely to become more and more dominant, particularly once the child attends school in the majority language (e.g. Arnberg, 1979; Döpke, 1998; Yamamoto, 2001).

A number of studies have investigated whether the gender of the minority language speaking parent can have an effect on the level and type of bilingualism attained by the children in OPOL families. First of all, it is interesting to notice that international couples living in western countries are more likely to live in the father's native country than in the mother's. Thus, the minority language is more likely to be the mother's, rather than the father's native language. A study by Pauwels (1985) on Dutch born migrants to Australia showed that the children were a little more likely to attain higher levels of productive bilingualism if the mother rather than the father was the Dutch speaker. She explains that this is because women were more likely to try build up wider social networks with other Dutch speakers. However, it could also be because mothers tend to spend more time with their children than fathers do. As Piller and Pavlenko point out:

> In many cultures, parenting practices are strongly gendered and mothers spend significantly more time socializing their children than fathers do. If that is the case, it is not surprising to find that minority languages are better maintained if the mothers are the minority speakers or choose to transmit the minority language (2004:499).

A similar study was conducted by Boyd (1998) on the maintenance of English in children living in Scandinavia with one Anglophone parent from the United States and one Danish, Finnish or Swedish-speaking parent. The data show that the children attained higher levels of proficiency in English if the mother was the English speaker. Boyd explains that even if the father uses English all the time with the child, because of gendered family roles, he is much more likely to be the main breadwinner in the family so will spend less time with the child. Consequently the child will be exposed to far less English than he/she would be if the mother were the English-speaker since she would probably be at home with the child for a greater part of the day.

Taking an overview of OPOL families, we can say that the type described above in which each parent has a different native language is the one that is most frequently written about in the literature on child bilingualism. However, there are other possible patterns. Here we will list the most typical OPOL patterns of language use, including the type discussed above ((A) in the list below). In each case, we imagine the situation of a family living in an officially monolingual country where there is limited support for the minority language in the wider community. Our list is based on Döpke's (1992) typology.

A) The parents have different native languages and the majority language is the same as that of one of the parents. Each parent uses his/her language to the child.

B) The parents have different native languages, neither of which is the majority language. Each parent uses his/her language to the child who may thus become trilingual.

C) Both parents are native speakers of the majority language. One parent chooses to use another language with the child.

D) Both parents are native speakers of the same minority language. One parent chooses to use the majority language to the child.

In each case, the parents can either use the majority language to each other, one of the minority languages to each other, or can use the language they use with the child to communicate with each other.

In addition to the examples given above, children can become bilingual in the home in an officially monolingual country if the parents have the same minority language which they both use with the child. In this case, the family lives in another country where the majority language is the official language and the child acquires the majority language outside the home in the wider community.

Although parents can to a certain extent control and manipulate language strategies, contact and use with their bilingual children when they are very young, this becomes increasingly difficult as the children get older. A balanced bilingual preschool child can rapidly shift to becoming dominant in the majority language once he/she attends school, particularly if there is little support for the minority language in the wider community. It can be difficult for the child to readjust to the minority language at home having spent the whole day at school in contact with the majority language. Indeed, the child might initially be frustrated when communicating with the minority language parent on the topic of school itself as he/she may lack the appropriate vocabulary in the minority language since school is the exclusive domain of the majority language. This can lead to a spontaneous switch to the majority language.

Numerous parents writing on their own children's bilingual language development have remarked on this shift in dominance. Cunningham-Andersson's four bilingual English-Swedish children living in Sweden were dominant in English, the mother's native language, until they attended school (Cunningham-Andersson and Andersson, 1999). They then gradually became dominant in Swedish. Hoffmann's two trilingual children (German, Spanish and English) became dominant in English, the majority language, once they started school (Hoffmann, 1985). Similar findings were reported in studies on English-Japanese families in Japan by Yamamoto (2001) and on English-Swedish families in Sweden by Arnberg (1979). Indeed, concluding her study, Arnberg says that:

> The most important finding of the study was that, regardless of strategy, it is probably difficult for a child to become a true bilingual while living in a country in which one of the

> languages is dominant, even when the minority language is a high-status language. Most of the children who were bilingual ... had either lived in an English-speaking country for several years, were attending a school in which English was the medium of instruction, or were still young enough for the English of the home to balance the dominant Swedish environment. (Arnberg, 1979:110)

She explains that the only exception to this is if the child is part of other social networks outside the home, where the minority language is used preferably with monolingual speakers for a range of social activities.

Clearly, the language strategies employed by parents in the home can determine whether or not a child becomes bilingual, particularly in OPOL families. Birth order has also been identified as having a role to play in the acquisition, maintenance and development of bilingual, as will be shown next.

3.3.3.1.2 Birth order

Birth order is another input factor which has been investigated by a small number of researchers as having a possible role in monolingual and bilingual language development (e.g. De Jong, 1986; Döpke, 1992; Hoff-Ginsberg, 1998; Yamamoto, 2001).

Döpke's (1992) study of six three year old English-German bilinguals living in Australia found that the later born children were more likely to be receptive bilinguals than first born children. She attributes this to the fact that later born children are exposed to less input in the minority language from the minority language speaking parent but also from their siblings since they tend to communicate amongst themselves in the majority language especially once the oldest attends school in this language. Indeed, the six first born children in her study eventually had younger siblings and in each case they spoke to each other in the majority language. Similar findings are reported by Yamamoto (1992 and 2001) in her study on Japanese-English bilingual children living in Japan. She found that later born children were less likely to use English with their Anglophone parent than the oldest child. She notes that:

> Not having sibling/s has the most favoring effect ... on the child's use of English to the pE (*English-speaking parent*). On the other hand, having sibling/s has an inhibiting influence in the order from younger children to the oldest child. (2001:98)

This can be explained by the fact that parents are more likely to have more one to one interaction with an only child over a longer period of time. Thus, an only child hears more speech addressed directly to him/her than later born children, enabling parents to control the input to which the child is exposed in this more exclusive relationship. On the other

hand, once there are siblings, each one receives less speech directed solely at him/her. Furthermore, children tend to play together more without the presence and participation of their parents which can result in reduced input in the minority language if siblings interact with each other in the majority language.

We will now consider how parents may compensate for lower levels of exposure to the minority language in order to maintain their children's bilingualism.

3.3.3.1.3 Maintaining bilingualism

Parents' reports, case studies and larger scale studies demonstrate that raising children bilingually and maintaining their bilingualism requires considerable effort from parents. It is especially difficult if the children have few opportunities to use the minority language as a medium of communication other than with the minority language speaking parent (Döpke, 1992).

The literature provides numerous examples of how parents compensate for the lack of contact with the minority language by providing language aids within the home which can also increase the status of the language in the children's eyes. Typical examples include reading to the children and teaching them how to read, buying or borrowing books, using audio-visual aids (satellite television, videos, DVDs, CDs, audio cassettes and computer software) and singing songs and rhymes. In addition, many minority language speaking parents try to multiply the opportunities for their children to use the minority language productively with people outside the home. For example, they make a conscious effort to seek out other people who share the same minority language and culture, make trips abroad to the minority language speaking parent's home or to other countries where that language is spoken or send their children to summer camps. They may also communicate regularly with relatives by telephone and Internet, or employ babysitters or au pairs who speak the minority language (Saunders, 1988; Hoffmann, 1991; Döpke, 1992; Yamamoto, 2001; Baron-Hauwaert, 2004). However, it is important to stress that certain of the above measures are costly and not necessarily an option for some families.

While parents undoubtedly have a key role in maintaining and developing their children's bilingualism in the home, there are a number of psycho-social influences outside the home which can also have an important impact. In the next section, we will investigate the role played by a bilingual child's peers in promoting his/her bilingualism.

3.3.3.2 Peer influence

Several recent large-scale studies have underlined the important role played by the bilingual child's peers in the development and maintenance of bilingualism (e.g. Verhoeven, 1991; Yamamoto, 2001; Oller and Eilers, 2002a; Gathercole and Thomas, 2005a). As Gathercole and Thomas point out in the Welsh study, "friends should be rated as very central in the language 'constellation' of the individual and in the promotion of a minority language" (2005a:87). Indeed, Gathercole stresses that:

> The sharing of the language with friends is likely to influence a speaker's affect towards a language and to mark that language as the language of intimacy and emotional bonding. (Gathercole, 2005a:340)

She goes on to say:

> Friends can be singled out as having the greatest importance. The language of interaction with friends correlates highly with the language the child speaks ... and it can be influential in children's attitudes towards either or both languages. (Gathercole, 2005a:345)

Clearly from the point of view of input, having access to peers who are highly competent speakers of each of the bilingual child's languages can be determining. In the Welsh sociolinguistic context, children are likely to have access from their peers to native-like models in both languages which accounts for the high levels of bilingualism attained by English-Welsh bilingual children. Gathercole underlines the importance of promoting Welsh, the minority language, and suggests actively encouraging friendships and interactions amongst children who use Welsh to communicate with one another (Gathercole, 2005a). This is perhaps easier to achieve in a country like Wales than in certain other sociolinguistic contexts because Wales has a very clearly-defined language policy which supports the maintenance and development of Welsh. On the other hand, there are sociolinguistic contexts in which an absence of native-speaking peers in both languages makes bilingualism harder to maintain. We noted above that this can be the case in many OPOL families where contact with the minority language may be limited to interactions with the minority language speaking parent.

3.3.3.3 Language of instruction in school

We saw above that children's attitudes to their languages can be influenced by the language(s) spoken by their peers. This is particularly the case when very young children start school. Indeed, the language used in school can play a critical role in whether a minority language is maintained and developed. If children attend a school in which they

are taught solely through the majority language, the minority language can suffer since a much greater proportion of children's time will be spent in contact with the majority language, as we discussed in Section 3.3.3.1.1 above. Thus, language development in the minority language is likely to be inhibited. If, on the other hand, the minority language is used as a language of instruction, it may then be maintained and developed further (Appel and Muysken, 1987). In this case, development in the majority language is unlikely to suffer since this language will continue to be available in the wider community. Valorising the minority language in school then will help children to feel positive towards it and can encourage them to continue using it at home. Clearly, developing literacy in two languages will enhance bilingualism.

A group of studies has been conducted on the use of Turkish in bilingual children living in western European countries. These children tend to grow up as successive bilinguals. Before going to school, they are Turkish monolinguals or dominant Turkish bilinguals (Pfaff, 1999). Once they attend school where they are taught in the majority language, data show that the balance of their two languages begins to change with the minority language (e.g. French, German, Dutch) becoming dominant by age eight (Aarssen, 1996; Pfaff, 1999; Akinci *et al*., 2001).

Yamamoto's (2001) study in Japan shows that for the Japanese-English bilingual children, attending English-medium schools has a very positive influence on their performance in English, the minority language, and their bilingualism remains fairly balanced. Her data show that if the children have English as a language of instruction in school, they are more likely to use it willingly and naturally with their Anglophone parent thereby increasing their English input and output. On the other hand, those who attend Japanese-medium schools tend to become dominant in Japanese and are less willing to use English with their Anglophone parent. Similar findings have been reported with other language pairs in Döpke (1992) for English and German, Wong Fillmore (1991) for English and Spanish, and Gathercole and Thomas (2005b) for Welsh and English.

The data reported above come from a wide range of quite distinct bilingual contexts. In the case of the Turkish bilingual children living in Europe (Aarssen, 1996; Pfaff, 1999; Akinci *et al*., 2001) and the English-Spanish bilinguals in the United States (Wong Fillmore, 1991), it is likely that both parents of the children are immigrants and speakers of the minority language. Here, there is a context of subtractive bilingualism as the politics of the country tend to favour the replacement of the home language which has less social prestige by the majority language. In contrast, the Japanese-English bilinguals

(Yamamoto, 2001) and English-German bilinguals (Döpke, 1992) may be considered as elite, additive bilinguals, with one parent being a native speaker of the majority language and the other a speaker of a prestigious minority language. The context of the English-Welsh bilinguals (Gathercole and Thomas, 2005b) is different again since the children are growing up in an officially bilingual environment where there is likely to be plenty of support outside the home in the wider community for both languages. In spite of these different sociolinguistic contexts, it is clear that the presence of the minority language in the school as a language of instruction can have a major influence on the maintenance and development of this language and, consequently, on the maintenance and development of balanced bilingualism.

We have shown in Sections 3.3.3.2 and 3.3.3.3 the important roles played by the bilingual child's peers and the presence of the minority language as a language of instruction in school for the development and maintenance of bilingualism. Clearly, bilingual children's representations of, and attitudes towards their two languages will be influenced by these factors. The question of language attitudes will now be considered further.

3.3.3.4 Language attitudes

A number of studies have investigated the role played by language attitudes in predicting language development and proficiency in bilingual children. Data from Okumura-Bichard's (1985) study show that children's attitudes to their two languages are a good predictor of first and second language proficiency. In other words, if having two languages is considered by children to be an asset, their proficiency levels are likely to be higher. Similarly, Harding and Riley underline how children's own attitudes to learning a new language can impact on their acquisition. They note that:

> A child who has a positive attitude towards the new community is obviously going to try to make friends: this in turn is going to make demands on his learning abilities and will also increase his motivation to learn. (1986:63-64)

Thomas (2005) has highlighted the importance of asking children directly about their attitudes towards their languages, as well as asking parents to interpret their children's attitudes. She insists that:

> Transmission is not only about parental choices: it is a two-way process requiring a committed involvement on both parts to be successful. Child attitudes can be highly influential in determining language use in (and outside) the home, especially in bilingual situations. (Thomas, 2005:296)

Having said that, young children's language attitudes are shaped to a large extent by the attitudes of the people around them. Clearly, parents' language attitudes are very significant and will have a major influence on their children. A minority language parent who consciously opts to use his/her native language consistently with a child is giving out a very clear message which will affect the child's representation of that language (cf. De Houwer's 'impact belief' (1999:83) discussed in Section 3.3.3.1.1) as the parent will be showing the child that it is important for both of them. On the other hand, by not using it systematically, the parent may be minimising its importance in the child's eyes (De Houwer, 1995).

Lalleman (1986) investigated the relationship between proficiency in Dutch, the majority language, in six year old Turkish children living in Holland and a number of their parents' attitudinal variables. She found that the children's proficiency in Dutch was significantly correlated with their parents' cultural attitudes and the amount of contact the parents had with Dutch speakers. Thus, the Turkish-speaking parents who made a conscious effort to seek out Dutch speakers helped their children to acquire the majority language and increased their positive attitudes towards it.

Clearly, parents who can see the benefits of bilingualism are more likely to communicate positive attitudes to their children than those who are more fearful about it. In Yamamoto's study on English-Japanese bilingual children living in Japan, parents were asked to say why they wished to promote their children's bilingualism. They responded that they believe that bilingualism leads to greater cross-cultural understanding. By raising their children with two languages, parents hope that their children will themselves become bicultural but that they will also be more sensitive and open to other cultures they encounter. They consider that bilingualism is character building as they feel it gives their children high self-esteem and pride in their linguistic and cultural heritage. Some of the parents hold that it also enhances cognitive development leading to greater mental flexibility. From a practical point of view, they think that it gives children more options in terms of education and career choice for instance. Finally, they believe it is essential for children to communicate with relatives on both sides of the family. Such positive feelings are likely to be communicated to the children which will valorise the child's dual language acquisition.

Parents can demonstrate their support and positive attitudes towards their children's bilingualism in numerous ways. Using the language is clearly an essential means of showing the positive values they attach to it. But researchers have also identified other

predictor variables. Verhoeven's (1991) study on six year old Turkish-Dutch bilinguals living in Holland found that active parental involvement in school was closely related to the children's language development in the majority language. Similar findings have been reported by Lindholm-Leary (2001) in her study of Dual Language education in the United States. Reporting on the Family Influence Model, Delgado-Gaitan (1990) has argued that as well as participating actively in school, parents of monolingual or bilingual children can encourage their children's literacy development by providing a conducive learning environment in the home and by encouraging reading. She contends that when the family carries over into the home the values and strategies of learning in school, children's learning is at its most effective.

Data from a study by Bialystok and Herman (1999) support Delgado-Gaitan's position. They investigated the relationship between French-English bilingual children's exposure to reading in the home and the quality of their storytelling in English. The children's schooling was entirely in French so their only contact with English storytelling was from their parents at home. Their findings showed no difference in the children's performance in French storytelling. However, their performance in English was dependent on their exposure to storytelling in English in the home. Thus, parents had a very strong influence on their children's learning.

By contrast, children can subconsciously pick up on negative feelings that their parents may have towards bilingualism and foreign language learning. De Jong's (1986) study shows how friends, neighbours, teachers and doctors who voice negative attitudes about bilingualism, although they may know little about it, can have a detrimental effect on parents' attitudes which in turn is transmitted to their children. An investigation by Dorian (1978) presents the case of a teacher who contacted the parents of bilingual pupils in order to encourage them not to use the minority language Scottish Gaelic in the home as the teacher was felt that it had a negative effect on their children's learning of English. If parents feel that the minority language is stigmatised by speakers of the majority language, it may have a negative effect on their language attitudes and use. If parents subconsciously communicate these negative feelings to their children, they in turn may begin to stigmatise the language and reject their bilingualism. Likewise, if parents are unsure about their decision to bring up their children with two languages and fear that it may damage their linguistic development, they may communicate this anxiety to their children. Parents may also transfer their own negative feelings about foreign language learning to their children. Baetens Beardsmore (2003) reports on an English couple who

moved with their family to French-speaking Belgium. The parents had difficulties adapting to the majority language and appeared to transfer their own negative feelings to their daughters who, after several months in Belgium, were not progressing in French. The parents' negative attitudes towards the new language may thus have affected their daughters' motivation to learn French and impeded them from making friends with French speakers. The result was that the girls were transferred from a French-medium school to an English-medium school and they never learnt French. So if parents fail to transmit a positive attitude towards the new language, their children may reject it.

Clearly, as we have already seen, there are very many factors which will contribute to successful bilingual development. Although parents' positive attitudes towards bilingualism do not guarantee that their children will become productive bilinguals, we believe that they are a key variable.

In Section 3.3.3.2 we saw how having access to peers who speak each of their languages can enhance bilingual children's dual language maintenance and development. Bilingual children's peers can also influence their attitudes to their languages as is shown in Yamamoto's study of English-Japanese bilingual children in Japan (Yamamoto, 2001). She argues that children are very sensitive to how their monolingual peers react to the fact that they speak another language. If they have a negative reaction and mock them, this will have a negative psychological effect on the bilingual child who may then wish to reject the minority language. Arnberg (1979) recounts that several children in her study of Swedish-English bilinguals in Sweden were teased by their peers when they spoke English. This led them to ask their parents not to speak English to them in front of their friends. Similarly, Saunders (1982) reports that one of his sons was sometimes reluctant to use German with his father when non-German speakers were present. A child may also be affected psychologically and emotionally if the school voices negative opinions on bilingualism, suggesting that he/she should only speak the majority language. If on the other hand bilingual children receive positive reactions from people around them, they feel valorised which makes them proud of both their languages.

Public perceptions of different languages vary in terms of their relative usefulness and prestige. Indeed, the status of a language can have an influence on whether or not it is acquired and subsequently maintained. When both languages are admired and spoken by people who are important to the child, bilingualism is more likely to be promoted. On the other hand, when one language is stigmatised by the wider community and has a limited use for the child, competence in that language may be compromised and the child's

emotional, psychological and academic well-being can be damaged. Cummins and Swain highlight the dangers of undermining the usefulness of one of the languages of the bilingual child:

> To be told, whether directly or indirectly, explicitly or implicitly, that your language and the language of your parents, of your home and of your friends is non-functional in school is to negate your sense of self. (1986:101)

In a western European context, the prestigious languages are those which are often studied as foreign languages in school, such as English, French, German or Spanish which carry with them potential economic and social rewards. Today, English is particularly highly esteemed as the dominant European and global language of communication. Indeed, its social and cultural qualities are regarded as being quite outstanding (Hoffmann, 2000). Those children who are being brought up with two prestigious languages can be considered not only as elite bilinguals but as double elite bilinguals given the two languages that they speak and are, therefore, not likely to be confronted with negative attitudes towards their bilingualism.

In the United States, English is clearly the prestigious language. Another finding of the Miami study (Oller and Eilers, 2002a), which confirms the findings of an earlier study conducted in Miami by Pearson and McGee (1993), is that even in heavily Hispanic areas there is a definite move towards English in all types of schools (English immersion schools as well as in two-way bilingual schools). Indeed, these studies show that beginning in nursery school and continuing through high school, English seems to be the preferred language of communication amongst children, even for those who speak very little English. As Eilers *et al*., report:

> The data showed that regardless of school-type and regardless of age, children spoke predominantly in English to each other. At every age student-to-student communication in the hallways occurred at least twice as often in English as in Spanish. (2002:61)

Summing up the powerful role that external attitudes can have on the development and maintenance of children's bilingualism, Saunders (1982:22) remarks that "if children's bilingualism ... were viewed favorably both by their families and by the population in general, few problems would exist". This is particularly true in situations where children are being brought up bilingually in officially monolingual societies, where access to the minority language is limited. In situations such as these, while bilingual children may well feel different from their monolingual peers because they speak two languages, they need not have negative attitudes towards their bilingualism.

It has been shown that language attitudes can influence how the bilingual child's two languages develop and that the child's language attitudes are to a large extent shaped by the attitudes of his/her parents and the people in his/her different social networks. Like language attitudes, research has shown that there may be a relationship between a child's cultural identity and the level of dual language competence he/she attains, as we will now investigate.

3.3.3.5 Cultural identity

Before considering what cultural identity is, it is useful to begin with a working definition of culture. It is described by Grosjean as:

> The way of life of a people or society, including its rules of behavior; its economic, social, and political systems; its language; its religious beliefs; its laws; and so on. Culture is acquired, socially transmitted, and communicated in large part by language. (1982:157)

Children are born into a cultural environment and as they grow up, they acquire its culture. Bilingual children may well come into contact with two different cultures and become bicultural through their interaction with individuals who speak each of their languages and come from different cultural backgrounds. This may begin in very early childhood in, for instance, the case of a child born into an OPOL family. Alternatively, a child may come into contact with a different culture some time in later childhood by emigrating to another country (Grosjean, 2008).

Linked to the concept of biculturalism is the concept of cultural identity. Grosjean points out that bicultural individuals have to decide upon their own cultural identity and he explains that:

> To do this they take into account the perception of the two cultures and bring in other factors such as their personal history, their identity needs, their knowledge of the languages and cultures involved, etc. (2008:219)

If they identify positively with the cultural groups of both their languages and are recognised by both groups as being a member of each, they are bicultural (Hamers and Blanc, 1989). Hamers and Blanc point out that a balanced bilingual, who has high levels of competence in both languages, is often also a balanced bicultural. Thus, this type of bilingual is fully at ease with both his/her languages and cultures which are valued by those around him/her. As they remark:

> A well-integrated cultural identity enriched by a bicultural situation is, at the affective level, the counterpart of Lambert's (1974) concept of 'additive' bilinguality at the cognitive level. (Hamers and Blanc, 1989:124)

Bilinguals may identify with just one of their cultures, in which case they are said to be monocultural. Successive bilinguals who give up the cultural identity of their mother tongue and adopt that of their second language are said to be acculturated. Finally, bilinguals who reject the cultural identity of their mother tongue yet do not succeed in adopting the culture of their second language are said to be deculturated (Hamers and Blanc, 1989).

Hamers and Blanc explain how children acquire cultural identity, noting that:

> Cultural identity, like language development, is a consequence of the socialization process the child undergoes. It is a dynamic mechanism developed by the child and it can be modified by social and psychological events throughout the individual's life. (1989:121)

They suggest that by the age of six, children have already acquired some sort of cultural identity. Since bilingual children are often exposed to two cultures, they are thus socialised in each of them and have to learn to mediate between them. Genesee *et al*. explain that children:

> Learn their cultural norms by observing and being exposed to the behaviors of the people who live with them, talk to them, parent them, and educate them. (2004:27)

So parents have a crucial role in the transmission of cultural identity to their children. Several studies on English Canadian children attending French immersion schools (e.g. Aellen and Lambert, 1969; Lambert and Tucker, 1972) have demonstrated that when the majority language speaking parents identify positively with both the majority and the minority culture, their children do likewise. Grosjean concludes on this subject by commenting that:

> If the two cultures are valued equally in the home, in the school, and in the society at large, and if bilculturalism is judged to be as valuable as monoculturalism, then children and adolescents who are in contact with two cultures will accept both instead of rejecting or being rejected by one or the other or by both. (1982:166)

Barron-Hauwaert (2004) enquired how parents in bilingual families passed on their cultures. Her findings indicate that this is done, for instance, through trips to the minority language country, contact with family and friends both in the minority and majority language countries, celebrating festivals from both cultures, cooking foods from both cultures, and of course with the help of aids such as books, videos and DVDs, satellite television and Internet.

A study by Verhoeven found a strong relationship between bilingual children's cultural attitudes and their degree of bilingualism (e.g. Verhoeven, 1991). In his study of bilingual Turkish-Dutch bilinguals living in Holland, the children's attitudes to cultural life in

Turkey and Holland were measured during an interview in which they had to react to pictures of symbols of daily life which included food, music, books, television, friends at home and school and famous people. The results of the study show that children who have positive attitudes to both cultures attain higher levels of competence in their two languages. In addition, his data show a significant correlation between parents' cultural attitudes and the children's degree of bilingualism.

A number of the studies discussed above highlight the contribution made by people in the bilingual child's immediate entourage in the establishment of his/her cultural identity. While these people certainly do transmit their own culture to the child, it is the child who has to negotiate and combine elements from his/her two cultures in order to develop his/her own personal blend of biculturalism.

The final factor that we will investigate in this chapter is that of SES. In other words, how does a child's SES contribute to his/her dual language acquisition and academic success?

3.3.3.6 Socio-economic status

SES has been found to be quite a reliable predictor of academic success both for monolingual and bilingual children (e.g. Genesee, 1984; Berliner and Biddle, 1995; Moss and Puma, 1995; Goldenberg, 2003). Factors such as parents' level of education and their professional status are often used to calculate SES measures. It has been suggested that children growing up in families with a higher SES may be exposed to a richer and more stimulating linguistic environment and, therefore, may have access to a wider variety of linguistic and non-linguistic stimuli both inside and outside the home (Hart and Risley, 1981 and 1992; Hoff-Ginsberg, 1998). These environments could include more books, more highly educated parents who are prepared to help with school work, richer input, and generally more educational and cultural visits for example. Hoff-Ginsberg (1998) investigated how mothers' child-directed speech varied according to SES in order to see if this correlated with the rate of early vocabulary acquisition in 18 to 29 month old monolingual infants. Her data show that children from high SES families had larger vocabularies than matched infants from lower SES families.

A number of studies have considered the role played by SES in the language and cognitive development of bilingual children (e.g. Hakuta *et al*., 2000; Oller and Eilers, 2002a; Gathercole and Thomas, 2005a). In the study by Hakuta *et al*. (2000), the Spanish-English bilingual children from high SES families whose parents had high levels of

education were quicker at acquiring English than those from lower SES families. In Oller and Eilers' (2002a) Miami study on 950 children, data show that bilingual children from higher SES families outperformed those from lower SES families particularly in tests of oral language and to a lesser extent on literacy tests, but only in English, not in Spanish. However, it has been suggested that these differences might have been caused by the amount of exposure each group had to each language rather than SES. Indeed, high SES children in Miami are more likely to have greater exposure to English than those from lower SES families who were more likely to be exposed to a higher proportion of Spanish input. However, what is intriguing here is that the lower SES children did not perform better than the higher SES children in tests of oral language and literacy in Spanish. Indeed, if the lower SES children had less exposure to English and more exposure to Spanish than the higher SES children, one might have expected the lower SES children to outperform the higher SES children on tests of oral language and literacy tests in Spanish, which was not the case. This could be a further indication that SES does have an important role to play in language development.

3.4 CONCLUSION

In this chapter, our main objective was to examine certain input factors which research findings suggest may impact on dual language acquisition and development in bilingual children. We began by explaining how the process of acquisition would be understood for the purpose of this thesis. Then we focused on certain linguistic factors related to language exposure and use, and examined the importance of the quality and quantity of input to which children are exposed and the quantity of output they produce. A number of key sociolinguistic factors that experts believe can influence dual language acquisition, maintenance and development were then addressed. First, we considered language use in the home by examining parents' language strategies, children's birth order and the strategies employed by parents to maintain and develop their children's bilingualism. In the next sections, we investigated how dual language acquisition, maintenance and development may be influenced by children's peers and the language(s) of instruction used in the bilingual child's school. We then turned our attention to the questions of language attitudes and cultural identity. Finally, we explored the role played by SES in bilingual children's language and cognitive development.

The input factors discussed in this chapter interact differently from one bilingual child to another and from one bilingual situation to another. We believe that, while all of the factors discussed are important and undoubtedly contribute to some extent to the development and maintenance of bilingualism, it is very difficult to determine the precise role played by each. Furthermore, while many of the studies discussed demonstrate correlations between particular factors and different language performance measures, they do not explain the causal relationships between them. However, we believe that the quality and quantity of interaction that bilingual children have in their two languages could well be the most reliable predictor of bilingual proficiency. Indeed, this factor contributes to all the others discussed above. In other words, if bilingual children have plenty of quality input and multiple opportunities to use their two languages in a range of social networks both inside and outside the home, there is a good chance that they are living in a community which values both their languages. This in turn will give the children pride in both their languages and enhance their positive attitudes and bicultural identity.

The relationship between input factors and dual language acquisition will be addressed in Chapter 9 of our empirical study on French-English bilingual children, when we will investigate a number of research questions. First, we examine the strength of the relationship between overall language exposure estimates and the language proficiency measures in each language (research question 1). In view of the literature reviewed in Section 3.3.2 above, we hypothesise that there will be a strong positive relationship between the overall amount of time the children spend in contact with each language and each language proficiency measure. Secondly, we examine the strength of the relationship between the children's current language input and their scores on the language proficiency measures in each language (research question 2), and the strength of the relationship between the children's current language output and their scores on the language proficiency measures in each language (research question 3). For both these questions, in view of the research findings presented in Section 3.3.2, we hypothesise that there will be a strong positive relationship. Next we examine the strength of the relationship between the child's stronger language and several other variables related to language use (research question 4). These variables are the language the child finds easier to speak and the language the child prefers speaking; the language the child finds easier to read in and the language the child prefers reading in; the child's cultural allegiance; the language used with friends in the school playground; the language used with toys; and the

language the child would choose to use in his/her perfect school. Once again, we hypothesise that there will be a positive relationship between the child's stronger language and each of the language use variables. Finally, we address several questions assessing whether certain input and output variables within FE families make a significant difference to the children's performance in English or French. We decided to focus on these families as the FE children were more likely to have fairly consistent exposure to quality models of both English and French from their native-speaking parents, which was not necessarily the case in the other family types. However, given the small number of children in the FE group, these data cannot be investigated in depth.

Having reviewed the literature on the input factors which have been found to impact on bilingual language acquisition, we will now turn our attention to the literature which investigates how bilingualism influences cognitive development.

CHAPTER 4 – BILINGUALISM AND COGNITIVE DEVELOPMENT

4.1 INTRODUCTION

Researchers have been investigating the relationship between bilingualism and cognition for well over 40 years to determine the effects of bilingualism on children's cognitive and educational development. This question is important, not only in the ongoing debate on the benefits or otherwise of bilingualism and bilingual education but also, for instance, on a more personal level for parents who are considering whether or not to raise their children bilingually. Reviews of the literature in the field consistently reveal that bilingualism does affect certain areas of cognitive performance although there is wide variation in the size and direction of effects between monolinguals and bilinguals. In an extensive review of the literature exploring the history of this relationship, Hakuta (1986) identified three phases which he calls the periods of detrimental, neutral and additive effects. Generally, as we will see in Section 4.3.1, studies before the early sixties tended to show that bilingual children performed less well on different tests of intellectual functioning than monolinguals, whereas later studies more often indicated the contrary. It will be shown that many of the early studies suffered from methodological weaknesses which were corrected in later studies giving more reliable results. However, as Bialystok and Herman remind us:

> The lesson from the fluctuating positions on the question of the relation between bilingualism and cognition is that there are not likely to be simple answers to complex questions. (1999:35)

In this chapter we will take an overview of studies investigating the relationship between bilingualism and cognitive performance. We will begin in Section 4.2 by presenting Cummins' (1976, 1981 and 2000) important theoretical framework which helps to understand and explain the conditions under which bilingualism is likely to have positive, negative or neutral effects on cognitive development. We will examine the hypotheses which make up the framework and in each case will consider research findings which support or refute the hypothesis. Then in Section 4.3 the studies which indicate cognitive disadvantages for bilingual children will be reviewed, beginning with the early studies and moving on to more recent ones. The methodological weaknesses of these studies will

be highlighted. In Section 4.4 we will consider the studies which point to cognitive advantages for bilinguals. Peal and Lambert's (1962) landmark Canadian study will be examined first before reviewing a number of studies which investigate the relationship between bilingualism and areas of non-verbal cognitive performance. The domains under consideration are divergent or creative thinking and different forms of non-verbal problems requiring inhibitory control. Having synthesised the key findings, we will then assess them in order to determine the extent to which they can be explained by Cummins' theoretical framework. The question of the relationship between bilingualism and metalinguistic awareness will be addressed separately in Chapter 5 in view of its importance for our study.

4.2 CUMMINS' THEORETICAL FRAMEWORK

Cummins' (1976, 1981 and 2000) construct of language proficiency is subdivided into a number of hypotheses which aim to account for differences in bilinguals' cognitive performance in educational settings, depending on their degree of bilingualism. For the first hypothesis which deals with the distinction between BICS (basic interpersonal communication skills) and CALP (cognitive academic language proficiency), Cummins argues that context and cognitive complexity are closely related to language proficiency and, thus, to school success. The threshold hypothesis investigates how differing degrees of bilingualism may result in positive, neutral or negative effects on cognition and academic development. The interdependence hypothesis examines the extent to which academic and conceptual skills, developed in one language, may be transferable to the other. These three hypotheses will be examined in turn. For each, we will consider what empirical support there is, as well as the criticisms that have been made.

4.2.1 BICS/CALP

Cummins introduced the BICS and CALP distinction to explain why certain minority language children were failed by the educational system. The terms BICS and conversational proficiency, and CALP and academic proficiency are used synonymously by Cummins. He has explained that the initial impetus for the distinction between BICS and CALP came from discussions with school psychologists and teachers in North America. Indeed, they expressed concern that they were over-representing the level of

English in English language learners in the United States by evaluating only conversational aspects of children's proficiency which appeared to be native-like. As a result, English language support for minority children was being withdrawn in schools too rapidly, resulting in academic difficulties and even the children's educational failure. Basing his findings on empirical evidence Cummins (1979 and 1980) argued that it was essential to make a fundamental distinction between conversational and academic aspects of language proficiency which were acquired at different rates. While conversational proficiency could be acquired by learners within two or three years, research findings demonstrated that the acquisition of academic proficiency took considerably longer, as we will see below.

In his earlier writings Cummins (1978a and 1979) underlined that BICS referred to the features of language proficiency that were more observable and comparatively easy to evaluate – such as pronunciation and grammar – and also to the aspects of linguistic skill required when an individual speaks to another in a concrete situation in which contextual aids can be called upon to assist understanding. In contrast, CALP, which was much less visible, referred to language as a cognitive instrument, essential for problem-solving and analysis. In other words, CALP is essential for the completion of more abstract academic tasks and activities in which contextual clues are absent.

More recently, Cummins has stated that:

> CALP ... is what schools focus on .... It reflects the registers of language that children acquire in school and which they need to use effectively if they are to progress successfully through the grades. (2000:59)

Furthermore, he has emphasised that the BICS/CALP distinction should not be reduced to a difference between oral and written modes as both types of language can occur in either mode.

The conversational/academic distinction is supported by pertinent observations by Vincent (1996) who studied second generation students from San Salvador in Washington DC. She remarks that:

> All of the children in this study began school in an English-speaking environment and within their first two or three years attained conversational ability in English that teachers would regard as native-like. This is largely deceptive. The children seem to have much greater English proficiency than they actually do because their spoken English has no accent and they are able to converse on a few everyday, frequently discussed subjects. Academic language is frequently lacking. Teachers actually spend very little time talking with individual children and tend to interpret a small sample of speech as evidence of full English proficiency. (1996:195)

Since its conception, Cummins has elaborated the BICS/CALP dichotomy to integrate two intercepting continua (Cummins, 1981), one representing the degree of contextual support present in language use, and the other corresponding to the cognitive demands involved in any particular language activity. Context-embedded communication is typical of everyday social language in which contextual clues are plentiful, such as a face to face conversation with a friend in the school canteen about the food they are both eating or about a football match they both watched on television. Here non-verbal support assists understanding. In contrast, talking about a football match that only one speaker has seen is more context-reduced, as there are fewer contextual clues and less shared understanding. Cognitively undemanding communication occurs when an individual uses language skills that have been mastered, thereby requiring little cognitive involvement, such as reciting a poem that has been learnt by heart, or greeting a friend. On the other hand, cognitively demanding communication is required in class for activities in which language skills are not completely automatic, for example finding arguments for and against legalising cannabis in a class debate. Here students must use appropriate language carefully in order to put forward their point of view convincingly and in such a way that it is understood by the other participants.

Cummins' proficiency framework incorporates a developmental element which indicates how much time it takes typical learners to gain proficiency in academic and conversational language skills. Everyday conversational skills in an L2 tend to be acquired by children relatively quickly as this type of communication is assisted by contextual, paralinguistic and non-verbal clues, and shared understanding. Cummins estimates that these skills are usually acquired in two years, while acquiring proficiency in academic language can take between five and seven years. Numerous studies conducted in a range of countries and educational settings support Cummins' estimations. For example, Hakuta and D'Andrea (1992) found that it took Mexican-American students in the United States eight years to achieve academic proficiency. Hakuta *et al*. (2000) estimated that Hispanic children in four different school districts of the San Francisco Bay Area took between three and five years to develop conversational English and between four and seven years to develop academic English. A large-scale study in Israel conducted by Shohamy (1999) on students from a range of language and socio-economic backgrounds found that immigrant children took between seven and nine years to catch up on literacy skills in Hebrew. Summarising their findings on the length of time taken by

Mexican-American students in the United States to attain proficiency in English, Hakuta *et al*. refer to:

> The daunting task facing these students, who not only have to acquire oral and academic English, but also have to keep pace with native English speakers, who continue to develop their language skills. (2000:14)

Cummins' framework for proficiency has been subject to a certain amount of criticism. It has been claimed that language proficiency is a complex construct made up of a wide range of interacting and dynamic competences. Thus, viewing language proficiency along only two dimensions is too restrictive (MacSwan and Rolstad, 2003). Martin-Jones and Romaine (1986) question how the BICS and CALP distinction could be tested empirically, while Wiley (2005) expresses concern that as the terms BICS and CALP oversimplify the construct of language proficiency, they may be used to categorise students, with BICS being considered as inferior to CALP. Edelsky *et al*., (1983) argue that CALP is simply equivalent to test-wiseness which favours middle-class children. So Cummins' theory gives a high value to educated and middle class styles of language while deprecating working class, spoken language styles. Thus, the theory wrongly blames the academic failure of minority language children on their low levels of CALP, rather than on inappropriate schooling (Edelsky *et al*., 1983; Martin Jones and Romaine, 1986). However, Cummins defends his theory asserting that:

> The usefulness of any theoretical construct should be assessed in relation to the issues that it attempts to address, not in relation to issues that it makes no claim to address. (2000:73)

Indeed, Cummins recognises that while the notions of context and cognitive complexity cannot account for all aspects of language competence, they are nevertheless extremely relevant for understanding the relationship between language proficiency and school success. The framework attempts to identify the extent to which children are able to function in a range of environments within educational settings where the cognitive and linguistic requirements are different. It does not, on the other hand, make any claims about proficiency in other domains.

4.2.2 Threshold hypothesis

Cummins advanced the threshold hypothesis to explain inconsistent research findings concerning the relationship between bilingualism and cognition. Having reviewed a number of studies which reported contradictory findings, he put forward a theory which aimed to account for the particular circumstances that might lead to the positive, neutral

or negative effects of bilingualism on cognitive and academic development. He proposed that there may be threshold levels of proficiency that bilinguals had to reach in their two languages in order to exploit the effects of bilingualism (Cummins, 1976). The theory holds that bilinguals must attain high levels of linguistic competence in both languages for bilingualism to provide cognitive and academic advantages. Thus, balanced, additive bilinguals who develop literacy in their two languages and are able to follow the school curriculum in either language are more likely to succeed academically and have cognitive advantages. Although no research has yet been carried out to investigate the question of timing and order of acquisition of each language, Cummins' threshold hypothesis implies that to benefit from the positive consequences of bilingualism, it is not important whether the two languages are acquired simultaneously or successively, as long as the child achieves high level competence in both. Furthermore, it claims that children will show neither positive nor negative effects if they achieve a high level of proficiency in one language and a much lower level in the other. It has been suggested that these dominant bilinguals will not differ, from a cognitive point of view, from matched monolinguals and should therefore not be at an academic or cognitive disadvantage. Finally, if children have low levels of proficiency in both their languages, the theory argues that bilingualism can lead to cognitive and academic deficits. Cummins has insisted that it is essential for bilingual children to achieve age-appropriate linguistic skills in one of their languages, thus, enabling them to fully engage with the academic content of the school curriculum. If both languages are impoverished, the child is at a higher risk of academic failure.

In addition to Cummins' own research (e.g. Cummins, 1978a and 1978b; Cummins and Mulcahy, 1978), the threshold hypothesis has also received empirical support from numerous studies which show that balanced bilinguals who have attained high levels on both languages perform better than matched dominant bilinguals or matched monolinguals on various verbal and non-verbal cognitive tasks (e.g. Duncan and De Avila, 1979; Holtzman, 1980; Dawe, 1983; Bialystok, 1988a; Galambos and Hakuta, 1988; Clarkson, 1992; Clarkson and Galbraith, 1992; Ricciardelli, 1992a; Mohanty, 1994; Lasagabaster, 1997; Lee and Schallert, 1997; Lasagabaster, 1998). An important group of studies investigating metalinguistic awareness in bilingual children (e.g. Tunmer and Myhill, 1984; Bialystok, 1988a; Ricciardelli, 1992a; Bialystok and Majumder, 1998; Cromdal, 1999) support the threshold hypothesis and confirm the cognitive advantage of balanced bilinguals for certain types of metalinguistic tasks, as we will see in detail in Chapter 5.

A number of research findings are not consistent with the threshold hypothesis (e.g. (Diaz, 1985; Hakuta and Diaz, 1985; Diaz and Klinger, 1991; Yelland *et al*., 1993). These findings report cognitive advantages for dominant bilinguals. In fact in Diaz's studies on metalinguistic awareness, the greatest cognitive benefits appeared in dominant bilinguals in the very early stages of acquisition of a second language when their two languages were at their most asymmetrical. They claim that in these early stages of second language acquisition, learners demonstrate increased metalinguistic awareness as they struggle to comprehend how the new language functions.

Cummins' threshold hypothesis has been criticised by a number of experts (e.g. Baker, 2006) principally for not defining the levels of linguistic competence children must attain, first to avoid cognitive and academic deficits, and secondly to benefit from the cognitive and academic advantages of bilingualism. There is no doubt that the problem posed by the quantification of levels is a valid one. If it were possible to define these levels, it would then be necessary to find standardised testing instruments which exist in different language versions which are comparable in order to compare diverse aspects of language competence in both languages. An example of such a test is the Peabody Picture Vocabulary Test which exists in English (Dunn *et al*., 1981 and Dunn *et al*., 1987), French (Dunn *et al.*, 1993) and Spanish (Dunn *et al.*, 1986). In this case, since the scores on the two test versions are comparable, it might be possible to fix certain cut-off points which correspond approximately to the different thresholds put forward by Cummins. However, this test assesses only vocabulary knowledge so tests evaluating other elements of language competence would also be required.

4.2.3 Interdependence hypothesis

The interdependence hypothesis (Cummins, 1984) evolved out of Cummins' threshold hypothesis and provided a theoretical framework to account for the relationships between the different skills in the bilingual's two languages, primarily in relation to CALP or academic proficiency. In other words, it concerned the development of academic and conceptual skills. The hypothesis investigates the extent to which the skills developed in one language may be transferred to the other. This question is important for bilingual children who have a dominant language, particularly if they are being schooled in their weaker language. The interdependence hypothesis suggests that the level of competence attained in the L2 is to some extent a function of the ability that has been attained in the

L1. Cummins has argued that once the L1 is developed enough to handle decontextualised learning in the classroom, an L2 may be acquired with relative ease. Thus, a strong foundation in the L1 should facilitate development in the L2 through what Cummins refers to as a common underlying proficiency. This in turn may advance learning in cognitively demanding tasks even in the L2. On the other hand, progress in the L2 may be hindered if the L1 is less well developed or when schooling attempts to replace the L1 by the L2. Referring to bilingual education programmes in the United States, Cummins affirms that:

> Strong and uncompromising promotion of L1 literacy is a crucial component of this approach but we should adopt a *both/and* rather than an *either/or* orientation to L1 and L2. When promoted together, the two languages enrich each other rather than subtracting from each other. (2000:28)

Studies assessing the transfer of skills have been conducted on various pairs of languages and models of bilingual education in a range of social contexts. Research evidence consistently supports the interdependence hypothesis. For example, a study by Verhoeven (1994) found high levels of transfer for literacy skills but limited transfer on the levels of vocabulary and oral skills. Additional evidence for fairly strong correlations between bilingual students' L1 and L2 literacy skills comes from a review of a large number of studies by Cummins (1991b) and Durgunoğlu and Verhoeven (1998). Nevertheless, Cummins stresses that:

> This does not imply ... that transfer of literacy and academic language knowledge will happen automatically; there is usually also a need for formal instruction in the target language to realize the benefits of cross-linguistic transfer. (2000: 39)

Furthermore, research data show that there is no direct relationship between the quantity of instruction in one language and academic achievement in that language. So time spent developing literacy in one language advances rather than delays literacy development in the other (Cummins and Corson, 1997; Baker and Prys Jones, 1998).

In contrast, other research findings show that, unlike literacy skills, oral skills in students' two languages are largely unrelated (e.g. Harley *et al.*, 1986; Cobo-Lewis *et al.*, 2002b). A feasible explanation for this is offered by Cobo-Lewis *et al*. (2002b) who suggest that literacy skills are acquired principally in school settings and are, therefore, dependent on school instruction. On the other hand, oral skills are acquired mainly within the home and wider community and, thus, depend more on the actual quantity of language contact and use that children have outside school. Therefore, across subjects within the same environment (e.g. in the same class at school), while children's exposure to literacy

practices within school is likely to be more or less equal, the amount of exposure to each of their languages in the home and wider community may vary considerably. This will depend on the languages spoken at home and within the child's social networks, as we discussed in Sections 3.3.2 and 3.3.3 of this study with regard to the linguistic and sociolinguistic factors that impacted on dual language acquisition. An alternative explanation is offered by Gathercole (2002a) with reference to Bialystok's work on metalinguistic awareness which will be discussed in detail in Section 5.3. She proposes that the different levels of transfer may be the result of the differing natures of the particular skills. So while oral skills may be considered to be linguistic, literacy skills are more metalinguistic. Literacy skills thus require greater and more explicit language awareness, but as the processes are not language specific, they are more easily transferable from one language to another. In contrast, oral skills which are language specific involve less explicit language awareness. Similar findings have been reported in studies assessing the cross-language relationships for the acquisition of vocabulary. It has been suggested that vocabulary items have to be learnt in each language separately (Verhoeven, 1994; Pearson, 2002).

4.2.4 Comment

In spite of the criticisms that have been made about Cummins' theoretical framework, we believe that it nevertheless endeavours to offer explanations to what might appear to be contradictory research findings in studies investigating the relationship between bilingualism and cognitive performance. These studies will be considered in the rest of this chapter and in Chapter 5.

We agree that testing Cummins' threshold hypothesis empirically is problematic because of the difficulty of quantifying the bilingual's linguistic competence and setting the various thresholds. Nevertheless, this hypothesis is particularly useful for our study in which we investigate the relationship between the bilingual proficiency and metalinguistic awareness of 38 French-English bilingual children who have different levels of bilingual proficiency. Indeed, in Chapter 10, research questions 5, 6 and 7 compare the performance of balanced and dominant bilinguals on a range of metalinguistic tasks in order to assess whether bilinguals who have high levels of competence in both languages outperform those who have a high level in one language

but a lower level in the other. When we analyse our results, we relate them to Cummins' threshold hypothesis.

We will now review the studies that indicate cognitive disadvantages for bilinguals before turning our attention to those which point to cognitive advantages.

4.3 STUDIES INDICATING COGNITIVE DISADVANTAGES

4.3.1 Early studies

Before the 1960s, researchers were mainly interested in the effects of bilingualism on verbal and non-verbal intelligence. Many early studies seemed to indicate that bilingualism had a detrimental effect on children's intellectual functioning, in particular when this was measured by IQ tests. Indeed, early research findings were used as arguments against bilingual education and were thought to provide adequate explanations for the educational deficiencies, emotional maladjustment and lack of integration of certain bilingual children, especially those from minority language backgrounds. It was reported that developing and maintaining competence in more than one language was likely to damage children's general well-being and educational ability, resulting in intellectual deficiencies (e.g. Saer, 1923; Smith, 1923; Yoshioka, 1929; Barke, 1933; Fritz and Romkin, 1934; Arsenian, 1945; Darcy, 1946; Jones and Stewart, 1951; Darcy, 1953; Macnamara, 1966). This deficit position is shown in a very early quotation by Laurie who stated that:

> If it were possible for a child to live in two languages at once equally well, so much the worse. His intellectual and spiritual growth would not thereby be doubled, but halved. Unity of mind and character would have great difficulty in asserting itself in such circumstances. (1890:15)

Similarly, Jespersen's Balance Effect Theory held that "the effort of the brain required to master two languages instead of one" (Jespersen, 1922:148) reduced children's capacity for learning. His theory argued that there was a limited amount of space in the brain to accommodate two languages, thus, as competence in one language increased, competence in the other automatically decreased. Pintner and Keller (1922) reported that bilinguals suffered from a 'linguistic handicap'. Saer (1923) described bilinguals as victims of mental confusion. In this frequently cited study conducted on Welsh-English bilingual children, Saer found that bilinguals from rural areas had lower IQs than comparable monolinguals on the Stanford-Binet test. He also claimed that the gap between bilinguals

and monolinguals continued to widen each year between age seven and 11 concluding that bilingualism had a negative overall effect on children's intellectual development. As a result of these findings, Welsh mother-tongue teaching and bilingual instruction were seriously brought into question at the time.

The conclusions of many of these early studies have since been heavily criticised because of methodological flaws such as poor research design including a lack of control of extraneous variables (e.g. see discussion in Cummins, 1977). By failing to control for key factors such as SES, degree of bilingualism and the age of acquisition of the second language, these early research findings have now been invalidated. In some of the studies cited above in which monolingual and bilingual performance was compared, the two groups were from different socio-economic groups, with the bilinguals having a lower SES. Clearly, this could affect educational achievement and academic performance as we discussed in Section 3.3.3.6. In addition, many of the bilingual children lived in subtractive bilingual environments where the home language was devalued. Furthermore since degree of bilingualism was rarely controlled for, if the bilingual children were tested in their weaker language which was often the majority language and not their home language, their poor test performance was more likely to reflect a lack of linguistic competence in their second language rather than general intellectual deficiencies. So since these tests failed to take into consideration the children's total linguistic competence, they provided unreliable and invalid results.

4.3.2 Later studies

Although the majority of recent studies report certain cognitive advantages for bilinguals, as we will see in Section 4.4 below, a small number show disadvantages. Summarising the results of several studies conducted on Hispanic-American children in the United States, Oller and Pearson (2002) report that these language minority students often have lower marks on intelligence tests, achievement tests in productive and receptive skills in English and in other academic domains, compared to monolinguals. Their conclusions are based on studies by Fernández and Nielsen (1986), Hirano-Nakanishi (1986), Fernández *et al*. (1989), De la Rosa and Maw (1990) and Frase *et al*. (1999). They report that:

> The gap is clearly evident in evaluation of tests administered in English, but even when tested in Spanish, children from Spanish-speaking homes appear to achieve below monolingual norms, about one year below in elementary school, two years in 8th grade, and three years in 12th grade. (Oller and Pearson, 2002:5)

However, Oller and Pearson argue that these results require much closer examination stressing that the average Hispanic-American child is of a lower SES than the average child in the United States, with a high proportion of Hispanic children born into poor homes. When the results from studies on the academic performance of Hispanic-American children of low SES are compared to those of non-Hispanic children of the same SES, there is in fact no significant difference. In other words, the children's bilingualism is probably not the cause of their academic failure. Rather social and psychological factors related to being brought up in poverty are more likely to account for the poor results of many Hispanic-American students.

We will now consider studies that indicate cognitive advantages for bilingual children.

4.4 STUDIES INDICATING COGNITIVE ADVANTAGES

4.4.1 Introduction

Prior to more modern empirical studies which indicate certain advantages in cognitive performance for bilingual children when compared to matched monolinguals, the famous diary studies written by Ronjat (1913) and Leopold (1939-1949) had already identified bilingual children's impressive cognitive and verbal flexibility. For example, Leopold noticed that his English-German bilingual daughter Hildegard did not stick rigidly to the words of well-known songs and stories like her monolingual peers but rather would quite naturally replace them with other words of her choice. He noted "a noticeable looseness of the link between the phonetic word and its meaning" (Leopold, 1961:358) and considered that this greater flexibility resulted from her bilingualism. Likewise, Vygotsky (1962) proposed that bilingualism facilitated certain types of language awareness. He held that:

> The child learns to see his language as one particular system among many, to view its phenomena under more general categories, and this leads to awareness of his linguistic operations. (1962:110)

So because bilingual children have access to two linguistic systems from a very young age, having two words for every referent, they seem to develop an early awareness of the arbitrary connections between linguistic forms and meanings which enhance cognitive flexibility and linguistic awareness. We will discuss these ideas further in Sections 5.3.4.3 and 5.3.7.1 when we consider metalinguistic awareness.

Since the early sixties, a large number of empirical investigations conducted in a wide range of countries and social settings and with different pairs of languages have reported that bilinguals have significant and consistent advantages over matched monolinguals on various verbal and non-verbal cognitive performance measures. Peal and Lambert's pioneering Canadian study in 1962 marked a turning point in empirical research investigating the cognitive effects of bilingualism. The key aspects of this study will now be assessed.

4.4.2 Peal and Lambert (1962)

Until Peal and Lambert's investigation, bilingualism was more often considered as a handicap to intellectual functioning, leading to linguistic and cognitive deficits, as was shown in Section 4.3.1. Their objective was to conduct a well designed and carefully controlled experiment to try to identify "what the intellectual components of that [*bilingual*] deficit might be in order to develop compensatory strategies" (Lambert, 1977:16). Having carefully selected a large sample of participants, they used a number of different instruments to evaluate verbal and non-verbal intelligence. They corrected many of the methodological flaws of earlier studies through their meticulous choice of participants and their endeavours to control for many confounding variables which had been inadequately controlled for in earlier studies. As well as matching the monolingual and bilingual children on the relevant variables of SES, age, sex, school grades and parental education, they also controlled for degree of bilingualism. Thus, to qualify to be in the bilingual group, the children had to attain age-appropriate skills in both their languages, as attested by a range of linguistic tests and self-evaluations in each language. From their original sample of 364 ten year old middle-class children from French schools in Montreal, they finished with a total of 110 participants composed of French monolinguals and French-English bilinguals who were comparable on the relevant variables. The bilingual children were all raised in social environments which valued bilingualism and could thus be classified as additive bilinguals. Peal and Lambert used a range of testing tools enabling them to take a broader view of cognitive performance than was evaluated in traditional IQ tests. The results revealed that the bilingual children performed better on virtually all the tests of verbal and non-verbal intelligence. In particular they demonstrated a wider range of cognitive strategies and greater flexibility in problem solving. Peal and Lambert concluded that the bilingual experience which

required an ability to manipulate two symbolic systems led to "mental flexibility, a superiority in concept formation, and a more diversified set of mental abilities" (Peal and Lambert, 1962:20).

Their study has been subject to some criticism (e.g. Macnamara, 1966). First, their careful selection of middle-class, balanced additive bilinguals has been questioned for not being representative of all bilinguals, so that the results cannot be generalised to other bilingual populations. However, Peal and Lambert never claimed that the children in their study were representative of all bilinguals. Secondly, MacNab (1979) pointed out that although the monolingual and bilingual children were matched on a range of variables, the fact that the parents of the bilinguals opted for immersion programmes gave some indication of their cultural attitudes and social environments, which again would not hold for all bilinguals. Thirdly, Hoffmann (1991) notes that although the test results show a relationship between bilingualism and various measures of intellectual functioning, this does not mean that one is actually the cause of the other.

Despite these criticisms, Peal and Lambert's study had a huge impact on research on bilingualism particularly because of the carefully constructed research design which ensured that the results were valid and reliable at least for the sample under investigation. Furthermore, their positive findings had very favourable consequences for future Canadian bilingual education policies, and bilingual education in general (Herdina and Jessner, 2002). Most importantly, this study altered the expectations of researchers in the field. Indeed, other investigators began to examine the effects of bilingualism on other aspects of cognitive performance since Peal and Lambert's findings had hinted that knowledge of two languages could have cognitive consequences which went beyond the purely linguistic domain. These studies will now be addressed.

4.4.3 More recent studies

4.4.3.1 Introduction

Since Peal and Lambert's study, considerable research has demonstrated that bilinguals significantly and consistently outperform matched monolinguals on measures from various domains of cognitive performance thanks to their mental capacities that researchers believe to be more diversified. For example, they have been shown to enjoy cognitive advantages in domains such as metalinguistic awareness (e.g. Ben-Zeev, 1977a

and 1977b; Cummins, 1978a; Bialystok, 1986a, 1988a and 1999), non-verbal problem solving (e.g. Hakuta, 1987; Bialystok and Majumder, 1998), divergent and creative thinking (e.g. Torrance *et al*., 1970; Scott, 1973; Kessler and Quinn, 1987; Ricciardelli, 1992b), social sensitivity (e.g. Genesee *et al*., 1975; Mohanty, 1994) and numbers and numeracy (Bialystok and Codd, 1997). Indeed, as a result of this research, bilingualism is now frequently acknowledged as promoting intellectual, academic and social functioning.

One of the major areas of investigation is that of metalinguistic awareness, an area which is central to this thesis. Studies on metalinguistic awareness will be discussed in depth in Chapter 5 in which we will present Bialystok's analysis and control theoretical framework. In the rest of Chapter 4, a number of studies investigating bilingual performance in other areas of cognition will be reviewed. Our particular interest here is in areas of cognitive performance which require high levels of control of attention, also referred to as inhibitory control or inhibition. Indeed, research in the field of metalinguistic awareness has shown that it is control of attention which enables bilinguals to outperform comparable monolinguals on certain types of metalinguistic task. By first studying research findings in other areas of performance which rely on these cognitive processes, we aim to gain a deeper understanding of how they function and why bilinguals excel at tasks in which these processes are active. Once we have done this, we will relate the findings to studies in the field of metalinguistic awareness in Chapter 5.

The cognitive processes requiring inhibition are part of the executive control function. Bialystok (2001a) explains that the executive processes are the last cognitive skills to be acquired in childhood, with children gradually developing control over attention and inhibition at about age five. Therefore before this age, children cannot solve tasks which require executive control. Researchers have shown that these executive processes are more robust in bilingual children. In the rest of this chapter, we review a range of studies which demonstrate that bilingual children outperform matched monolinguals at certain types of verbal and non-verbal tasks in which these processes are in action. In Section 4.4.3.2 we examine studies which investigate divergent or creative thinking. Then in Section 4.4.3.3 a number of non-verbal problems which require inhibitory control will be examined. These are sorting tasks, the Simon task, ambiguous figure reversals, the towers task and the water level task which have been developed by researchers working in the field of developmental psychology.

4.4.3.2 Divergent or creative thinking

Several investigations reveal that bilingual children score better in tests of divergent thinking than matched monolinguals (e.g. Torrance *et al*., 1970; Scott, 1973; Torrance, 1974). A child's ability in divergent thinking tasks is often seen as a good indicator of his/her creativity (Döpke, 1992). Indeed, research from North America tends to use the term *creative thinking* rather than divergent thinking. Lambert (1977:15) describes divergent thinking as a "distinctive cognitive style reflecting a rich imagination and an ability to scan rapidly a host of possible solutions". In contrast, Romaine notes that convergent thinking:

> Is what is measured by intelligence tests, where the person being tested is required to converge on one correct answer rather than consider a number of outcomes to an open-ended problem or question. (1995:113)

One frequently used method of evaluating divergent thinking is to ask participants to find as many possible uses for a particular object, such as a brick (Scott, 1973; Torrance 1974). While a convergent thinker is likely to offer more conventional and obvious answers, such as to build a wall, a divergent thinker's responses will be more varied, demonstrating greater imagination, creativity and free thinking, such as to remove the dirt off the soles of dirty boots (Baker, 2001).

Studies investigating creativity have been conducted on a range of divergent thinking measures (see reviews of studies in Ricciardelli, 1992b) on bilinguals from a wide variety of cultures and language background, although Laurén (1991) remarks that research in this field tends to be confined to additive bilingual settings. Balanced bilingual children who have attained high levels of proficiency in both languages tend to outperform monolinguals (e.g. Carringer, 1974; Cummins 1976; Ricciardelli, 1992b), while dominant bilinguals generally do not (e.g. Ricciardelli, 1992b). This finding is compatible with Cummins' threshold hypothesis discussed in Section 4.2.2. An exception is Scott's (1973) study which shows superior scores for children who were in the process of becoming bilinguals in comparison to their monolingual peers.

Researchers hypothesise that bilingualism promotes divergent thinking since functioning in two or more languages may enhance cognitive flexibility and originality (e.g. Baker, 2001). Thus, it seems feasible that having two or more terms for each referent enables bilinguals to think more freely and creatively, as Vygotsky (1962) suggested.

Bialystok explains that:

> The barrier to solving the problem is in suppressing the usual use and freeing oneself to entertain alternatives. This suppression requires inhibition of the salient and automatically associated familiar function. (2001a:212)

This more advanced inhibitory control which enables bilinguals to outperform their monolingual peers in tests of divergent or creative thinking is also active in other areas of cognitive performance. We will see this particularly in Chapter 5 when we investigate particular domains of metalinguistic awareness. However, it is also present in various non-verbal problem solving that require control of attention as will be demonstrated below.

4.4.3.3 Non-verbal problem solving requiring inhibitory control

Numerous studies have demonstrated that bilingual children have advantages over their monolingual peers on non-verbal problem solving which requires inhibition of attention to misleading information. Five non-verbal problems will be reviewed here: sorting tasks, the Simon task, ambiguous figure reversals, the towers task and the water level task. In each case, the specific processing difficulty will be identified. Where possible, we will compare and contrast each task which requires a high degree of control of attention or inhibition of attention, to a similar cognitive task in which the control demands are reduced according to Bialystok and Ryan's (1985) and Bialystok's (1986a and 2001a) framework. Our aim here is to highlight the specific conditions under which the bilinguals are likely to have a processing advantage over comparable monolinguals. This will be developed further in Chapter 5 when metalinguistic awareness in bilingual children is considered.

4.4.3.3.1 Sorting tasks

A small set of experiments demonstrate that balanced bilingual children are superior to matched monolinguals in certain experimental conditions of the sorting task. In several studies conducted by Bialystok and her colleagues (Bialystok, 1999; Bialystok and Martin, 2004), the four to six year old balanced bilingual and monolingual children are first instructed to classify two-dimensional geometric shapes which are a mixture of squares and circles according to colour (either green or yellow). Then the instructions change, requiring the children to reclassify the same objects according to their shape.

What is complicated for young children is to adapt to sorting according to the new perceptual feature when the classification rules change. They have to ignore the original perceptual feature of colour which is still present and very salient, but becomes irrelevant, and it must be replaced with the new perceptual feature of shape. This recoding is extremely difficult and leads to a conflict. The bilingual children are more able to deal with this conflict than the monolinguals who tend to continue sorting according to the original feature of colour when the rules change.

In another sorting task reported in Bialystok and Martin (2004), the same children are asked to sort cards with objects on them according to two sets of instructions. In the first phase, they are asked to sort according to function, so that all objects representing toys go in one box, while those representing clothes go in another. In the second phase, the children are told to sort the same cards according to location, so that all the objects found inside the house go in one box, while those found outside go in the other. In this experiment, which is a conceptual version of the colour/shape sorting task, there is no difference in the performance of the bilingual and monolingual children as there is no compelling salient perceptual feature such as colour to create a conflict. Indeed, the stimuli are interpreted individually. Bialystok explains that the bilingual children outperform the monolinguals when they have to resolve a perceptual conflict, as in the colour/shape sorting task, since they are more able to "inhibit attention to misleading mental representations" (2001a:208).

4.4.3.3.2 The Simon task

Although the Simon task has been used to investigate executive control function differences between bilingual and monolingual adults (Bialystok *et al*., 2004; Bialystok, 2006), it has not often been used on young children. A recent study by Bialystok and Martin-Rhee (2008) investigated whether the processing advantages found in bilingual adults are also present in young balanced bilingual children. To measure the Simon effect, participants sit in front of a computer screen. Typically, the right and left shift keys on the keyboard are labelled with a red sticker and a blue sticker respectively. Participants are instructed to press the red key when red objects appear on the screen and the blue key when blue objects appear. The task is straightforward when a red object appears on the right hand side of the screen and a blue one appears on the left. This is referred to as a congruent trial because the object of a particular colour appears on the same side of the

screen as the same colour computer key. However, it is more cognitively demanding when the red stimulus appears on the left hand side and the participant has to press the red button on the right hand side. This is referred to as an incongruent trial. Reaction time is an important measurement and it is typically slower in incongruent trials, referred to as the Simon effect.

Bialystok and Martin Rhee's study required the four to five year old English monolingual and French-English bilingual children to do the Simon task in three different phases. In the first they had to react immediately to the stimulus, while in the second a short delay was imposed between the appearance of the stimulus and the response, and in the third there was a longer delay. The first phase of the task is the most cognitively demanding of the three, in particular for the incongruent trials, as there is no time to resolve the competition between the stimulus and the response. Participants must focus their attention on the colour of the stimulus while at the same time, ignoring its position on the screen. Clearly the task is less cognitively demanding when there is a delay between the appearance of the stimulus and the response, as participants have more time to process the competing information enabling them to respond in a more controlled way. The balanced bilingual children outperformed the monolinguals in both the congruent and incongruent trials only in the first phase of the task when they were given no time to reflect. As in the sorting task, the balanced bilingual children were better able to resolve the conflict. Again this demonstrates their superiority in resolving problems in which selective attention enables them to suppress misleading information, in this case under the pressure of time. In other words, the bilingual children outperform comparable monolinguals when the demands for inhibitory control are high. Bialystok and Martin-Rhee conclude that:

> The development of attentional control that is part of executive functioning and is used to selectively attend to target cues in conflicting situations is more advanced in bilingual children than in comparable monolinguals. (2008:91)

4.4.3.3.3 Ambiguous figure reversals and embedded figures task

A similar bilingual advantage is found in Bialystok and Shapero's (2005) study in which monolingual and bilingual six year old children had to identify alternative images in reversible figures. In this study, children had to give a new meaning to the same stimulus. For example, the interpretation of the drawing of a rat must be ignored in order to see the same drawing as a man. Once again, the balanced bilinguals showed superior inhibitory

control on this task which had a processing conflict. Their superior cognitive control enabled them to focus on the relevant property while ignoring the misleading one.

In another experiment, called the embedded figures task, conducted with the same children and reported in the same article, the children were asked to pick out a simple shape, such as a triangle, hidden within a more complex shape, such as a house or a clock face. In other words, the task required the perceptual analysis of a complex figure in order to find a simple component. Unlike the ambiguous figure reversals, this task showed no difference between the bilingual and monolingual children. This can be explained by the fact that while the embedded figures task requires pattern analysis to find the hidden component, there is no conflict or misleading context which would require control of attention.

4.4.3.3.4 The towers task and the sharing task

Bilingual children also have a significant processing advantage over their monolingual peers in certain experimental conditions of the towers task (Bialystok and Codd, 1997) which investigates the acquisition of knowledge about cardinality. In this task, the four to six year old monolingual and bilingual children were instructed to build two blocks of flats, one with only Lego bricks and the other with only Duplo bricks (Lego bricks are half the size of Duplo bricks on each dimension). They were told that each brick represented one flat which had one family living inside. Once the children had built the towers, they were asked to count the number of bricks in each tower in order to determine which one had more families. In a congruent trial, the Lego tower was shorter and had fewer bricks than the Duplo tower. This is straightforward as there is no misleading perceptual information. On the other hand, in an incongruent trial there was a perceptual conflict as the Lego tower was shorter than the Duplo tower but it was actually made up of more bricks. Thus, in order to give the correct response in this example, the children had to ignore the irrelevant yet very salient information, i.e. that the Lego tower was shorter than the Duplo tower, and selectively attend just to the number of bricks in each tower. In the congruent trials, there were no differences in performance between the monolingual and bilingual children. In contrast, in the incongruent trials, the bilingual children significantly outperformed the matched monolinguals.

In another experiment which also investigated the acquisition of cardinality in young children, the same monolingual and bilingual children were asked to do the sharing task

(Bialystok and Codd, 1997). Participants had to divide a bag of sweets equally between two containers. They then had to agree that each container had the same number of sweets inside. Next, having counted one set, they had to infer how many sweets were in the other set without counting them. To perform this task successfully, children must understand the equivalence principle which is a fundamental element of cardinality (Bialystok, 2001a). There was no difference in performance between the monolingual and bilingual children on this task. As in the congruent trials of the towers task, there is no misleading information in the sharing task.

4.4.3.3.5 The water level task

Bilinguals outperform monolinguals on a version of Piaget's water level task (Piaget and Inhelder, 1956) reported in Bialystok and Majumder (1998). This test evaluates the development of the concept of the horizontal coordinate. The seven to nine year old English monolingual and French-English and Bengali-English balanced bilingual children were given pictures of a bottle placed at various angles in relation to a horizontal table top. They had to imagine that the bottle was half-full of water and closed with a lid. They were then asked to draw the waterline on the bottle. To succeed in this task, the children had to ignore the misleading perceptual feature of the base of the tilted bottle and draw a line indicating the water level which was parallel to the table top. Once again, the bilingual children were more able than the monolinguals to focus their attention on the relevant feature of the task, while suppressing the distracting and more salient one which was nevertheless irrelevant.

4.4.3.3.6 Synthesis of findings

It has been shown in the studies presented above that bilingual children perform certain tasks requiring specific cognitive processes better than comparable monolinguals, notably "when the knowledge required to solve a problem is embedded in a misleading context" (Bialystok, 2001a:212). However in tasks in which there is no distracting or misleading information, where there is no conflict to be resolved, bilingual and monolingual children's performance is similar.

Thus, bilinguals outperform monolinguals in:

- the colour/shape sorting task in which they have to resolve a perceptual conflict;
- the first phase of the Simon task as the bilinguals were more able to process the competing information in a very limited time;
- the ambiguous figure reversals task which required them to suppress the distracting information to focus on the relevant property;
- the incongruent trials of the towers task in which there was misleading perceptual information as the shorter Lego tower actually contained more flats than the Duplo tower;
- the water level test in which they had to ignore the distracting orientation of the bottle to draw a line parallel to the horizontal surface of the table rather than the base of the bottle.

On the other hand, there was no difference in the performance of the monolingual and bilingual children in:

- the conceptual version of the sorting task in which sorting was done according to first function and then location;
- phases two and three of the Simon task in which participants had sufficient time to resolve the conflict in the congruent and incongruent trials;
- the embedded figures test which required the children to find a simple shape within a more complex one;
- the sharing task in which children had to estimate the number of sweets in one container having counted up the number of sweets in another.

The findings of the studies discussed above support Bialystok's (1986a and 2001a) analysis and control framework which will be explored in Section 5.3. The framework predicts that balanced bilinguals will perform better than dominant bilinguals on tasks requiring higher levels of analysis of linguistic knowledge, in which participants have to reorganise their mental representations in order to work out relationships between different concepts and ideas. On the other hand, the framework posits that both balanced and dominant bilinguals will outperform matched monolinguals on tasks demanding higher levels of control of attention, in which participants have to attend selectively to certain relevant features while inhibiting very salient but irrelevant ones.

4.5 CONCLUSION

In this chapter we have reviewed the literature on the relationship between bilingualism and cognitive performance. We began by assessing Cummins' (1976, 1981 and 2000) theoretical framework and concluded that, in spite of certain shortcomings, it nonetheless provides a number of plausible explanations as to why differing bilingual circumstances may lead to positive, neutral or negative effects on children's cognitive and academic development. The studies which pointed to cognitive disadvantages for bilingual children were discussed next and it was shown that the children's apparently poor performance in comparison to monolingual children could be explained by methodological flaws in the studies.

We then turned our attention to the studies which demonstrated cognitive advantages for bilinguals, beginning with Peal and Lambert's Canadian study which corrected many of the methodological weaknesses of the earlier studies and indicated that bilingualism might lead to positive cognitive effects. Then we discussed more recent studies on creative thinking and non-verbal problem-solving requiring inhibitory control. The findings of these studies are of particular interest for our study since they indicate an advantage for bilingual children over matched monolingual children, particularly in tasks requiring high degrees of control of attention. In Chapter 5, we will see that similar findings have been reported for certain metalinguistic tasks when the same cognitive processing component is involved. Our study investigates how metalinguistic awareness differs in balanced and dominant bilingual children, notably how differing levels of bilingualism relate to the two cognitive processing components of control of selective attention and analysis of representation.

Having reviewed a wide range of studies on cognitive development, we can now relate the findings to Cummins' threshold hypothesis discussed in Section 4.2.2. We saw that the threshold theory was put forward in order to provide an explanation for the divergent results in studies investigating cognitive performance in monolingual and bilingual children. Specifically, the threshold theory claims that bilinguals have to reach high levels of performance in both their languages in order to benefit from cognitive advantages in areas such as metalinguistic awareness, cognitive flexibility and creativity. In other words, according to Cummins, it is the balanced bilinguals who have attained high levels of competence in both languages who are more likely to profit from the positive cognitive effects of bilingualism. The studies we have reviewed in this chapter offer some support

to the threshold hypothesis. The early studies indicating negative effects of bilingualism were conducted on dominant bilinguals who were often tested in their weaker language in conditions of subtractive bilingualism. On the other hand, more recent studies have generally reported advantages for bilingual children on certain cognitive tasks when compared to matched monolinguals. Furthermore, these are often balanced bilinguals who, thus, have high levels of proficiency in both languages. These results are consistent with other research findings which have not been discussed in this literature review (e.g. Hakuta and Diaz, 1985; Galambos and Hakuta, 1988; Bialystok and Hakuta, 1994; August and Hakuta, 1997).

The difference in performance of dominant and balanced French-English bilinguals on a range of metalinguistic tasks assessing analysis of linguistic knowledge and control of linguistic processing will be explored in our empirical study in Chapter 10. It will be interesting to compare our results to those in the studies presented in Section 4.4.3.3 which compare monolinguals to bilinguals on non-verbal problem solving requiring inhibitory control. Indeed, this will enable us to assess the extent to which our results are consistent with Cummins' threshold hypothesis which posits an advantage for balanced bilinguals over dominant bilinguals on certain cognitive tasks.

It should also be noted that many of the studies in this chapter reporting positive associations between bilingualism and cognitive development were conducted in social settings that encourage and value bilingualism, that is to say in additive bilingual environments. In the case of the studies addressed in Section 4.4.3.3 on non-verbal problem-solving requiring inhibitory control which were conducted in Canada by Bialystok and her colleagues, even if the subjects were of immigrant origin, the positive attitudes towards bilingualism shown in Canada might be a variable that could play a role in promoting positive bilingual outcomes. Clearly, it may not be possible to generalise these findings to contexts of subtractive bilingualism. Nevertheless, the results discussed here are pertinent to our own study which was carried out on bilingual French-English children attending an international school in an additive bilingual environment. Therefore we will compare our findings to those discussed here.

In Chapter 5 we will continue our review of the literature on the relationship between bilingualism and cognitive development by focusing specifically on the construct of metalinguistic awareness which is central to this thesis.

CHAPTER 5 – BILINGUALISM AND METALINGUISTIC AWARENESS

5.1 INTRODUCTION

In the previous chapter, we took an overview of studies investigating the relationship between bilingualism and cognitive performance. We noted that the more recent studies, which were carefully controlled, tended to point to an advantage in cognitive performance for bilingual children over matched monolinguals. In Section 4.4.3.3 we highlighted the bilingual processing advantage on non-verbal problem solving tasks requiring high degrees of control of attention. As we explained, control of attention or inhibition is a cognitive skill component which requires subjects to suppress distracting or misleading information while focusing their attention on some other element. This cognitive skill component will be considered further in this chapter because it can be present in certain types of metalinguistic tasks, as will be shown in Section 5.3 below.

In this chapter, we continue our review of the literature on the relationship between bilingualism and cognitive performance. Here we focus specifically on one aspect of cognition, notably on metalinguistic awareness. We start in Section 5.2 by examining our understanding of the term *metalinguistic awareness* since it is used differentially by different researchers. In Section 5.3 Bialystok's analysis and control framework will be discussed in detail. We will begin in Section 5.3.2 by explaining the distinction made by Bialystok between metalinguistic knowledge, ability and awareness. In Section 5.3.3 the difference between the two cognitive skill components, of analysis of linguistic knowledge and control of linguistic processing, which are the essence of the framework will be examined and explained. Examples of metalinguistic tasks will be provided here to illustrate how the processing demands differ for each cognitive skill component. Following this, metalinguistic tasks will be considered in more detail according to whether they assess word awareness in Section 5.3.4, syntactic awareness in Section 5.3.5 or phonological awareness in Section 5.3.6. In each case, a range of tasks will be evaluated and the different processing demands of analysis and control will be highlighted. Finally, the main research findings will be synthesised in Section 5.3.7 and will be related to Cummins' threshold hypothesis which was addressed in Section 4.2.2.

5.2 DEFINITIONS OF METALINGUISTIC AWARENESS

Over the past 40 years, a substantial number of studies have investigated how children develop metalinguistic awareness and how this process may differ between monolingual and bilingual children (e.g. Feldman and Shen, 1971; Ianco-Worrall, 1972; Ben-Zeev, 1977b; Bialystok, 1986a and 1986b; Hakuta, 1987; Bialystok, 1988a; Galambos and Hakuta, 1988; Galambos and Goldin-Meadow, 1990; Ricciardelli, 1992a; Campbell and Sais, 1995; Bialystok and Majumder, 1998; Cromdal, 1999). But what exactly is metalinguistic awareness and how can it be assessed? Before examining studies on metalinguistic awareness, it is important first to clarify how we understand the term since it has not always been used consistently in the literature. As Bialystok affirms:

> Without a clear consensus for the proper application of the term, the issue of possible differences among children in their metalinguistic skills as a function of bilingualism becomes unexaminable. (1991:115)

Various working definitions of metalinguistic awareness appear in the literature. For example, Malakoff and Hakuta define metalinguistic awareness as:

> An awareness of the underlying linguistic nature of language use. Metalinguistic awareness allows the individual to step back from the comprehension or production of an utterance in order to consider the linguistic form and structure underlying the meaning of the utterance. (1991:147)

For Bowey (1988:42), "the only requirement for inclusion of an activity in the category of metalinguistic functioning is that attention should be focussed on form rather than on meaning". Genesee *et al*. define metalinguistic awareness as the "ability to reflect on and manipulate the elements of language independently of their communicative use" (2004:55).

The above-quoted authors concur that metalinguistic awareness is not usually required for normal everyday language use but rather is necessary when specialised knowledge of structure has to be accessed, structured and manipulated. As Tunmer *et al*. have pointed out:

> Language users do not usually notice such things as the individual phonemes and words comprising an utterance, the grouping relationships between its constituent words, or whether the utterance is structurally ambiguous or synonymous with another utterance, unless they deliberately think about it. (1988:136)

A range of tasks have been constructed to evaluate different degrees and types of metalinguistic awareness. In particular these assess various aspects of word awareness (see Section 5.3.4), syntactic awareness (see Section 5.3.5) and phonological awareness (see Section 5.3.6). However, to assess varying degrees of metalinguistic awareness

empirically, it is necessary to clarify the construct with much greater precision than the working definitions above. Indeed, Bialystok and Ryan have argued that the term metalinguistic should be applied:

> Not to a specific mental accomplishment but rather to a set of problems which share certain features. The theoretical issue, then, is to determine what cognitive skills underlie the solutions to this set of problems. (1985:230-231)

Thus, metalinguistic awareness should not be considered to be a single ability but rather a set of skills which are manipulated in order to resolve a range of cognitive problems which have different cognitive demands. As Malakoff and Hakuta explain, metalinguistic awareness is "both an awareness and a skill: the problem is metalinguistic and the skill is recognizing the nature and demands of the problem" (1991:148).

Bialystok and Ryan's (1985) original analysis and control framework, which has been developed further in Bialystok (1986a, 2001a and 2001b), has helped researchers to explain many of the diverse and sometimes seemingly contradictory findings of early studies on metalinguistic awareness in monolingual and bilingual children. This theoretical framework has enabled experts to construct more precise research designs and to interpret their findings better by examining the construct of metalinguistic awareness more analytically. We will now examine this theoretical framework which will be our point of reference for metalinguistic awareness in this study.

5.3 BIALYSTOK'S ANALYSIS AND CONTROL FRAMEWORK

5.3.1 Introduction

As mentioned above, Bialystok has worked extensively on the construct of metalinguistic awareness in bilingual and monolingual children. Indeed, it is her analysis and control framework which is frequently referred to by researchers when explaining the results of their investigations into the relationship between bilingualism and metalinguistic awareness. Although we do not agree with all aspects of her framework, as will be discussed below, we have chosen to work within it as we believe that it provides researchers with convincing empirically based arguments and explanations for interpreting research findings in the field of bilingualism and cognitive functioning.

We begin in Section 5.3.2 by considering the distinction made by Bialystok between metalinguistic knowledge, ability and awareness. Her analysis and control framework will be explained and discussed in Section 5.3.3 before we turn our attention to studies which

assess word awareness, syntactic awareness and phonological awareness in Sections 5.3.4, 5.3.5 and 5.3.6 respectively. In Section 5.3.7, the findings presented in the chapter will be synthesised and developed further.

5.3.2 Metalinguistic knowledge, ability and awareness

In her more recent descriptions of the analysis and control framework, Bialystok (2001a) uses the term metalinguistic as a quantifier to denote a process which incorporates three contexts: knowledge, ability and awareness. This distinction is introduced in order to clarify metalinguistic performance and define it more precisely and analytically in terms of the varying levels of processing required to carry out different types of metalinguistic task. This is a potentially useful distinction which has not been adopted by other researchers who tend to use the term 'metalinguistic awareness' to cover any type of metalinguistic performance regardless of the cognitive processing demands involved. The three metalinguistic contexts will now be briefly explained.

Bialystok describes metalinguistic knowledge as "the explicit representation of abstract aspects of linguistic structure that become accessible through knowledge of a particular language" (2001a:124). She explains that possessing knowledge of the abstract principles of language is different from knowing the grammar of a particular language, since it involves having "knowledge of language in its most general sense" (2001a:124). So, for instance, a child who has linguistic knowledge of a language knows what word order is required to make different types of sentences, whereas a child with metalinguistic knowledge of language understands that changing the word order in a sentence can completely alter its meaning.

Bialystok states that metalinguistic ability "describes the capacity to use knowledge about language as opposed to the capacity to use language" (2001a:124). However, she underlines that while metalinguistic ability cannot be isolated from linguistic ability, it is nevertheless a different type of ability that can be observed quite separately from linguistic ability. As she explains:

> Intrinsic to definitions of metalinguistic ability, then, must be the means of relating it to linguistic ability, and explanations of the nature and development of metalinguistic ability must be reconcilable with the facts and theories of linguistic ability. (2001a:125)

For Bialystok, metalinguistic awareness requires conscious knowledge and thus it:

> Implies that attention is actively focused on the domain of knowledge that describes the explicit properties of language .... Metalinguistic awareness is a momentary phenomenon, something achieved at a point in real time because attention has been focused on certain mental representations. (2001a:127)

Bialystok's analysis and control theoretical framework integrates the three contexts of metalinguistic knowledge, ability and awareness into a model of mental processing. The processing demands of metalinguistic tasks vary depending on whether they require metalinguistic knowledge, ability or awareness. The highest processing demands which can be placed at one end of a continuum are necessary for tasks that call on metalinguistic awareness. In contrast the lowest processing demands which can be placed at the other end of the continuum are required for tasks involving metalinguistic knowledge. However, Bialystok is careful to stress that although the three contexts require different cognitive processing demands that can be placed on this continuum, there are no fixed cut-off points where one context can be said to end and the next to begin (Bialystok, 2001a).

We noted above that Bialystok introduced the knowledge, ability, awareness distinction to clarify the metalinguistic construct and define it with greater precision. However, we believe that it is difficult to use the labels to describe the demands made by different metalinguistic tasks for the very reason that these metalinguistic demands cannot be quantified precisely, as there seems to be a certain amount of overlap between the different contexts. For this reason, we have chosen not to employ this distinction but rather to use the term 'metalinguistic awareness' to cover the three contexts of use defined by Bialystok, as do most other researchers (e.g. Galambos and Hakuta, 1988; Ricciardelli, 1992a and 1993; Cromdal, 1999). We will adopt Genesee *et al.*'s working definition of metalinguistic awareness noted in Section 5.2 above, that is to say the "ability to reflect on and manipulate the elements of language independently of their communicative use" (2004:55) as this definition is sufficiently broad to cover the metalinguistic aspects that we will be investigating. However, when it comes to examining the construct of metalinguistic awareness more analytically, we will refer to Bialystok's analysis and control framework. This framework, which has enabled researchers to compare the metalinguistic achievements of matched monolingual and bilingual children on a range of metalinguistic tasks implicating different levels and aspects of metalinguistic awareness, will now be discussed.

5.3.3 Analysis of linguistic knowledge and control of linguistic processing

Bialystok's (Bialystok and Ryan, 1985; Bialystok, 1986a and 2001a) theoretical framework describes metalinguistic and linguistic performance in terms of two cognitive skill components – analysis of linguistic knowledge and control of linguistic processing – which are often referred to simply as analysis and control. Analysis is defined as "the ability to represent increasingly explicit and abstract structures" (Bialystok, 2001a:131). Put another way, analysis is "the process by which implicit mental representations are reorganized so that they contain explicit representations of structure" (Bialystok, 1992:654). Thus, this skill component is responsible for the structuring, reorganisation and explication of linguistic knowledge. In other words, while implicit grammatical knowledge is essential for normal speech, more explicit and analysed knowledge is required for metalinguistic tasks requiring analysis. Typical examples include the detection and explanation of errors in ungrammatical sentences or correction of ungrammatical sentences. Detailed examples will be given in Section 5.3.5 below.

Control has been defined by Bialystok as "the executive component responsible for directing attention to the selection and integration of information" (Bialystok, 1988a:561) and "the ability to selectively attend to specific aspects of a representation, particularly in misleading situations" (Bialystok, 2001a:131). Certain metalinguistic tasks with higher control demands may require subjects to focus attention on some aspect of language input, while ignoring or inhibiting meaning and salient distracting information, while others may require them to focus on meaning while ignoring deviant grammar. Thus, as Bialystok states, "the need for control is most apparent when a problem contains conflict or ambiguity" (2001a:131). This inhibition of attention to misleading information was also required to successfully complete certain non-verbal problem solving tasks which were examined in Section 4.4.3.3. Typical metalinguistic tasks requiring control of linguistic processing include problems of referential arbitrariness such as Piaget's sun-moon problem and making anomalous word substitutions, which will be addressed in Section 5.3.4.3.

Metalinguistic tasks are considered to differ in terms of the processing demands they place on analysis and control. So different tasks can be compared to one another on the basis of the cognitive demands made on these two skill components. A task in which subjects are simply required to detect grammatical violations in meaningful sentences requires less analysis than one in which subjects are asked to correct and explain

grammatical errors in meaningful sentences. In the latter case, the level of explicitness and analysis required for the solution is much higher. As regards metalinguistic tasks which require control, lower levels are necessary when subjects are, for example, asked to repeat ungrammatical sentences. On the other hand, in the sun-moon task (see Section 5.3.4.3) which requires the names of the sun and moon to be switched but the original physical characteristics of the referents to be maintained, high levels of control are necessary. Indeed, in response to the question "what can you see in the sky at night?", it is necessary to inhibit the more salient answer to the question, "the moon", and answer "the sun". In this case, the word has to be dissociated from its conventional meaning which involves a high level of conflict because ignoring meaning is extremely difficult, particularly for young children.

The same type of metalinguistic task can be manipulated to provide different levels of analysis and control. For example, a metalinguistic task that requires the detection of errors in ungrammatical meaningful sentences places greater demands on analysis, while one requiring the detection of errors in grammatical anomalous sentences has higher control demands. These examples will be discussed further in Section 5.3.5.4.

Bialystok explains that metalinguistic tasks can be placed on a continuum with tasks assessing analysis at one end and those evaluating control at the other. In terms of the three metalinguistic contexts discussed in Section 5.3.2 above, she holds that tasks assessing analysis are placed earlier on the continuum than those assessing control and thus:

> As the demands for analysis increase, language use begins to involve more metalinguistic knowledge; as the demands for control increase, language use begins to involve more metalinguistic ability and metalinguistic awareness. (2001a:134)

Bialystok (2001a and 2001b) has divided metalinguistic tasks into three subsections according to the linguistic aspect being assessed. These are word awareness, syntactic awareness and phonological awareness which will now be considered in turn. In each case we will examine a number of metalinguistic tasks and will highlight the processing demands of analysis and control.

5.3.4 Studies assessing word awareness

5.3.4.1 Introduction

Several studies have investigated how bilinguals and monolinguals differ in their processing of words and how they develop the concept of word. The first evidence that bilingualism may promote word awareness came from Leopold's (1939-49) famous diary study of his daughter which was referred to in Section 4.4.1. He observed that "the most striking effect of bilingualism was a noticeable looseness of the link between the phonetic word and its meaning" (1961:358). Like Leopold, other experts have attributed their children's early awareness of language to bilingualism. Slobin (1978) mentioned a number of examples of his daughter's advanced metalinguistic awareness between the ages of three and six, when she was in contact with another language while the family was living in Turkey. Similarly, Clyne believes that "children being brought up bilingually within the home ... have more opportunity than their monolingual counterparts to develop from an early age ... an awareness about language" (1987:85). His assertion is based on a number of comments made by his daughter Joanna, between the ages of three and five, on the structural and functional properties of language which he contrasts with less analytical comments made by monolingual children of the same age. In addition to these more anecdotal, yet in retrospect very pertinent, examples, numerous more recent experimental studies have investigated different aspects of word awareness. Two types of word awareness will be considered: word counts and referential arbitrariness.

5.3.4.2 Word counts

The concept of word can be tested by asking children to count the number of words in a meaningful sentence. Young children of under the age of six to seven find this extremely difficult as they need to focus on word boundaries. This requires them to suppress their natural desire to read the sentence and focus on meaning (Bialystok, 2001a). It is clearly much more difficult to count words in a meaningful sentence than counting a string of individual unrelated words (Bialystok, 1986a), because in the latter case the form-meaning conflict, which is highly distracting, is absent. Successful performance on a word count task on meaningful sentences requires both analysis and control. Analysis is necessary to understand the function of word boundaries and how they relate to other

units of speech, whereas control is needed to concentrate on counting the number of words in the sentence while avoiding the distraction of the meaning which is highly salient.

Several studies show that bilingual children are ahead of their monolingual peers on word count tasks in meaningful sentences (e.g. Bialystok, 1986b and 1987). In Bialystok's (1986b) study involving 62 children aged between four and six, analysis and control are manipulated in two test conditions. Both the monolingual and bilingual children were native English speakers but the bilingual children had been in a French immersion programme for two years. In the first test condition, the children were asked to count the number of words in meaningful sentences. In the second, they were asked to count the number of words in meaningless strings that contained the same words as in the first condition, but in this case, the word order had been scrambled. There was no difference in the performance of the monolingual and bilingual children on the part of the task involving the meaningless strings of words, showing that the two groups performed equally well on the part of the task requiring analysis. However, the bilingual children outperformed the monolinguals in the first test condition which required higher levels of control in order to separate form from meaning.

5.3.4.3 Referential arbitrariness

Several different metalinguistic tasks have been designed to assess referential or lexical arbitrariness. This has been defined by Bialystok (2001a:135) as "awareness of how words function to carry their meaning". This aspect of metalinguistic awareness shows "the extent to which children understand the conventional relationship by which words convey designated meanings" (Bialystok, 2001a:136).

Cummins (1978a) created a task based on an earlier one developed by Osherson and Markman (1975), to test whether children believed that the meaning of a word was stable even if its referent no longer existed. In this experiment, two groups of monolingual English and balanced bilingual English-Irish children – one with a mean age of 8;11 and the other with a mean age of 11;9 – were asked if the word 'giraffe' would exist if there were no more giraffes in the world. Demonstrating greater control, the bilingual children, particularly the older group, accepted more readily that the word could continue to exist.

Piaget's (1929) sun-moon test which was referred to above in Section 5.3.3 also evaluates children's understanding of the word-referent relationship. In this test, children are asked

first if it is possible to change the names of the sun and moon and, if so, what they would see in the sky at night. Then they are asked what the sky would look like. Answering the first two questions is relatively easy. However, the last one is much more demanding since it is necessary to dissociate the word 'sun' from its conventional meaning. Piaget argued that children under the age of 11 or 12 would not be able to solve this part of the sun-moon problem. The correct response is that the sky would be dark as only the names of the sun and moon have been interchanged, not their physical characteristics. Ignoring meaning is extremely difficult and, thus, requires high levels of control of attention. To deal with the conflict it is necessary to focus attention on form while inhibiting meaning, which remains very salient but is, nevertheless, irrelevant here.

Piaget's sun-moon test has been adapted and used by a number of researchers to compare control of attention in monolingual and bilingual children from a range of language backgrounds (e.g. Ianco-Worrall, 1972; Cummins, 1978a; Rosenblum and Pinker, 1983; Bialystok, 1988a; Edwards and Christophersen, 1988). Results suggest that bilingual children are able to solve the problem at a younger age than matched monolinguals, demonstrating that they have an earlier awareness of the arbitrary nature of the word-referent relationship than monolinguals. This awareness enables bilinguals to separate word sound from word meaning as Leopold (1961) had observed in his daughter. Bialystok's (1988a) findings also suggest that bilingual children, regardless of their level of bilingualism, will outperform matched monolinguals on tasks requiring high levels of control of processing. However, her findings show that there is no consistent difference between the performance of balanced and dominant bilinguals.

In a variation of the sun-moon test, Feldman and Shen (1971) taught five year old monolingual and bilingual children new names for everyday items. These new names were either the common names of other items (as in the sun-moon test) or made-up words. The two groups succeeded equally well in learning the new names but only the bilinguals managed to actually use the new or made-up names correctly in sentences. However, in a similar study conducted by Rosenblum and Pinker (1983), which asked four to five year old Hebrew-English balanced bilingual and English monolingual children to substitute made-up words for real words, there was no difference in performance. Thus, further studies would be needed to confirm whether or not bilingual children outperform matched monolinguals on this type of referential arbitrariness task in which the control of processing requirements are relatively low.

The symbol substitution task designed by Ben-Zeev (1977b) also assesses children's understanding of the arbitrary nature of the word-referent relationship and their awareness of the formal properties of words. In this task, which requires relatively high levels of control but low levels of analysis, English and Hebrew monolingual and English-Hebrew balanced bilingual participants aged between five and eight were asked to substitute a given word for a target word even if the grammatical or semantic rules were violated in the resulting sentences. For example, the children were asked to substitute the word 'I' with the word 'macaroni' in the sentence 'I am warm'. This results in the ungrammatical sentence, 'macaroni am warm'. This task is extremely hard since high levels of control of linguistic processing are required to inhibit the more spontaneous and automatic response of 'macaroni *is* warm'. It is necessary to concentrate solely on the task instructions while both overlooking the meaning of the sentence and the incorrect syntax. So as Ben-Zeev argues:

> The usual semantic reference function of the substituted word must be ignored so that it can be treated as a mere unit within a code system. (1977b:1012)

The balanced bilingual children significantly outperformed the monolingual children on the symbol substitution task demonstrating greater cognitive flexibility and a more advanced understanding of referential arbitrariness. Ben-Zeev concluded that the bilinguals had a more analytical approach to syntax than the monolinguals.

The symbol substitution task has been replicated in studies by Ricciardelli (1992a) with five to six year old English monolingual and Italian-English bilingual children and by Cromdal (1999) with five to six year old Swedish monolinguals and English-Swedish bilinguals. In both studies there were groups of dominant and balanced bilinguals and the results show that the balanced bilinguals obtained the highest scores, followed by the dominant bilinguals, and finally the monolinguals, although the results do not always achieve statistical significance. In a variation of the symbol substitution task conducted by Ricciardelli (1992a), the same participants had to correct the grammatical errors resulting from the symbol substitution to produce syntactically correct sentences. In this case, there were no differences between the results of the matched monolingual and bilingual children. The explanation for this is that analysis of linguistic knowledge was required to produce correct sentences, whereas the control demands were much reduced as there was no conflict to resolve.

5.3.4.4 Synthesis of findings on word awareness

Having reviewed a range of studies which assess different aspects of word awareness in monolingual and bilingual children, there is clearly a pattern when the results are viewed in relation to the cognitive processes involved in the tasks. In most of the studies discussed above, the bilingual children perform better than matched monolinguals on metalinguistic tasks requiring high levels of control. When degree of bilingualism is taken into consideration, certain studies indicate that balanced bilingual children outperform dominant bilinguals – but this is not always the case. Thus, bilingual performance is superior to monolingual performance on tasks where there is some type of conflict to be resolved or some misleading information to be ignored. In the case of studies assessing word counts and referential arbitrariness, form and meaning must be kept apart. This contrasts with normal, everyday language use where form and meaning are totally interconnected. Indeed, we do not concentrate on form in everyday language use, whereas it becomes the focus of attention in these metalinguistic tasks (Bialystok, 2001a). Research findings have demonstrated that there is no difference in performance between monolinguals and bilinguals when the high control requirements are removed from certain metalinguistic tasks (word counts and symbol substitution). This highlights that it is, indeed, control of attention which is more advanced in bilinguals.

Having considered metalinguistic tasks assessing word awareness, studies assessing another aspect of metalinguistic awareness, notably syntactic awareness, will now be addressed.

5.3.5 Studies assessing syntactic awareness

5.3.5.1 Introduction

Three types of metalinguistic task designed to assess syntactic awareness will be reviewed. First, we will look at tasks requiring analysis of linguistic knowledge in which children have to detect and correct errors. Then we will investigate tasks in which children have to detect ambiguity in sentences, in this case, higher demands are placed on control of linguistic processing. Finally, a grammaticality judgement task, in which the analysis and control requirements are manipulated, will be considered.

5.3.5.2 Detection and correction of errors

In the basic error detection and correction test, children aged five and above are presented with a number of meaningful sentences, each containing a grammatical error which must be corrected. This type of test has been given to monolingual children (e.g. Pratt *et al*., 1984; Tunmer *et al*., 1987 and Tunmer *et al*., 1988) and to groups of monolingual and bilingual children to compare their performance (e.g. Bialystok, 1988a; Galambos and Hakuta, 1988; Riccardelli *et al.*, 1989; Ricciardelli, 1992a). Typical errors involve word order violations, errors of verb tense, negation or subject-verb agreement. Analysis of linguistic knowledge is required to detect and correct these errors. The participants in Bialystok's (1988a) study were aged between six and seven and were bilingual in Italian and English to varying degrees. The children in Galambos and Hakuta's (1988) longitudinal study, aged from five to 13, were all dominant in Spanish and varied in their level of proficiency in English. In both studies, the balanced bilinguals outperformed the monolinguals and the dominant bilinguals. As Galambos and Hakuta note:

> Monolingual children have a difficult time noting and correcting errors of this kind before the age of 5;6 to 6;0, even though their speech is devoid of such errors, but ... bilingual children *who are proficient in both languages* can easily note such errors at the age of 4;6. Young monolingual children appear to focus on the message conveyed by constructions, whereas bilingual children readily focus on the form of constructions upon demand. (1988:146-147)

In an extension of this task designed by Galambos and Goldin Meadow (1990) Spanish and English monolinguals and Spanish-English bilinguals aged between 4;6 and 8;0 were required to identify, correct and explain grammatical errors. The Spanish-English bilinguals were subdivided into three groups based on their degree of bilingualism – balanced bilinguals, slightly unbalanced bilinguals and dominant bilinguals. The most demanding part of the task was the explanation of errors. Bilingual performance was superior in the identification and correction stages for children of all ages, again indicating that bilingualism accelerates syntactic awareness rather than changing its direction. However, there was no difference between the groups in the explanation stage of the task. This could be because children of this age, regardless of whether they are monolingual or bilingual, have not yet reached a stage in their cognitive development which allows them to provide an explanation of syntactic errors based on grammatical considerations (Pratt *et al*., 1984).

5.3.5.3 Detecting ambiguity

Bilingual children's syntactic awareness has also been assessed using a task which involves control of processing. Here, participants are required first to detect ambiguity in sentences then to paraphrase the different possible interpretations of them (Galambos and Hakuta, 1988). The task in Galambos and Hakuta's longitudinal study, discussed in Section 5.3.5.2, incorporated three types of ambiguity: homophonous (e.g. pears/pairs), polysemous (e.g bark/bark) and phonetically ambiguous (e.g. engineer/engine ear). Findings suggested that higher levels of control were required in the phonetically ambiguous sentences as "it would be necessary to encode the construction quite exhaustively in order to be able to restructure the information" (1988:158), while the lowest levels of control were required for the polysemous sentences as "automatized procedures would probably already have been developed to access familiar meanings of a word" (1988:158). The older balanced bilingual children in the group outperformed the other children on the phonetically ambiguous and polysemous sentences, but there were no differences between the younger children.

5.3.5.4 Grammaticality judgement

Bialystok (1986a) developed a grammaticality judgement task based on an earlier task designed by De Villiers and De Villiers (1972) in which analysis and control are manipulated. Participants were aged five, seven and nine. They were either monolingual English speakers, or bilinguals who were fluent in English, plus one of a number of different languages which they spoke in the home. In this task, the children were asked to judge the grammatical correctness of four types of sentence that were read to them, regardless of their meaningfulness. The sentence types were:

- grammatical and meaningful (referred to as GM), e.g. "Why is the dog barking so loudly?";
- ungrammatical and meaningful (gM), e.g. "Why the dog is barking so loudly?";
- grammatical and anomalous (Gm), e.g. "Why is the cat barking so loudly?"
- ungrammatical and anomalous (gm), e.g. "Why the cat is barking so loudly?"

Analysis and control are low in the GM sentences which are judged by applying the same implicit knowledge of language that is used in everyday conversation. As Bialystok points out, "failure on GM sentences would indicate either serious deficiencies in the child's

implicit knowledge or misunderstanding of the task" (1986a:502). High levels of analysis are required in the gM sentences in order to detect the grammatical error when the sentence is meaningful. The meaning is unproblematic here but low levels of control are required because of the incongruence of the sentences which are meaningful yet ungrammatical. The highest control demands are required in the Gm sentences as it is necessary to focus attention exclusively on the correct form of the sentences while suppressing the distracting and anomalous meanings. This type of sentence is difficult to process as attention which is usually focused on the meaning has to be inhibited. Young children are more likely to be troubled by the misleading semantic information even if the sentence is syntactically correct. The gm sentences, like the GM sentences are not difficult to judge as "the meaning value simply supports the grammaticality value" (Bialystok, 1986a:502). However, the gm sentences may require a little more analysis to detect the grammatical error. Thus, in this grammaticality judgement task, analysis and control can be manipulated so that they interact to different degrees in each of the four sentence types. This enables researchers to isolate the specific metalinguistic process they wish to investigate.

This study has been replicated several times (e.g. Bialystok, 1988a; Bialystok and Majumder, 1998; Cromdal, 1999) to compare the performances of groups of monolingual, dominant bilingual and balanced bilingual children. Results show that both types of bilingual perform better than monolinguals at correctly judging grammatical meaningless (Gm) sentences, i.e. those sentences requiring high levels of control of linguistic processing. Looking more closely at the question of the role of degree of bilingualism in the studies conducted by Bialystok (1988a) and Bialystok and Majumder (1998), there was no difference in performance between the balanced and partial bilinguals, whereas in Cromdal's study, the higher level bilinguals outperformed the dominant bilinguals. So once again bilinguals, regardless of their degree of bilingualism, are shown to have a metalinguistic advantage over matched monolinguals on the part of this task requiring the highest degree of cognitive control. However, there is not always an advantage for balanced bilinguals over dominant bilinguals. With regard to the sentences requiring high levels of analysis (gM), in all the studies mentioned above it is the balanced bilinguals – in other words those having attained high levels of competence in both languages – who show a consistent advantage over the dominant bilinguals and the monolinguals.

5.3.5.5 Synthesis of findings on syntactic awareness

The findings from the studies reviewed on syntactic awareness are similar to those on word awareness when control of attention is the cognitive processing component under investigation. Indeed, on tasks requiring higher degrees of control of attention, bilinguals generally outperform monolinguals although there is no consistent advantage for balanced bilinguals over dominant bilinguals. However, the results of certain studies which point to a bilingual advantage on control also imply that bilingualism does not fundamentally change the direction of cognitive development, rather it accelerates the process. In studies assessing analysis of linguistic knowledge, the findings on syntactic awareness indicate that while bilinguals sometimes outperform monolinguals, it is particularly the balanced bilingual children who may be at an advantage over the matched dominant bilinguals and the monolinguals.

5.3.6 Studies assessing phonological awareness

5.3.6.1 Introduction

Bialystok (2004) underlines how important phonological awareness is for the acquisition of reading in an alphabetic script. Indeed, numerous studies have been conducted to examine this relationship both in monolingual children (e.g. Adams, 1990; Caravolas and Bruck, 1993) and bilingual children (e.g. Nesdale *et al*., 1984; Rubin and Turner, 1989; Campbell and Sais, 1995). Research findings highlight a significant positive correlation between children's metalinguistic skills, particularly in phonology, and their acquisition of literacy. This relationship can be explained by the fact that competent readers and writers are conscious of the structural properties of language and of how language operates as a communication system. Bialystok and Herman affirm that:

> There is little dispute now that preschool children who will learn to read an alphabetic script must approach the task with some awareness of sublexical sound segments, such as rhyme, and continue to develop more elaborate phonological concepts, such as phoneme, as a consequence of learning how to decode the print. (1999:40)

Several different tasks have been designed to assess aspects of phonological awareness. We will review Form-Meaning Judgements, and phoneme substitution and sound segmentation.

5.3.6.2 Form-Meaning Judgements

Ianco-Worrall (1972) developed a metalinguistic task to test Leopold's observation which was mentioned in Section 4.4.1, that bilinguals have an earlier awareness than matched monolinguals of the arbitrary nature of the word sound-word meaning relationship. The English-Afrikaans balanced bilingual children and monolingual English and Afrikaans children aged between four and nine carried out the sound-meaning task. They were asked eight questions which resembled the following:

I have three words, CAP, CAN and HAT. Which is more like CAP, CAN or HAT?

Although Bialystok (2001a) argues that this particular task does not require high levels of phonological awareness, it is nevertheless considered more advanced from a developmental point of view to show preference for semantic over phonetic similarity. While the younger monolingual children were more likely to select the word which was closer phonologically, the younger bilingual children chose the word which was closer in meaning. However, in the older group of children, the choices of the monolinguals and bilinguals tended to be based on semantic preference. Ianco-Worrall concluded that bilingual children reached a stage in their semantic development which was two or three years ahead of matched monolinguals. A comparable study by Cummins (1978b) found similar results.

5.3.6.3 Phoneme substitution and sound segmentation

More recent studies by Bialystok (1986b), Ricciardelli (1993) and Bialystok, Majumder and Martin (2003) have been designed to increase the demands of control of attention. In the phoneme substitution task, children are given a target word and asked to select from two others the one which either sounds or means the same as the target word, for example:

What word sounds something like cat? Hat or kitten?

What word means something like mat? Rug or cat?

In this task, half the questions require a focus on form and half a focus on meaning. In each case, the distracting word has been carefully chosen so as to be an appropriate response to the alternate question. This task demands relatively high control since children must constantly switch their attention between form and meaning depending on the instructions of each particular question. Children with higher levels of control of attention should find it easier to switch their attention between the different requirements

and successfully complete the task. On the other hand, children with lower levels find it more difficult to shift their attention constantly and are thus more likely to answer all the questions according to the same criterion regardless of the instructions (Bialystok, 1986b). As Ricciardelli's (1993) study assessed only monolinguals, the results do not concern us here. In Bialystok's (1986b) study, the six year old children who had been in a French immersion school for two years and who were native English speakers outperformed the English-speaking monolinguals although the results did not achieve statistical significance.

Bialystok *el al*. (2003) report on a number of studies they conducted on groups of monolingual and bilingual children. In one of the studies, French-English balanced bilingual children and matched monolinguals aged between five and seven did a phoneme substitution task in which they were asked to remove the first sound from a target word such as 'cat', and replace it with the first sound from another word such as 'mop', resulting in the word 'mat'. There was no difference in the performance of the monolingual and bilingual children. In another of their studies, five to seven year old English monolinguals and Spanish-English and Chinese-English bilinguals did the sound-meaning task, the phoneme substitution task and a segmentation task in which they had to work out the number of phonemes in common words. Bialystok (2004) holds that the segmentation task is the most reliable evaluation of phonological awareness, as it requires participants to focus explicitly on the sound structure of words but does not involve other cognitive processes which may falsify the results. There was no bilingual advantage on any of the tasks in this study with the exception of the Spanish-English bilinguals who performed better on the segmentation task.

5.3.6.4 Synthesis of findings on phonological awareness

Summing up a number of studies which investigate phonological awareness in monolingual and bilingual children, Bialystok (2001a) suggests that bilingualism may facilitate early understanding of the sound structure of oral language, on condition that the children's two languages are written alphabetically. However, the arrival of literacy seems to neutralise this advantage. She therefore concludes that:

> Against these massive effects of instruction and writing system, bilingualism on its own carries little influence in promoting children's awareness of the phonological structure of language. (2004:589)

The findings of several other studies which investigate phonological awareness concur with Bialystok's. Yelland *et al*. (1993), Bruck and Genesee (1995) and Campbell and Sais (1995) investigated the development of different aspects of phonological awareness. They found that bilinguals in kindergarten outperformed matched monolinguals but that this bilingual advantage had disappeared by the age of six when they were in first grade. Nevertheless, these results should be taken cautiously for methodological reasons, according to Bialystok and Herman (1999), as the sample sizes were small and language and cognitive differences were not always adequately controlled for.

5.3.7 Synthesis and discussion of findings on studies assessing metalinguistic awareness

5.3.7.1 Nature of the bilingual advantage

Having reviewed a range of studies assessing word, syntactic and phonological awareness, we will consider the nature of the bilingual cognitive processing advantage with regard, first, to analysis of linguistic knowledge, then to control of linguistic processing.

For metalinguistic tasks requiring analysis of linguistic knowledge, a certain number of studies, notably those investigating syntactic awareness, point to a particular advantage for balanced bilinguals over dominant bilinguals and monolinguals, although this advantage may disappear with age. In contrast, balanced bilinguals or, indeed, bilinguals generally do not appear to solve other tasks assessing analysis of linguistic knowledge more successfully than monolinguals. In most of the studies discussed above, it has been shown that success on tasks which demand higher levels of analysis is closely related to higher literacy levels rather than to bilingualism. Nevertheless, certain research findings point to an advantage on tasks assessing analysis for bilinguals who are also literate in both languages. Bialystok holds that acquiring literacy in a second language obliges learners to structure their mental representations of this language so that they become more explicit and analysed. Thus, she claims that biliteracy results in "a more powerful and more analytic conception of language in general" (1991:130).

Many of the research findings discussed above show that bilinguals outperform monolinguals on tasks which demand high levels of control of attention. While certain studies indicate that the advantage is even greater for balanced bilinguals, others show

that bilingual children, regardless of their degree of bilingualism, outperform matched monolinguals. Bialystok's analysis and control framework predicts that bilingual children, regardless of their level of bilingualism, will have a metalinguistic advantage over matched monolinguals on tasks requiring relatively high degrees of control of processing. This is validated by the majority of the studies discussed above which demonstrate bilingual superiority when selective attention is required to resolve a conflict between form and meaning or to inhibit misleading but highly salient information.

It seems likely then that the systematic separation of form and meaning brought about by early bilingualism promotes children's control of attention and enhances their cognitive flexibility, as Vygotsky (1962) and Leopold (1961) had suggested (see Section 4.4.1). Numerous researchers have picked up on this point. For instance, in her early study on metalinguistic awareness, Ben-Zeev argued that "having experienced more than one language code system, the bilingual should be freer to abandon the rules of a particular language system for a different set of rules when this is necessary" (1977b: 1012-3). More recently, Hakuta and Diaz proposed that "because bilingualism induces an early separation of word and referent, it is possible that bilingual children also develop an early capacity to focus on and analyze the structural properties of language" (1985:325-6). In a similar vein Sharwood Smith reflects that "in the process of acquiring and using different languages, they [*bilingual children*] may have much more occasion to reflect consciously upon the ways languages differ in all kinds of ways" (1991:21). Similarly, Bialystok posits that "it is plausible that having two different language systems for examination may make structural patterns more noticeable and hasten the child's attention to the systematic features of language" (2001a:134).

In Section 4.4.3.3, we presented a number of non-verbal problem solving tasks requiring inhibitory control on which bilinguals outperform their monolingual peers. In the present chapter, we have discussed the types of metalinguistic task which favour bilinguals. In both cases, bilingual performance, often regardless of degree of bilingualism, is superior when high levels of selective attention are required to suppress distracting information to successfully complete a range of tasks. In terms of information processing, control of attention corresponds to the executive processes, as we saw in Section 4.4.3.3. These processes are activated in a range of problem-solving tasks which is a real advantage for bilinguals. Experts believe that bilinguals benefit from this specific cognitive processing advantage as they have to control attention continuously between their two language systems which are both active, even when the bilinguals are operating in a monolingual

mode (Grosjean, 2008). Perhaps this increases their ability to put switching mechanisms in place in other domains to block out misleading and distracting information, as numerous studies discussed in Chapters 4 and 5 seem to suggest (Bialystok and Martin-Rhee, 2008). Peal and Lambert had hinted at this in the conclusion of their famous Canadian study but Bialystok's analysis and control framework offers a convincing explanation as to how bilingualism impacts on certain aspects of cognitive processing ability under certain specific circumstances. However, Bialystok is careful to underline that she is not claiming superior intelligence for balanced bilinguals, simply that the bilingual experience enhances certain domains of cognitive processing:

> The advantages found for bilinguals are constrained and limited – there is no sense in which it could be simply, or simplistically, concluded that bilingual children are more intelligent or more adept at problem-solving than monolinguals. (Bialystok, 2001a:210)

In the following section, we will consider further how the level of proficiency attained in the bilingual's two languages may impact on the skills of analysis of linguistic knowledge and control of linguistic processing.

5.3.7.2 Importance of the degree of bilingualism

Certain seemingly contradictory findings reported in studies investigating the relationship between bilingualism and metalinguistic awareness can sometimes be explained by methodological weaknesses. Indeed, many studies have been criticised for not giving details of children's level of proficiency in each language and, subsequently, of their degree of bilingualism (e.g. see Bialystok, 2001a). Clear indications should be provided by investigators of the testing instruments employed to evaluate participants' level of proficiency in their two languages and of the scores they obtain. Without this information, it is not possible to judge if the participants are balanced, dominant or even receptive bilinguals. As Bialystok states quite categorically:

> Both absolute levels of language proficiency and the relative balance between languages are crucial factors in determining outcomes for bilingual children. (2004:596)

As we have seen in the studies presented in this chapter, degree of bilingualism can impact on the analysis and control cognitive processing skills. Clearly, employing standardised testing instruments to control for proficiency in both languages will provide results which are more valid and reliable (e.g. in Bialystok, 1988a). Having standardised testing instruments which exist in different language versions is a real asset in the field of child bilingualism as researchers can compare children's performance in their two

languages. Children can then be put into groups depending on their level of bilingualism, and their performance on a range of metalinguistic tasks can then be compared. An example of a standardised testing instrument which exists in several language versions is the Peabody Picture Vocabulary Test (Dunn and Dunn, 1981; Dunn *et al*., 1986; Dunn *et al*., 1987; Dunn *et al*., 1993). This test which is often used to assess proficiency in studies on bilingual children will be presented in more detail in Section 6.6.2.2.

We saw above that bilingual performance is generally superior to monolingual performance in metalinguistic tasks assessing control of linguistic processing. However, the bilingual advantage on tasks which evaluate this aspect of cognitive performance is even more striking if we consider only those studies in which degree of bilingualism has been taken into consideration. There is a clear advantage for balanced bilinguals in studies by Ianco-Worrall (1972), Ben-Zeev (1977b), Cummins (1978a), Bialystok (1988a), Ricciardelli (1992a) and Cromdal (1999) for example[10]. Furthermore, if we take an overview of those studies which have carefully controlled for degree of bilingualism, balanced bilinguals may also be at an advantage for certain tasks assessing analysis. For example, in Galambos and Hakuta (1988) and Galambos and Goldin-Meadow (1990), the young balanced bilingual participants outperformed the matched monolinguals on a range of items in a metalinguistic task requiring error identification and correction in English and Spanish. Similar results are reported by Bialystok (1988a) and Cromdal (1999) who found that balanced bilinguals performed better than matched monolinguals on a grammaticality judgement task. The findings reported here are consistent with Cummins' threshold hypothesis (1976) discussed in Section 4.2.2 which predicts a cognitive advantage for bilinguals who have attained high levels of proficiency in their two languages. On the other hand, Cromdal found that the dominant bilingual children who were highly proficient in English but not yet very proficient in Swedish outperformed the monolingual Swedish participants. This result is not predicted by the threshold hypothesis which would expect no difference in performance between dominant bilinguals and monolinguals.

[10] Exceptions to this are the findings reported in Hakuta and Diaz (1985) and Hakuta (1987) in which children who were in the earlier stages of the second language acquisition process outperformed the balanced bilinguals. However, these findings have not been replicated elsewhere.

5.4 CONCLUSION

The aim of this chapter has been to investigate the relationship between bilingualism and metalinguistic awareness. Having examined our understanding of the term *metalinguistic awareness*, we then turned our attention to Bialystok's analysis and control framework. We chose to place our investigation within this theoretical framework as we believe that it provides researchers with plausible empirically based arguments and explanations for interpreting research findings in the field of bilingualism and cognitive functioning. A range of studies assessing word, syntactic and phonological awareness were addressed and, in each case, we investigated how the different processing demands of analysis and control functioned. We also compared the performances of monolinguals, dominant bilinguals and balanced bilinguals to assess to what extent degree of bilingualism may impact on analysis of linguistic knowledge and control of linguistic processing.

Research findings pointed to a processing advantage for bilinguals regardless of their level of bilingualism over monolinguals in metalinguistic tasks requiring high levels of control of attention. Indeed, it was shown that bilinguals are more successful at tasks in which they are required to resolve a conflict between form and meaning or suppress misleading but highly salient information. This replicates the findings of the studies on non-verbal problem solving discussed in Section 4.4.3.3 in which participants have to inhibit misleading information in order to carry out the task instructions successfully. Moreover, in studies which carefully controlled for degree of bilingualism, certain research findings indicated a cognitive processing advantage for balanced bilinguals over dominant bilinguals in metalinguistic tasks assessing control of linguistic processing. While the research findings on analysis of linguistic knowledge were less conclusive, they nevertheless pointed to an early advantage for balanced bilinguals over dominant bilinguals and monolinguals in metalinguistic tasks investigating syntactic awareness. However, there was no consistent advantage for balanced or dominant bilinguals over monolinguals on other types of metalinguistic tasks requiring analysis of linguistic knowledge.

We emphasised how important it is for researchers to give clear indications of the level of proficiency attained in each language by the children they are investigating. Indeed, once this information is provided, it is possible to compare the performance of dominant bilinguals, balanced bilinguals and monolinguals on a range of metalinguistic tasks which

require differing levels of analysis and control. Only then can we begin to understand how degree of bilingualism impacts on these two cognitive skill components.

Understanding the role played by degree of bilingualism is particularly important for our empirical study which compares how the metalinguistic processing components of analysis of linguistic knowledge and control of linguistic processing differ in balanced bilingual and dominant bilingual children. We do this in Chapter 10 when we assess the two processing components through a set of metalinguistic tasks given to the children both in English and French, and we address several research questions which explore the relationship between bilingual proficiency and metalinguistic awareness. We begin by investigating if there is a significant difference in the mean scores of the balanced and dominant bilinguals on the set of metalinguistic tasks given in both languages (research question 5). Then we examine if there is a significant difference in the mean scores of the balanced and dominant bilinguals when only their best score on each metalinguistic task is taken into consideration (research question 6), i.e. either the score on the English version or the score on the French version. We also investigate the extent to which bilinguals perform the metalinguistic tasks better in their stronger language (research question 7). Finally, having examined the strength of the relationship between the performance measures for each language as attested by the Peabody vocabulary test scores in English and French and the scores on the metalinguistic tasks for each language (research question 8), we then investigate if there is a significant difference in the mean scores on the metalinguistic tasks of children who score above and below the median on the Peabody vocabulary tests (research question 9).

In Part III of this thesis, we focus on our study, beginning in the following chapter with the methodology and procedure.

PART III: THE STUDY

CHAPTER 6 – METHODOLOGY AND PROCEDURE

6.1 INTRODUCTION

In this chapter we will describe how the data for this study which was conducted at the International School (IS) in France were collected and processed. A detailed profile of the school can be found in Section 2.4. We will begin in Section 6.2 by explaining the different steps taken by the researcher to obtain authorisation from the primary school inspector of the local education authority and from the IS headmaster to carry out her research. Then we will explain how she contacted the parents of the children she wished to work with and how she obtained their informed consent by giving them certain assurances with regard to the type of activities she would ask the children to do and to issues relating to the children's anonymity.

In Section 6.3 the ethical issues relating to this research will be considered and we will describe how the researcher obtained approval for her study from the Salford University Research Governance and Ethics Committee which lays out rigorous guidelines for research on human participants, particularly when research involves children.

A brief profile of the 38 English-French bilingual who participated in the study will be given in Section 6.4 where we explain how the children were sub-divided into four different groups depending on their family profiles and in particular the dominant languages of their parents. Brief information is also provided on the parents' educational qualifications. More comprehensive information on the children and their families can be found in Chapter 7.

In Section 6.5 we discuss how the data were collected from each of the 38 children in five testing sessions which all took place at the IS. We explain, first, why it was decided to include for the main study the data from the pilot study which took place in the first year of data collection. Then we discuss how the testing sessions were organised and why it was decided to complete all the testing sessions conducted in English before moving on to those conducted in French. We highlight the difficulties for the participants of having a single researcher who has to communicate with them in two different languages, depending on which language is being tested.

We turn our attention in Section 6.6 to the various data collection tools used, beginning in Section 6.6.1 with the questionnaires. Having first discussed the main advantages and drawbacks of using questionnaires to gather large quantities of information for this type of research, we then consider the two questionnaires in turn, first the questionnaire that the parents of the children in the study were asked to complete, and then the questionnaire that was given orally by the researcher to each of the children during one of their testing sessions in school. In each case, we explain the overall objectives of the questionnaires as well as the specific objectives of individual questions. Throughout the section, we highlight how the information provided relates to the different linguistic and sociolinguistic factors addressed in Chapter 3 that are believed to have a significant influence on the acquisition, development and maintenance of bilingualism.

The tools chosen to evaluate the children's language proficiency in English and French are presented in Section 6.6.2. We open this section by discussing the practical and theoretical problems of measuring bilingual proficiency. Afterwards we present the two testing tools which are a standardised test of English and French receptive vocabulary and a criterion-referenced rating scale completed independently by the children's English and French teachers and the researcher. We also explain the procedure adopted for each evaluation instrument, discuss our reasons for choosing these two measures and argue why we believe they will complement one another.

Section 6.6.3 investigates the seven metalinguistic tasks which were designed to assess, to differing degrees, the cognitive processing demands of analysis of linguistic knowledge and control of linguistic processing as outlined by Bialystok and Ryan (1985) and Bialystok (1986a, 2001a and 2001b). We begin by explaining why we chose to give the tasks to all the participants in French and English, with the exception of those children who had been acquiring French for only a short period of time. Before looking at each of the tasks individually, we explain the general testing procedure adopted for all the tasks. Then, we examine the seven tasks in turn, giving an example for each one of a typical task item in order to illustrate the cognitive processing demands required to complete each one successfully. Finally, we try to predict the order of difficulty of the seven tasks based on the differing cognitive demands they make on the children.

In the final part of this chapter, Section 6.7, we present the three data analysis techniques used in the study and we explain why each one was chosen in relation to the types of variables under investigation. An example of one of our research questions is provided to illustrate the choice of each data analysis technique.

6.2 PROCEDURE FOR SETTING UP THE STUDY

At the outset of the study, the researcher arranged an appointment with the headmaster of the IS (whom she knew since her own children attended the school) to inform him of her wish to conduct research in the school. During their meeting, she explained the principal aims of the research project to him. He gave her a tacit agreement on condition that permission was granted by the primary school inspector of the local education authority and that no audio or video recordings were made during the research sessions. A letter was sent to the inspector explaining in detail the objectives of the proposed study and the methodology which would be employed. A copy of this letter can be found in Appendix I. It also stated that written parental consent would be sought and that the anonymity of the participants would be respected at all times. Having obtained the inspector's written authorisation, the parents of all the children in CE1, which corresponds to the second year of primary school (see Table 2.1 in Section 2.3.1) of the Anglophone section, were approached through an introductory letter from the researcher asking for written authorisation for their child to participate in the study. The procedure described henceforth was followed over the two years that the study was conducted at the IS. The introductory letter which can be found in Appendix I was sent home via their child's school correspondence book. In it, the researcher introduced herself, explained her interest in child bilingualism and informed parents that her own children attended the IS. Having given a brief background to research on the subject she wished to investigate, she presented her research project and explained the objectives and methodology of the study. Parents were assured that approval had been obtained both from the local education authority and the school headmaster, subject to parents' consent and on condition that the children's anonymity was respected at all times. The letter also stated that the children would not be taken out of class for the research sessions since these would take place during the lunch hour. The introductory letter to parents also included a letter from the researcher's PhD supervisor attesting that the researcher wished to conduct the study for her PhD, and a copy of two typical metalinguistic tasks to give parents an idea of the type of activities their children would be doing and to show them that the tasks were intended to be enjoyable and entertaining. Parents were requested to complete an enclosed slip giving informed consent for their child to participate in the study and stating that their child could withdraw from the research project at any time if he/she no longer wished to

participate. This document was returned to the researcher in a stamped self-addressed envelope.

In the first year of the study, 15 families were approached for the pilot study and each one gave permission for their child to participate. In the second year, of the 25 families who were approached, 24 authorised their child's participation while one did not reply. The data for one child who completed all the research sessions were not used in the study as she was found to be trilingual. This left a total sample of 38 children each of whom completed all the tasks in the study.

Once parents' written authorisation had been obtained, each family was sent a questionnaire to complete. This will be discussed further in Section 6.6.1.2. They were also given their child's research code which was the only form of identification on all the documents used by the researcher throughout the study in order to preserve the children's anonymity. The researcher remained in regular contact with the parents via email throughout the duration of the study. Parents' written consent was requested and given several weeks into the study for the researcher to ask the children's French and English teachers to complete the Student Oral Language Observation Matrix evaluation grids. A copy of the email can be found in Appendix I.

6.3 ETHICAL CONSIDERATIONS

University requirements stated that ethical approval should be obtained from the Salford University Research Governance and Ethics Committee when research included human subjects. The Committee laid out strict guidelines, particularly for research involving children. The researcher therefore submitted an ethical approval form to the committee in which she provided detailed information on the following issues:

- her research project objectives and strategy;
- how she had gained approval for her project from the local education authority and the school;
- how she approached the individuals who were involved in her research, including how she planned to deal with issues of confidentiality and anonymity;
- how she would ensure that she had gained informed consent from the participants of the study;
- the data protection issues she needed to address.

She also had to provide a summary of any testing tools used with participants as well as providing photocopies of all the letters and documents dealing with consent issues which she had sent to the local education authority and the children's parents.
The PhD research project was approved by the Salford University Research Governance and Ethics Committee on the basis of the information provided above.

6.4 PARTICIPANTS

The participants in the study were 38 French-English bilingual children, 23 girls and 15 boys, who were aged from 6;10 to 8;3 with a mean age of 7;4 (SD 4 months). They were all in their second year of primary school at the IS which was profiled in Section 2.4. The linguistic profiles of the children were typical of children at the IS as we discussed in Section 2.4.2, ranging from highly proficient balanced bilinguals to children who were clearly dominant in one language. Full details of the children's proficiency in French and English will be given in Sections 8.2 and 8.3. The parents' questionnaire which will be presented in detail in Section 6.6.1.2 showed that all the children came from middle to high SES homes as measured by their parents' years in education, with over 95% having at least a bachelor's degree. Numerous parents also had masters, doctoral or engineering qualifications. All the fathers were in permanent employment except one who was retired. These 37 fathers all had academic or professional occupations. Of the 38 mothers in the study, 16 had academic or professional occupations, while 19 were not working at the time of the study. Further details of the parents' education and employment are given in Section 7.3.1. All the children came from families where both parents were involved in their upbringing on a daily basis.
The general linguistic backgrounds of the families of the children in the study as shown by the parents' questionnaire were typical of those families in the Anglophone section of the IS as discussed in Section 2.4.2. These families can be divided into four main types. The first, which is the largest in the sample, is composed of 19 families with one Francophone and Anglophone parent. In this group, referred to as FE families, there were ten girls and nine boys. The second group of 11 families, which will be referred to as FF families, is composed of two Francophone parents who, having lived in an English-speaking environment with their children for between three and five years, have been back in France for between four and 30 months. Here there were nine girls and two boys. Four families constitute the third group, referred to here as EEa families, with two

Anglophone parents who have been in France with their children for more than three years. In this group there were three girls and one boy. The last group of four families, which we refer to as EEb families, is composed of two Anglophone parents who have been in France with their children for under 18 months. Here there were three boys and one girl. More detailed information will be provided in Chapter 7 about the different family profiles.

We will now turn our attention to the procedure employed for data collection in this study.

6.5 DATA COLLECTION PROCEDURE

Data were collected over a two year period at the IS between November and April each year. We planned the first year of data collection of the 15 children as a pilot study. However, given that only very minor changes were made to the data collection tools between the first and the second year, it was decided to use all the data gathered in the first year along with the data collected during the second. Indeed, the only modifications made to the data collection tools concerned a very small number of alterations of wording in the parents' questionnaire. No changes were made, however, to the children's questionnaire, the language proficiency measures or the metalinguistic tasks.

In each of the two years when data were collected at the IS, the children were required to attend a total of five testing sessions which were conducted by the researcher who is a native English speaker and a highly proficient speaker of French. The language of testing was English for the English testing sessions and French for the French testing sessions. Children were tested individually in the school during the lunch hour in a fairly quiet, well-lit classroom which was familiar to them as it was their English classroom. Each child had one testing session per week which lasted between 20 and 25 minutes. There was an interval of seven days between adjacent sessions in the same language. The children completed the three English testing sessions before beginning the French ones. It was decided to begin the testing for all the children in English as the researcher was initially introduced to the children by one of their English teachers. We therefore considered that it would be inappropriate to start some of the testing sessions in French. Since the same metalinguistic tasks were given to the children in English and French, we felt that it was necessary to have a break of several weeks between the English and French testing sessions so that the children's performance on the English tasks did not

interfere with their performance on the equivalent French ones. Therefore, we ensured that there were at least four weeks separating the different language sessions. Each testing session began with an informal chat with each child lasting around five minutes in order to create a friendly, relaxed and unthreatening atmosphere. The warm-up period was longer for the first French testing session so that the children could get used to communicating with the researcher in French, as up to that point, communication had been entirely in English.

A few of the children seemed to find the transition from English to French unnatural and, in the first French session, commented that they found it strange talking to the researcher in French. Indeed, while all the children in the study (with the exception of the EEb children who did not do the French tasks) were quite able to carry out the French metalinguistic tasks in French, a number continued to use English to communicate with the researcher for any asides during the tasks, or for exchanges outside the tasks themselves. We believe that there are two possible explanations for this. First, since the relationship with the researcher had been established in English initially, certain children may have found it quite challenging to break the person-language bond and, thus, found it artificial to have to change the language of communication quite suddenly. Secondly, since the researcher was clearly a native English speaker, although she was highly competent in French, she nevertheless retained traces of a foreign accent when speaking French. For this reason, certain children may subconsciously have made the choice to address the researcher in what they considered to be her stronger language.

The vocabulary tests, metalinguistic tasks and the questionnaire were administered in a fixed order for all 38 children over the five sessions as is shown in Table 6.1 below. The metalinguistic tasks were given in the same order in both the English and French versions.

Table 6.1 Contents of testing sessions

Session 1	British Picture Vocabulary Scale Word Order Repetition (control) – English Word Order Correction (analysis) – English Symbol Substitution (control) – English
Session 2	Grammar Judgements (analysis and control) – English Word Renaming (control) – English Form-Meaning Judgements (analysis and control) – English Symbol Substitution (analysis) – English
Session 3	Children's questionnaire
Session 4	Echelle de vocabulaire en images Peabody Word Order Repetition (control) – French Word Order Correction (analysis) – French Symbol Substitution (control) – French
Session 5	Grammar Judgements (analysis and control) – French Word Renaming (control) – French Form-Meaning Judgements (analysis and control) – French Symbol Substitution (analysis) – French

Full details for each of these testing tools will be provided in the following sections.

6.6 DATA COLLECTION TOOLS

A number of different tools were used to collect the data for this study. We will begin in Section 6.6.1 by considering the two questionnaires which were employed in this study. The first was given to the children's parents to complete, while the second was given orally by the researcher to each child during one of the testing sessions. In Section 6.6.2 the two language proficiency measures will be presented. The first was the Peabody test of receptive vocabulary which was given to the children by the researcher in the British English version (Dunn *et al*., 1987) and the French version (Dunn *et al*., 1993) in different testing sessions. The other proficiency measure employed in the study was the Student Oral Language Observation Matrix (SOLOM), a rating scale which was completed for each of the children's languages by their French and English teachers and, independently, by the researcher for each language. Finally, the seven metalinguistic tasks which were given to the children in English and French will be presented in Section 6.6.3.

6.6.1 Questionnaires

6.6.1.1 Introduction

Questionnaires are widely used in sociolinguistic research for a number of reasons. They are easy to distribute and collect and they allow researchers to gather large quantities of information on large groups of people in a relatively short period of time, avoiding long individual interviews. Questionnaires are often used to obtain detailed information on language background and use (e.g. Adler, 1991; Siren, 1995). Gathercole (2005b) points out that questionnaires on language use may be more reliable than individual interviews since when interviewed in person, respondents are more likely to give the answers they believe the researcher is expecting or wishing to hear rather than those which reflect their true language use. From the point of view of data analysis, since many of the questions in questionnaires are closed, the answers across respondents are easier to compare and analyse statistically than answers to open discussion questions (Romaine, 1995). One major disadvantage of questionnaires pointed out by Dorian (1981) is that the researcher is not present to clarify elements in the questionnaire which may not be fully understood by respondents.

Sections of the questionnaires used in this study were adapted from questionnaires appearing in Baker (2001), Lindholm-Leary (2001) and Barron-Hauwaert (2004). The parents' questionnaire was completed by hand by the parents in their own time, while the children's questionnaire was given orally to each child individually in the form of an interview during the third research session. The researcher noted down the children's answers as they went along. The children could have completed the questionnaire at home with the help of their parents. However, since parts of both questionnaires addressed questions related to the child's everyday language contact, use, behaviour and strategies, we considered that the parents might subconsciously influence their child's responses in a particular direction. Indeed, one of the reasons for including questions on the same subjects in the two questionnaires was to compare the different answers in order to try to obtain a more accurate and reliable record of usage. Notwithstanding, we consider that parents are likely to be fairly reliable informants of their children's language histories and current usage since they observe their children on a day to day basis in a range of linguistic contexts over a long period of time.

We will now consider each of the questionnaires in detail.

6.6.1.2 Questionnaire to parents

The parents' questionnaire was written in English since all the families participating in the study had either at least one native Anglophone parent, or in the case of FF families, had lived in an Anglophone country for at least three years. As the questions were simply worded, we considered that there should be no problems of understanding. Parents were advised that if they wished to comment on the questionnaire or add further information which they felt was relevant to their child, they could do so in English or French.

The aim of the parents' questionnaire was to probe issues relating to the child's family background, language contact and use, language interaction patterns inside and outside the home, interest in books and reading, and language use from birth to the time of testing. There were also questions enquiring about parents' educational and language backgrounds, their language attitudes and their involvement in their child's education. Thus, through this questionnaire we wished to collect detailed information on the various linguistic and sociolinguistic factors addressed in Chapter 3 that are thought to impact on the acquisition, development and maintenance of bilingualism. A copy of the parents' questionnaire can be found in Appendix II.

The questions were grouped together into five main categories which were:

Part 1 – Family background

Part 2 – Your family and this school

Part 3 – Child's language contact

Part 4 – Child's language use from birth to present

Part 5 – Attitudes to bilingualism

Details of each part will now be provided with particular consideration being given to elements in the questionnaire which are related to those factors identified in Chapter 3 as likely to influence bilingual language acquisition, development and maintenance.

Part 1 contained items which enquired about parents' occupations, the duration of their current residence in France and an estimation of how long they intended to stay, the ages of their other children if appropriate, their highest level of education, information on their language background and a self-rating of their proficiency in any languages they knew in terms of oral and written production and comprehension, their own socio-cultural allegiance and their assessment of their child's.

The highest level of education (Part 1, Question 7) attained by parents was used as an index of SES. We saw in Section 3.3.3.6 that SES has been found to be a fairly reliable

predictor of academic success. Indeed, certain research findings suggest that children from higher SES families may be exposed to more enriched language and cultural environments than children from low SES families and this may in turn enhance cognitive development. However, we are aware that SES does not give the complete picture of a child's home and educational environment. Notwithstanding, several studies reported in Ricciardelli (1989) have found strong correlations between SES and specific metalinguistic tasks (Bereiter and Englemann, 1966; Wallach *et al.*, 1977; Warren-Leubecker and Carter, 1988). Following Oller and Eilers (2002a), it was decided that high SES families were those with a mean of at least 15 years of education, corresponding to the average number of years of study required to attain a bachelor's degree. An additional indicator of SES was provided by parents' occupations (Part 1, Questions 2 and 3).

Parents were asked to rate their abilities in all the languages they knew (Part 1, Questions 12 and 13) as we believe that this is an important element to take into consideration when analysing children's linguistic background within the home. In the case of FE families where each parent has a different native language, the information provided in this question enables us to see the dominant language(s) of each parent. This information can then be combined with information given in Part 4, Question 4.2.1 where we see which language(s) each parent speaks to their child. The gender of the parent speaking the minority language may affect the level and type of bilingualism children attain, as we discussed in Section 3.3.3.1.1.

In Section 3.3.2.1 we discussed the importance of providing young children with rich linguistic input for the acquisition, development and maintenance of two languages. Since certain parents sometimes use a non-native language with their children, we considered it was important to know how parents self-evaluate their linguistic level in that language. Indeed, we chose to use parents' estimations of their linguistic skills in each language when we investigated the language strategies used between parents and children in Section 7.4.2. If parents award themselves a fairly low score for speaking in a particular language yet state that they sometimes use that language with their child, we can deduce that the input to which the child is being exposed in that language is likely to be poorer than it would be if the parent were using his/her dominant language, as we discussed in Section 3.3.3.1.

The danger of self-assessment is of course that it only gives a declared behaviour rather than an actual observable measure (Hamers and Blanc, 1989). Furthermore, as Baker (2001:29) says, "respondents may consciously or unconsciously give a 'halo' version of

themselves. Self-ratings are vulnerable to exaggeration or understatement". However, Grosjean (1982) reports that self-ratings are regularly highly correlated with assessments of language skills by external language evaluators or by language proficiency tests. In our study, it would not have been feasible to have conducted a direct evaluation of the parents' linguistic skills given the limited availability of parents, and the fact that many of the families lived at some distance from the school since the IS served the whole of the city and its suburbs and was not a local school, as we noted in Section 2.4.3. Therefore, arranging individual interviews with each parent was considered to be too problematic. Moreover we believe that certain parents may not have agreed to their children's participation in the study had they thought that their own language skills were also going to be evaluated by the researcher. We therefore chose to rely on parents' self-evaluations.

In Section 3.3.3.5, we discussed how parents have a key role in the transmission of cultural identity to their children and we referred to a study by Verhoeven (1991) which found a strong relationship between bilingual children's cultural attitudes and their degree of bilingualism. In order to assess the role played by cultural identity and to investigate the relationship in this study between cultural attitudes and degree of bilingualism, we asked parents to assess their own cultural identity and to provide their representation of their child's (Part 1, Questions 14-19). Since we also collected information on the children's representation of their own cultural identity in Part 3 of the children's questionnaire (see Section 6.6.1.3), we were able to compare the children's and parents' representations of this.

Part 2 of the parents' questionnaire enquired about parents' reasons for choosing to send their child to the IS and about their own involvement in activities within the school. Parents were asked to select from academic or educational motivations and linguistic and cultural motivations (Part 2, Question 1). In Section 3.3.3.4, we reported on studies which have shown that children can benefit significantly when their parents are supportive and actively involved in their education. Research in the United Sates has shown that parental involvement in school is highly correlated with parents' level of education (Slaugher-DeFoe, 1991; Hidalgo *et al*., 1995; Levine and Lezotte, 1995). Thus, given the middle to high SES profile of the parents in our study, we might expect them to be actively involved in school. Parental involvement in school generally takes the form of participating in activities with the children in or outside school (e.g. library visits, craft workshops, school outings), or participating in school committees and parents' associations which have certain decision-making roles (see Part 2, Question 3).

Part 3 of the questionnaire comprised questions relating to the child's current language contact. Parents were asked to estimate the average number of hours per day their child spent in contact with each language during term-time and school holidays, to provide information on their children's reading activities and interests in the home, on friendship groups, frequency of visits to English speaking countries and of visits from English-speaking family and friends, and finally on the means they had at their disposal to maintain their child's two languages.

In Section 3.3.2, we underlined how important it was for bilingual children to have frequent exposure to rich language input and to have multiple and regular opportunities to produce output in each of their languages in meaningful situations. In Part 3, Question 1, we attempted to gain an overall picture of the amount of time each child spends in contact with speakers of each of his/her languages. The estimated number of hours of exposure to each language was then converted into a percentage in order to facilitate comparisons between the children. This question was investigated further in Part 4, Question 4.2 of this questionnaire and again in Part 1, Questions 2a, 2b and 2c of the children's questionnaire.

In Part 3, Question 2, parents were asked to rate the frequency of certain activities involving books and reading in the home. In Section 3.3.3.1.3, we highlighted how parents can compensate for a lack of contact with one of the child's languages, which is often the minority language, by multiplying the number of opportunities that children have to interact with books and engage in other activities which provide authentic models of language. This question was also approached in the children's questionnaire in Part 1, Question 2c. In this part of the parents' questionnaire, we also investigated the languages spoken by the child's friends who go to their home to play. In Section 3.3.3.2, we noted the influential role of bilingual children's peers for the promotion of each of their languages. Similar information was elicited from the children in the children's questionnaire in Part 2, Questions 2a and 2b. In Part 3, Questions 3 and 4 of the parents' questionnaire, we sought to gain a more detailed picture of the types of contact the children have with authentic models of each of their languages through visits to English-speaking countries, visits from Anglophone family and friends, holiday camps and extra language lessons for example. This complements information provided in Part 3, Question 2.

The objective of Part 4 of the questionnaire was to investigate the history of the children's language contact from birth. While it would have been making unrealistic demands on parents' memories to request an estimation of the amount of time their children spent with

speakers of each language from birth, our aim in Questions 4.2, 4.4, 4.5 and 4.6 was to get an overall picture of the input each child was exposed to in his/her early years, and the output he/she produced with members of the family, with childminders and at school. The information provided here by parents on the child's current input and output in these questions, i.e. concerning the most recent year of their child's life, supplemented the information given in Part 3 of the parents' questionnaire discussed above.

In Part 4 of the questionnaire, we began in Questions 4.1.1 and 4.1.2 by enquiring about the different countries where the children had lived from birth to present. Then in Question 4.2, we asked parents to supply detailed information on the languages used for interactions in the family among the different members. This gives us an overall picture of the child's input and output from birth but also enables us to appreciate the parents' language strategies and possible changes in patterns of interaction within the family which may lead to shifts in language dominance through childhood. In Section 3.3.3.1.1, we saw how parents' language strategies can have a determining role in the acquisition, development and maintenance of their children's bilingualism particularly in situations where one parent speaks the minority language and there is little support for this language outside the home in the wider community. In Question 4.3 we enquired which language(s) the parents spoke to one another. We considered that this was of particular interest in FE families and wondered whether parents who communicated with one another in English may stimulate their children's performance in this language by increasing their exposure to it.

In Questions 4.4, 4.5 and 4.6, we asked for data on the child's language contact and exposure patterns outside the home in day care, with child minders and at nursery and primary school. In Question 4.7, we asked a number of general questions concerning the child's everyday language use. In addition to questions on language mixing and linguistic errors, we also enquired about whether children frequently translated from one language to another and whether parents thought their child was dominant in one of his/her languages. The final part of Question 4.7 related to attitudes towards bilingualism, first the child's attitude as perceived by his/her parents and, secondly, the attitudes of people in the wider community and the child's grandparents. In Section 3.3.3.4, we discussed how language attitudes may predict language development and proficiency in bilingual children.

The parents' attitudes to bilingualism which were shown in Section 3.3.3.4 to have a major influence on their children's attitudes were investigated in Part 5 of the parents'

questionnaire. Question 1 aimed to identify the factors that parents considered to be important for the bilingual in terms of language use, fluency and cultural allegiance. Question 2 was designed to assess whether parents considered that bilingualism could have an influence on various aspects of the bilingual child's development, including cognitive and academic aspects but also social skills.

Having examined the questionnaire given to parents, we will now consider the children's questionnaire.

6.6.1.3 Questionnaire to children

The children's questionnaire was given by the researcher in the third research session. By this time the children were very comfortable and uninhibited with the researcher having already spent two sessions in her company. Like the parents' questionnaire, the children's questionnaire was in English. Given the entry requirements in English to the IS discussed in Section 2.4.3.1, we considered that there should be no major comprehension problems in the questionnaire for any of the children in the sample.

The aim of the children's questionnaire was to gather information on their daily language use, their feelings towards their languages, their perceived competence in each language and their cultural allegiance. So like the questionnaire completed by the children's parents, this questionnaire was designed to obtain information on a range of linguistic and sociolinguistic factors that we identified in Chapter 3 as likely to influence the acquisition, development and maintenance of bilingualism. A copy of the children's questionnaire can be found in Appendix II.

The questions were organised into three parts:

Part 1 – Language use

Part 2 – My feelings about French, English and other languages

Part 3 – What do you feel?

We will study each part in detail, referring back where necessary to the factors we identified in Chapter 3 as likely to influence bilingual language acquisition and maintenance.

Unlike the parents' questionnaire in which we attempted to gain an account of the child's language contact and exposure patterns from birth to present, in Part 1 of the children's questionnaire we focused solely on current language use, given the young age of the children and their inability to answer reliably on language use in the past. In Part 1,

Question 1, we explored the children's knowledge of all the languages they had encountered in terms of oral and written production and comprehension skills. This question aimed particularly to identify if any of the children had linguistic competence in a third language. If they had, although they completed all the research sessions, the data collected on them were not used in this study.

In Part 1, Questions 2a and 2b, we investigated children's perception of the amount of output they produced and input they received in each of their languages with different interlocutors including their parents, siblings, friends, teachers and grandparents. The critical role of output and input was discussed in Section 3.3.2, while in Section 3.3.3.2 we highlighted the particular role played by the bilingual child's peers for the development and maintenance of bilingualism. For each question, the children were asked to use a five point scale to rate the extent to which English and French were used: (1) *Always in French*; 2) *In French more often than in English*; 3) *In French and English equally*; 4) *In English more often than in French*; 5) *Always in English*). In Question 2c, using the same five point scale, the children were asked to assess their language use for a range of common activities including watching television, reading and speaking on the telephone.

In Questions 1 to 5 of Part 2, we asked the children questions related to their perceived competence and their preferences in each language with regard to speaking and reading. By comparing their self-assessment of their overall competence to the results they obtained on the language proficiency measures, we hoped to determine to what extent the children were able to provide a valid assessment of their languages skills. In Question 6, we enquired as to the frequency that the children were required to translate from one language to the other for their family or friends. In Question 7, we called upon the children to choose their perfect school in terms of the languages that they would speak and learn there. In Question 8, they were asked if they would like to speak additional languages, and if so, which ones. In Question 9, we considered the language of their dreams. In Questions 10 and 11, we investigated whether the children associated particular people they knew with a particular language, and how they thought they would react if the usual language bond was broken. In Question 12, we asked whether certain activities, in this case doing mathematical calculations, were bound to a particular language. We chose the domain of mathematical calculations since for those children in the sample who had only ever lived in France and had been to French nursery schools, we

expected this particular domain to be primarily French. As was indicated in Section 2.4.6, mathematics is not part of the English curriculum at the IS.

In Part 3 of the questionnaire, our particular interest lay in trying to gauge the children's cultural identity and allegiance, the importance of which we discussed in Chapter 3.3.3.5. While this is a difficult subject to address directly with children who are so young, we tried to create questions which would appeal to them and which were appropriate to their level of understanding and to their life experience. The word *culture* did not appear in any of the questions. In Questions 1 to 5, the children were asked if they felt more French or English (or another nationality of the Anglophone country with which they had ties), whether they felt different from monolingual English-speaking or French-speaking children, and whether they thought that these monolingual speakers considered them as being in some way different from themselves. In Questions 6 to 8, we enquired about the children's preferences in terms of national sports teams, pop songs in English or French and typical sweets from France or English-speaking countries. In Questions 9 and 10, we asked if the children did any kind of creative writing outside school by choice, and if so, in what language they did it. Question 11 aimed to assess if they had been subject to positive or negative attitudes towards their bilingualism which could affect them psychologically. In Question 12, the children were asked which country they would like to live in if they had the choice.

We have reviewed the two questionnaires which were designed to give us access to detailed information relating to the input factors surrounding the families and the children themselves. As we said above, we believe that these linguistic and sociolinguistic factors are likely to impact on the children's bilingual language acquisition, maintenance and development. We will now address the tools chosen to measure the children's language proficiency in French and English.

6.6.2 Language proficiency measures

6.6.2.1 Introduction

As numerous scholars have pointed out, attempting to measure bilingual proficiency is problematic both from a practical and theoretical point of view. From a practical perspective, the testing instruments designed for one language are unlikely to be valid when translated into another. Furthermore, comparing the results from non-standardised

tests in different languages is not very satisfactory. However, it is rare to find standardised testing instruments which exist in different language versions and are thus comparable (Wilen and Sweeting, 1986; Figueroa, 1990; Umbel and Oller, 1994). From a theoretical point of view, using standardised tests which have been normed on monolinguals does not do justice to bilinguals because they fail to take into consideration the child's total conceptual inventory (Umbel *et al*., 1992). In other words, such tests do not allow for the fact that there are concepts or lexical items known in one of the bilingual's languages which may not be known in the other since the bilingual is unlikely to use his/her two languages in the same domains and contexts. This issue is discussed further in Section 6.6.2.2.

In this study, language proficiency was measured in each of the children's languages using two different instruments – a standardised test of receptive vocabulary which will be discussed in Section 6.6.2.2 and an oral language rating scale for each language completed independently by the children's French and English teachers and by the researcher which will be discussed in Section 6.6.2.3. We chose to use two quite different evaluation measures in order to have a better representation of the children's proficiency in each language. Furthermore, by employing two evaluation tools, we were able to investigate to what extent the different measures of proficiency taken in each language were related to one another.

6.6.2.2 The Peabody tests of receptive vocabulary

6.6.2.2.1 Background

All participants in this study were administered a standardised test of receptive vocabulary in English and French during two different research sessions (see Table 6.1) to establish their level of language proficiency. Both the tests are derived from the Peabody Picture Vocabulary Test (PPVT) (Dunn and Dunn, 1981). The British version, *The British Picture Vocabulary Scale 2nd Edition* (BPVS) (Dunn *et al*., 1987) is normed on speakers of British English, while the French version *L'Echelle de Vocabulaire en Images Peabody* (EVIP) (Dunn *et al*., 1993) is normed on speakers of French Canadian. We would have liked to have used a version of the Peabody normed on speakers of European French. However, to our knowledge, no such version exists. Notwithstanding, only one French Canadian word appeared in the section of the EVIP which was given to

the children in our study. It was the word for '*an iron*', which in French Canadian is '*repasseuse*' while in European French it is '*fer à repasser*'. Since we knew that the children would not be familiar with the French Canadian word, we replaced it with the European French word. We do not believe that this substitution would affect the children's overall score on the EVIP.

The same validation and norming processes have been followed for both the BPVS and the EVIP. So it is a real advantage to have a standardised test which exists in different language versions as the scores obtained by the children can be compared (Umbel *et al*., 1992). The Spanish version, the *Test de Vocabulario en Imágenes Peabody* (TVIP) (Dunn *et al*., 1986), is often used on children of Hispanic origin in the United States by researchers investigating English-Spanish bilingualism (e.g. Oller and Eilers, 2002a).

Standardised vocabulary tests and notably the different language versions of the Peabody tests are frequently employed as a measure of language proficiency in studies of bilingual children (e.g. Ben-Zeev, 1977b; Rosenblum and Pinker, 1983; Hakuta and Diaz, 1985; Bialystok, 1988a; Ricciardelli, 1992a; Umbel *et al*. 1992; Davidson *et al*. 1997; Cromdal, 1999; Bialystok *et al*., 2000; Oller and Eilers, 2002a). Cummins evaluates this form of language assessment arguing that:

> Insofar as any notion of *general language proficiency* is defensible, it is likely to be reflected most clearly and sensitively in the individual's lexical knowledge. (2000:133)

He goes on to say:

> Lexical knowledge is a core component of academic language proficiency and consequently assessment of lexical knowledge can serve as an indicator of academic language proficiency. (2000:162)

He supports this with reference to work carried out by Anderson and Freebody (1981), Koda (1989) and Qian (1999). Indeed, vocabulary knowledge has been found to be one of the most important determinants of academic success (Verhallen and Schoonen, 1993 and 1998) and vocabulary tests provide one of the most reliable assessments of general language abilities (Bates and Goodman, 1999). Furthermore, vocabulary size has also been found to be a reliable predictor of success in learning to read (Chall *et al*., 1990; Ellery, 1991).

However, Umbel *et al*. (1992) and Bialystok and Feng (2011) emphasise that evaluating bilingual children's lexical knowledge in each language fails to make accurate predictions about their total lexical knowledge, a point we made above with reference to using test norms on bilinguals which have been devised for monolinguals. The same point is made

by Ben-Zeev (1977a), Doyle *et al*. (1977), Rosenblum and Pinker (1983), Umbel *et al*. (1992), Pearson *et al*. (1993), Umbel and Oller (1994), Genesee and Nicoladis (1995), Eviatar and Ibrahim (2000), Bialystok (2001a), Gathercole (2002a) and Oller and Eilers (2002b) when commenting on the vocabulary test results of the bilingual children in their studies. Oller and Eilers provide the following explanation for this:

> If one spends time learning one language in a specific environment, and another language in another environment, it may be inevitable that some information may come to be coded in one language but not the other and vice versa. (2002b:287)

Indeed, in Section 3.3.2.2.1, we discussed studies that showed that there is a strong relationship between the time young children spend in contact with each of their languages and the quantity of vocabulary they acquire in each. So while bilinguals may have smaller vocabularies in each language, their total conceptual vocabulary may well equal or exceed that of matched monolinguals as it is distributed across two languages (Pearson, 1998; Pearson *et al*., 1993).

Thus, the above caveat should be borne in mind when the bilingual children at the IS are assessed on the two Peabody vocabulary tests. By combining various forms of evaluation, which include both norm-referenced tests and criterion-referenced ratings completed independently by the children's teachers and the researcher, we hope to provide a more valid and reliable assessment of the children's general language proficiency in their two languages.

6.6.2.2.2 Description and procedure

The BPVS consists of 168 plates while the EVIP (*Forme A*) consists of 170 plates. There are four pictures on each plate and the plates are arranged in increasingly difficulty according to age. In both cases, the same standard instructions given in the test manual were followed. The researcher read a word and the child was asked to indicate which of the four pictures on the plate best corresponded to it. The child could do this either by pointing or by giving the number of the picture. Two practice plates were given to ensure the child fully understood the test instructions. Initial testing began at set points in the vocabulary list based on the child's age. Depending on the child's performance, testing either continued from this point if the child had eight correct consecutive answers or, if the child made one or more errors in the first eight items, the researcher worked backwards until the child correctly answered eight consecutive items. This became the

child's basal score. From there, testing continued until the ceiling level was reached when the child made six errors in eight consecutive answers. During the testing, the researcher did not provide any feedback to the children with regard to the correctness of their responses. Their raw scores were then converted into standardised scores using the tables in the test manual. Their percentile rank could then be calculated although this was of no particular interest to us in this study. For both tests, the mean score is 100 and the standard deviation is 15. The test usually took around 10 minutes to administer. The final scores on the French and English versions of the test were compared to give some indication of the degree of balance between the child's two languages. The children's results on the Peabody tests will be discussed in Section 8.2. In Section 8.2.3, we will explain how we used the children's scores from the BPVS and the EVIP to create two groups in order to compare their performance on the English and French metalinguistic tasks. One group was composed of children who had attained a high level of competence in both their languages, referred to as balanced bilinguals, while the other contained children who had attained a high level in one language and a much lower level in the other, referred to as dominant bilinguals.

We will now examine the second language proficiency evaluation tool used in this study, the Student Oral Language Observation Matrix.

6.6.2.3 The Student Oral Language Observation Matrix (SOLOM)

6.6.2.3.1 Background

The Student Oral Language Observation Matrix (SOLOM) is a rating scale which is not published commercially but is within the public domain so can be copied, modified or adapted to the needs of its users. It was originally developed by the San Jose Area Bilingual Consortium and since then has been revised by the Bilingual Education Office of the California State Department of Education. The SOLOM is used widely in the United States to evaluate the oral language competence of minority language students, especially to establish approximate language placement levels for new students. It can also be used longitudinally to assess students' progress. The SOLOM was one of the tools used by Lindholm-Leary (2001) to assess the oral proficiency of the children in her study on Dual Language education in California.

Since teachers have multiple opportunities to observe and assess their pupils interacting orally with different people in a wide range of linguistic contexts and situations during the course of the school year, we considered that asking the IS teachers to assess the children on the SOLOM would complement the results obtained on the Peabody tests. Indeed, research shows that teachers are often asked to estimate children's language proficiency as a means of validating other tools of language assessment used by researchers in their studies on bilingual children (e.g. Malakoff, 1988; Cromdal, 1999; Lindholm-Leary, 2001; Gutiérrez-Clellan and Kreiter, 2003). Lindholm-Leary (2001) holds that teachers can be very reliable assessors of language proficiency as long as they are trained on how to use the given measures. Furthermore, she reports that in her study on Dual Language education, there was a strong association between teacher ratings on the SOLOM and the other tests of language proficiency.

6.6.2.3.2 Description and procedure

The SOLOM is not a test but a criterion-referenced rating scale that can be used by teachers to evaluate their pupils' oral language proficiency. They can evaluate this after observing the children extensively in a number of formal and informal situations in school, while they interact both with teachers, auxiliary staff and with classmates. The teacher matches a child's language performance in five areas – comprehension, fluency, vocabulary, pronunciation and grammar – to descriptions on a five point scale ranging from one to five. The English and French SOLOMs can be consulted in Appendix III. Level 5 of each area is the level of ability expected of a monolingual speaker of the language being assessed. The scores for each individual area can be considered or the scores for the five areas can be combined into a total score which ranges from five to 25. A child with a score of 19 or above is considered to be in the proficient range according to the SOLOM designers and should be able to participate fully in academic oral language tasks typically expected in the classroom at the appropriate age level. A score of lower than 19 designates non-fluent. Like the two versions of the Peabody test, the final scores on the two language versions of the SOLOM can be compared to give an approximate indication of the degree of balance between the child's two languages, as will be shown in Section 8.3.

For this study, in April of the two academic years that the study was conducted at the IS, the English version of the SOLOM was given to the children's English teachers and a

French version translated by the researcher was given to the French teachers. Written instructions were provided on how to complete the rating scale (see Appendix III) and the teachers were encouraged to contact the researcher if they had any queries about this. As an additional assessment measure, the researcher also completed the scale in English for each child at the end of the English research sessions and in French following the French sessions.

Having presented the two tools used in this study to assess the children's French and English proficiency, we will now turn our attention to the tools used to evaluate metalinguistic awareness.

6.6.3 Measures of metalinguistic awareness

6.6.3.1 Introduction

The English metalinguistic tasks employed in this study were based closely on those used in Ricciardelli (1993) when she investigated metalinguistic awareness in monolingual English-speaking children aged between five and seven living in Australia. Indeed, Ricciardelli designed this set of tasks in order to assess directly the two cognitive components of Bialystok's (Bialystok and Ryan, 1985; Bialystok 1986a and 2001a) analysis and control framework. We considered that these tasks were appropriate in terms of their content and cognitive demands for the young children in our study who were of a similar age and in their second year of primary school. The test items in each of the tasks were short in order to avoid making unnecessary demands on the children's working memory. The French metalinguistic tasks were modelled on the English ones. Indeed, the researcher translated the English tasks into French but while she altered the vocabulary so that there should be no interference between the two language versions, she sought to conserve the same level of difficulty with regard to sentence structure, length of the text items, tenses and type of vocabulary. Copies of the English and French metalinguistic tasks may be found in Appendix IV.

Experts have stressed that it is essential to give all the tasks to the children in both their languages in order to gain access to their metalinguistic awareness through their stronger language (Bialystok, 2001a; Oller and Eilers, 2002a; Genesee *et al*., 2004). Assessing metalinguistic awareness through tests in only one language may penalise certain bilingual children whose level of knowledge may be underestimated if they have not yet

attained what Cummins refers to as the threshold level (see Section 4.2.2) in the language in which the tests are conducted (Cummins and Swain, 1986). In other words, if children fail to answer questions correctly, it may not be because of a lack of metalinguistic awareness but rather because of a lack of understanding of the task instructions or items because of their limited linguistic knowledge. However, we decided not to give the metalinguistic tasks in French to the EEb children who had been in France for less than a year prior to the beginning of testing and who were still having FFL classes in school. While they were given all the English tasks, it was considered that their level of French would not be sufficiently high to understand all the test instructions and items or to answer the various questions. One of the aims of the metalinguistic tasks was to compare the degree of metalinguistic awareness in highly competent balanced bilinguals to that of dominant bilinguals. We therefore considered that since the tasks in both languages aimed at assessing the same metalinguistic skills, the English tasks alone should reveal the nature of these metalinguistic skills in those EEb children with more limited proficiency in French. Furthermore, for the children's own self-esteem, we did not wish to expose them to tasks that they were unlikely to be able to complete successfully because of their limited proficiency in French.

The full set of English metalinguistic tasks was administered before testing in French began. As we explained in Section 6.5, because the children were initially introduced to the researcher in English by their English teachers, it seemed natural to complete all the English sessions before embarking on the French ones. While the French metalinguistic tasks are an adaptation of the English versions, it was hoped that practice on the English tasks would not prime performance on the French versions. We sought to reduce this possibility by having at least four weeks between the final session on the English metalinguistic tasks and the first French session.

6.6.3.2 Procedure

Before presenting in detail the seven metalinguistic tasks, we will first explain the general testing procedure adopted for all the tasks. Each task began with standard instructions given in English for the English tasks and French for the French versions. The tasks were presented as word games which were supposed to be fun and entertaining for the children. Once the instructions had been given, the researcher gave the children two or three practice items to ensure that they fully understood what was expected of them. During

this practice session, the researcher gave praise if the child succeeded and gave corrective feedback about how to improve if the child had not answered appropriately. The testing began afterwards regardless of whether the child had succeeded on the practice items. During the testing sessions, no feedback was given to the children concerning the accuracy or appropriateness of their answers. The children's responses to the test items were noted by the researcher on answer sheets. The tasks were scored simply, with one mark given for each correct answer except where indicated otherwise in the sections below. Then, following Ricciardelli (1993) the children's score on each task was converted to a percentage of the total possible score so that different task scores could be compared within and across languages and the relative difficulty of each task could be investigated. The question of the order of difficulty of the tasks will be discussed in Section 6.6.3.10.

We will now consider each of the metalinguistic tasks in turn. In each case we will explain the task instructions, the marking procedure and the particular cognitive processing demands required to complete the task successfully.

6.6.3.3 Word Order Repetition (control)

The aim of this task which was based on a task by Bowey (1986) was to evaluate the children's syntactic awareness. The children were asked to repeat 12 simple, meaningful sentences which each had incorrect word order, such as "I hungry am". The maximum score, for this task was 12. There were three types of word order violation:

a) noun adjective for adjective noun;

b) subject object verb for subject verb object;

c) negator verb for verb negator.

Successful completion of this task required the children to ignore the meaning of the sentence, suppressing their natural desire to produce grammatically correct sentences. This required low levels of control of attention.

6.6.3.4 Word Renaming (control)

This task which was discussed in Section 5.3.4.3 was based on Piaget's (1929) famous sun-moon problem. It has since been adapted and employed by numerous researchers (e.g. Feldman and Shen, 1971; Ianco-Worrall, 1972; Osherson and Markman, 1975; Ben-Zeev, 1977b; Cummins, 1978a; Rosenblum and Pinker, 1983; Edwards and Christopherson, 1988; Ricciardelli, 1992a and 1993; Eviatar and Ibrahim, 2000). Like Symbol Substitution (control) which will be discussed in Section 6.6.3.5, it was used to assess the children's awareness of the arbitrary nature of word-referent relationships which required high levels of control of attention. Children were asked, "Supposing you were making up names for things; could you call the sun "the moon" and the moon "the sun"?" If necessary during the practice session, the children were persuaded that the names could be changed. Then they were asked a number of questions about them, such as "What would you call the thing in the sky when you go to bed at night?" and "What would the sky look like when you're going to bed?". In Ricciardelli's (1993) original task, these first two questions were part of the 12 test items. Since this task was rather demanding, we decided to keep these two questions as part of the practice session and gave feedback to the children on whether or not they were correct. Therefore, the task was marked out of ten in both the English and French versions, with ten questions based on four situations in which names had been switched. To complete the task successfully, children had to accept that although the name of the referent had been changed, it had nevertheless retained its original empirical characteristics. Thus, it was necessary to focus attention on form while suppressing meaning which remained very salient but was irrelevant here. High levels of control of attention were necessary to succeed in this task.

6.6.3.5 Symbol Substitution (control)

This task, which we presented in Section 5.3.4.3, was based on a task devised by Ben-Zeev (1977b) which has since been used by other researchers (e.g. Ricciardelli, 1992a and 1993; Cromdal, 1999). Here, the children were requested to substitute one word in a sentence for another given by the researcher. The resulting sentence violated the rules of syntax. The task was composed of 12 sentences. For example, the researcher gave the sentence "I am cold" and asked the child to substitute the word 'I' with the word 'ice'. The child was expected to produce "Ice am cold". In each case, it was necessary to

substitute a noun or pronoun for another noun or pronoun and the resulting sentence, although grammatically incorrect, was understandable. This task evaluated children's understanding of the arbitrary nature of the word-referent relationship and their awareness of the formal properties of words. It required relatively high levels of control of attention since the children had to inhibit misleading information in order to produce the grammatically incorrect sentences.

Each item received a score of two, one or zero. A score of two was given if the substitution was done appropriately and no attempt was made to correct the syntactic violation. A score of one was awarded if the substitution was appropriate but the syntactic violation was corrected. Zero was given in all other cases. Although the original task contained 12 items, we decided to use the first item in both the English and French versions as an additional practice item since it was clear that the children found this task particularly challenging. The maximum score for this task was therefore 22 points.

6.6.3.6 Symbol Substitution (analysis)

This task was based on Symbol Substitution (control) presented in Section 6.6.3.5 above. In Symbol Substitution (analysis) the children had to substitute one word in a sentence for another provided by the researcher. However, in this case, the children were asked to correct any grammatical violations that resulted from their word substitution. Once again, it was necessary to substitute a noun or pronoun for another noun or pronoun. For example, the children were given the sentence "They are cold" and were requested to substitute 'they' with 'water'. The expected answer here, since the resulting sentence had to be syntactically correct, was "Water is cold". There were 12 test items and one point was scored for each correct substitution. This type of substitution places greater demands on analysis of linguistic knowledge. Slight syntactic alterations, notably of tense, were accepted as long as the children made a grammatically correct sentence.

6.6.3.7 Word Order Correction (analysis)

In this task which we discussed in Section 5.3.5.2, the children were asked to correct word-order violations in 12 simple sentences, such as "Dad the car washes". The maximum score for this task was 12. The sentences involved the same types of word order violations as in Word Order Repetition (control). Similar tasks have been employed

by numerous researchers both with monolingual and bilingual children (e.g. Pratt *et al*., 1984; Bialystok, 1988a; Galambos and Hakuta, 1988; Tunmer *et al*., 1988; Riccardelli *et al.*, 1989; Galambos and Goldin-Meadow, 1990; Ricciardelli, 1992a and Cromdal, 1999). The children were required to reflect on grammatical structure by concentrating on language form. Analysis of linguistic knowledge was required to detect and correct these errors.

The children's answers were considered to be correct if they rectified the incorrect word order without changing the meaning of the sentence. Slight syntactic and semantic omissions or alterations were accepted.

6.6.3.8 Form-Meaning Judgements (analysis and control)

This task which we presented in Section 5.3.6.3 was based on a task devised by Ianco-Worrall (1972). This version differed from Ianco-Worrall's, however, because within the same task, children were asked to focus either on the sound or meaning of a word given by the researcher. For example, children were requested to focus on a phonetic element in a question like "What word sounds something like cat? hat or kitten?", while they had to focus on a semantic element in "What word means something like mat? rug or cat?". Similar tasks have been used by Bialystok (1988b) and Ricciardelli (1992a and 1993). The task was marked out of 12 with half of the test items requiring the children to match the target word on the basis of phonetic preference and half requiring a semantic preference. Children had to listen attentively to the instructions given by the researcher in order to detect which criterion they should focus on since this could vary from one question to the next. According to Ricciardelli (1993), this task requires analysis of linguistic knowledge. If the task had just required the children to focus on just one element, so either a phonetic element or a semantic element, we agree that only analysis would have been necessary. However, like Bialystok (1986b), we believe that the task also requires relatively high levels of control of attention since the instructions are constantly changing throughout the task, with children either having to focus on sound or on meaning. We believe that to complete the task successfully, control of attention is required to inhibit the previous instructions.

6.6.3.9 Grammar Judgements (analysis and control)

This task which was examined in Section 5.3.5.4 was based on previous work by Bialystok (1986a, 1986b, 1988a and 1988b). More recently, a similar task was employed by Ricciardelli, (1992a and 1993), Cromdal (1999) and Bialystok and Majumder (1998). Children were asked to judge three types of sentence for grammatical correctness. Twelve items were grammatical and anomalous, e.g. "The fish are walking", which according to Bialystok's framework place heavy demands on control of linguistic processing, since it is necessary to suppress the misleading and anomalous meaning of the sentence and focus attention exclusively on the correct form. Twelve items were ungrammatical and meaningful, e.g. "The teacher a book reads", which required a greater need for analysis of linguistic structure in order to detect the grammatical error. The two parts of the task were scored separately, with each part marked out of a maximum of 12 points, with one point per correct answer.

The remaining six items which were not scored, were grammatical and meaningful, e.g. "He likes to draw". These items required little analysis of structure or control of attention so should not have presented any difficulties to the children. An added difficulty in this task resulted from the fact that the two types of sentence (grammatical and anomalous, and ungrammatical and meaningful) were mixed up, so children had to listen particularly carefully to identify those which were grammatically correct, even though they may have been meaningless.

6.6.3.10 Order of difficulty

When considering the seven metalinguistic tasks above, we pointed out that certain metalinguistic tasks, notably those requiring higher levels of control of processing, were more cognitively demanding because of the need to inhibit misleading information in order to produce the correct answer. Thus, we hypothesise that the most difficult tasks in this respect are Symbol Substitution (control), Word Renaming (control), Form-Meaning Judgements (analysis and control) and Grammar Judgements (control). Word Order Repetition (control) places lower demands on control of attention so should be easier than the other metalinguistic tasks assessing this cognitive skill component. On the other hand, we consider that Word Order Correction (analysis) and Grammar Judgements (analysis) should be much more straightforward for the children, as long as they are very competent

speakers of the language of the tests. Symbol Substitution (analysis) is more challenging as the cognitive operation required to complete it successfully is more complex than the other tasks assessing analysis. Based on Bialystok's (e.g. 1986a, 1988a and 2001a) extensive research on metalinguistic awareness and on other key studies conducted by Ianco-Worrall (1972), Ben-Zeev (1977b), Galambos and Hakuta (1988), Galambos and Goldin Meadow (1990), Ricciardelli (1992a and 1993) and Cromdal (1999) discussed in detail in Section 5.3, we hypothesise that the order of cognitive difficulty from least demanding to most demanding will be as follows:

1. Task 7a: Grammar Judgements (analysis)
2. Task 1: Word Order Repetition (control)
3. Task 5: Word Order Correction (analysis)
4. Task 4: Symbol Substitution (analysis)
5. Task 7b: Grammar Judgements (control)
6. Task 6: Form-Meaning Judgements (analysis and control)
7. Task 2: Word Renaming (control)
8. Task 3: Symbol Substitution (control)

In other words, we expect the children to score higher on the tasks appearing at the beginning of this list and lower on those at the end. In Chapter 10 the children's performance on the metalinguistic tasks will be compared to our predicted order of difficulty.

We have reviewed the various data collection tools which were employed in this study. These were the two questionnaires, the language proficiency measures and the metalinguistic tasks. We now will present the different statistical tools which were used to analyse the data collected from these tools.

6.7 DATA ANALYSIS TOOLS

Three statistical tests are employed in this research and the SPSS computer based statistical package (version 16) was used to analyse our data. The Spearman rho coefficient of correlation is used to investigate the strength of the relationship between two nominal variables. For example, in Chapter 7, we analyse the strength of the relationship between the reported language behaviour of each parent and the reported language behaviour of the child. The Pearson product-moment coefficient of correlation is used to investigate the strength of the relationship between two continuous variables.

For example, in Chapter 9, we investigate the strength of the relationship between the children's current language input measured as a percentage and their scores on the language proficiency measures in each language. We use the Independent *t*-test to investigate if there is a significant difference in the mean scores of two subgroups on a particular test. For example, in Chapter 10, having divided the children into two groups of balanced and dominant bilinguals based on the scores from the two language versions of the Peabody vocabulary tests, we analyse whether there is a significant difference in their mean scores on the various English metalinguistic tasks, and then on the French versions.

6.8 CONCLUSION

In this chapter, we have presented the methodology used for this research. We began by explaining, first, how the researcher gained authorisation from the local education authority and the school headmaster to conduct her research at the IS and, next, how she obtained informed consent from their parents for the children to take part in the study. The ethical issues regarding the study were then considered and we explained how the researcher was granted approval for her research project from the Salford University Research Governance and Ethics Committee. A brief presentation of the children was given next while a much more detailed profile of the participants and their families is provided in Chapter 7. Having explained how the data were collected from the children at the IS for the main part of the study, the various data collection tools were then presented in some detail. These were the parents' and children's questionnaires, the two different language proficiency measures – the Peabody vocabulary tests and the SOLOM rating scale – and the metalinguistic tasks designed to assess analysis of linguistic knowledge and control of linguistic processing. Finally, the data analysis techniques employed in this research were presented.

The data collection tools used in this study were chosen in order to provide answers to the various research questions we wished to investigate. The questionnaires provide rich and detailed information relating to the input factors to which the children are exposed. The association between these and the children's language proficiency in English and French is examined in Chapter 9. The scores on the French and English proficiency measures presented in this chapter are used to divide the children into a group of balanced bilinguals and a group of dominant bilinguals. Having done this, we can compare the scores of these two groups on each of the French and English metalinguistic tasks in order

to assess to what extent degree of bilingualism may impact on the different cognitive processing components of metalinguistic awareness. We do this in Chapter 10 in which we also investigate the relationship between the scores on the English and French language performance measures and the scores on the different metalinguistic tasks. Using data gathered from the questionnaires, in Chapter 7 we will explore the children's family background, including the relationship between the language strategies used between the children and their parents, and the children and their siblings, as well as examining children's cultural and social allegiance, parents' attitudes to bilingualism and strategies employed by parents to maintain and develop their children's dual language acquisition.

CHAPTER 7 – FAMILY BACKGROUND DATA

7.1 INTRODUCTION

In Chapter 3, we considered a number of linguistic and sociolinguistic factors which have been shown by research findings to influence bilingual language acquisition and development. Now, we take a closer look at the background of the families of the children in the study using the data collected from the parents' and children's questionnaires. Although the two principal research questions of our study concern, first the input factors which may cause variation in bilingual language proficiency and, secondly, the effects of differing levels of bilingualism on metalinguistic awareness, it is essential beforehand to investigate the children's family background, including their language exposure and language use, thus enabling us to better understand, interpret and contextualise the results which will be presented in Chapters 9 and 10. The parents clearly have the key role to play in the children's upbringing, and therefore the choices they make and their attitudes will impact on the children and their bilingualism. To a large extent it is the parents who are in a position to create a linguistic and sociolinguistic environment for their children which will be conducive, or not, to successful bilingual acquisition, although there is no guarantee that this will be attained.

In Section 7.2 we take a closer look at the children's language contact in the four types of family in the study, children with one Francophone and one Anglophone parent (FE); children with two Francophone parents (FF) who had lived in an Anglophone country for between three and five years and have been back in France for between four and 30 months; children with two Anglophone parents who have been in France for more than three years (EEa); and finally children with two Anglophone parents who have been in France for under 18 months (EEb). We report where the children were born, in which countries they had lived since their birth and at what age they had acquired each language. In Section 7.3 we provide background information on the parents' education and professions, the amount of time they had spent in France at the time of the study, how long they estimated they would be staying there in the future and, finally, how the parents self-evaluated their oral skills in French and English. We turn our attention in Section 7.4 to the language strategies used in the home between the parents, the parents and the child

in the study, and the child and his/her sibling(s). Where possible, we investigate the language strategies in two parts, the language strategies from birth and then the current language strategies. The parents' and children's cultural and social allegiance is assessed in Section 7.5, before examining in Section 7.6 the parents' motivation for sending their children to the IS and in what ways the parents participate there. Next, attitudes to bilingualism will be explored in Section 7.7 first, by reviewing which factors parents believed were important when one was bilingual, secondly by considering what effect parents believed bilingualism had on a range of skills and behaviours and, thirdly, examining the children's attitudes to being bilingual. Finally in Section 7.8 we investigate how the parents went about maintaining and developing their children's bilingualism. For each section of this chapter, we will provide the question numbers which have provided the relevant information from the parents' and children's questionnaires.

7.2 OVERVIEW OF CHILDREN'S LANGUAGE CONTACT

As reported in Section 6.4, the linguistic backgrounds of the families of the children were typical of families in the Anglophone section of the IS, as discussed in Section 2.4.2. Here, we look more closely at where the children were born (parents' questionnaire Part 4, Question 4.1.1), summarised in Figure 7.1, where they had lived since birth (parents' questionnaire Part 4, Question 4.1.2); and at what age they had acquired English and French (parents' questionnaire Part 4, Questions 4.2, 4.4, 4.5 and 4.6), summarised in Tables 7.1 and 7.2 respectively. We consider the four different family types (FE, FF, EEa, EEb) in turn.

There were 19 children from FE families (ten girls and nine boys) in the study. Fourteen of them (73.7%) were born in France, two were born in an Anglophone country and three were born in another country. Twelve children in this group had only ever lived in France; while two had spent more time in France than in an Anglophone country; one had spent more time in an Anglophone country than in France; and two had spent an equal amount of time in France and an Anglophone country. Eighteen children in this group had acquired English from birth with the remaining child acquiring it from age two. One child acquired French from age three while the other 18 acquired it from birth.

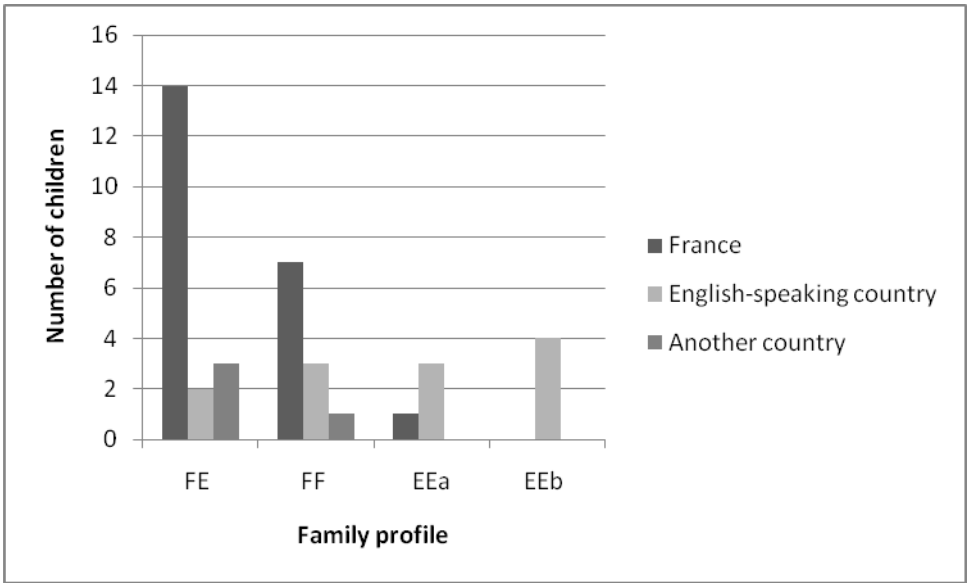

Figure 7.1 Child's place of birth by family profile

Table 7.1 Child's age of acquisition of English by family profile

	Birth	*1*	*2*	*3*	*4*
FE (N=19)	18	-	1	-	-
FF (N=11)	3	-	2	3	3
EEa (N=4)	4	-	-	-	-
EEb (N=4)	4	-	-	-	-

Table 7.2 Child's age of acquisition of French by family profile

	Birth	*1*	*2*	*3*	*4*	*5*	*6*
FE (N=19)	18	-	-	1	-	-	-
FF (N=11)	11	-	-	-	-	-	-
EEa (N=4)	1	-	1	2	-	-	-
EEb (N=4)	-	-	-	-	-	-	4

There were 11 children from FF families (nine girls and two boys). All the children in this group had lived in an Anglophone environment with their families for between three and five years before returning to France, where they had been for between four and 30 months at the time of the present study. Seven of these children were born in France, three were born in an Anglophone country and one in another country. Four of the FF

children had spent more time in France than in an Anglophone country, four had spent an equal amount of time in each, two had spent more time in an Anglophone country and one had spent time in three different countries - an English-speaking country, France and a third country. All eleven children acquired French from birth. Regarding the acquisition of English, three children in this group acquired it from birth, two children from age two, three children from age three and three children from age four.

There were four children (three girls and one boy) from EEa families. Three of them were born in an Anglophone country although they had all spent more of their life in France, while the fourth had only ever lived in France. All of the children had acquired English from birth. Concerning the acquisition of French, one child had acquired it from birth, one from age two and the remaining two children from age three.

All four children (3 boys and 1 girl) in the EEb group were born in an Anglophone country. Three had only ever lived in an Anglophone country before their arrival in France, while the remaining child had spent some time in another country. All four children acquired English from birth and French from age six.

7.3 BACKGROUND INFORMATION ON THE PARENTS

In this section, background information will be provided on the parents of the children in the study. Their education and employment will be considered in Section 7.3.1 in order to have a more precise idea of their socio-economic status. Having examined in Section 7.3.2 the amount of time they had spent in France, we will then consider the number of years they planned to remain there in Section 7.3.3. Finally, the parents' self-evaluation of their oral competence in French and English will be discussed in Section 7.3.4. We believe that this background information is important in order to have a deeper understanding of the environments in which the children are being raised and we will refer to it throughout the study.

7.3.1 Education and employment

In Section 3.3.3.6 we highlighted that SES has been found to be quite a reliable predictor of academic success, with children from higher SES families tending to be exposed to richer language and cultural environments than children from lower SES families. As we reported in Section 6.4, all the children in our study came from middle to high SES homes

as judged by their parents' number of years in education. In Section 6.4 we provided a brief overview of the parents' education and employment. Here, we give more detailed information on data relating to their education (parents' questionnaire Part 1, Question 7) and employment (parents' questionnaire Part 1, Questions 2 and 3), beginning with the mothers and then turning our attention to the fathers.

Tables 7.3 and 7.4 summarise the information on the parents' educational background.

Table 7.3 Mother's educational background by family profile

	High school diploma	*High school diploma plus professional training*	*Bachelor's degree*	*Postgraduate qualification*
FE (N=19)	-	-	10	9
FF (N=11)	-	2	6	3
EEa (N=4)	2	1	1	-
EEb (N=4)	-	-	1	3

Table 7.4 Father's educational background by family profile

	High school diploma	*High school diploma plus professional training*	*Bachelor's degree*	*Postgraduate qualification*
FE (N=19)	1	-	3	15
FF (N=11)	-	-	3	8
EEa (N=4)	1	-	2	1
EEb (N=4)	-	-	1	3

Out of the 38 mothers in the study, 33 had at least a bachelor's degree with 15 of these also holding a postgraduate qualification. The remaining five had completed the equivalent of a high-school diploma, three of whom had gone on to do some form of professional training. Nineteen of the 38 were not working at the time of the study. Of those who were, eight were working in sales or some form of management, seven in education, two in scientific research, one in translation and one writing children's books. At the time of the study, 11 out of 19 mothers in the FE families and seven of the 11 FF

mothers were working. None of the four EEa mothers were employed, while just one of the EEb mothers was.

Regarding the highest qualification of the 38 fathers of the children in the study, 27 held a postgraduate degree, nine had a bachelor's degree and two had the equivalent of a high school diploma. One father was retired while all the others were employed at the time of the study. Nine of the fathers held high level managerial posts, eight were engineers, eight were company directors, five were in finance or accountancy and three in education. Of the remaining fathers, one worked in veterinary medicine, one was a technician and one a graphics designer.

7.3.2 Time spent in France

The total time spent in France varied for the parents of the children in the study. We will consider each family profile in turn, looking first at the mothers (parents' questionnaire Part 1, Question 4). A summary of this information is given in Tables 7.5 and 7.6.

Table 7.5 Mother's time spent in France by family profile

	Less than a year	*1-3 years*	*4-9 years*	*10 or more years*
FE (N=19)	1	2	3	13
FF (N=11)	-	-	-	11
EEa (N=4)	-	-	2	2
EEb (N=4)	3	1	-	-

Table 7.6 Father's time spent in France by family profile

	Less than a year	*1-3 years*	*4-9 years*	*10 or more years*
FE (N=19)	-	-	-	19
FF (N=11)	-	-	-	11
EEa (N=4)	0	0	2	2
EEb (N=4)	3	1	-	-

Thirteen out of the 19 FE mothers had lived in France for at least 10 years, three for between four and nine years, and two for between one and three years. Only one mother had lived in France for under a year. All 11 mothers in the FF families had lived in France

for at least 10 years. All the EEa mothers had lived in France for at least four years, with two of them having lived there for more than ten years. By contrast, three out of the four EEb mothers had spent less than a year of their life in France while one had spent between one and three years there.

All the FE and FF fathers and two of the EEa fathers had lived in France for at least 10 years. The remaining two EEa fathers had lived there for between four and nine years. One of the EEb fathers had lived in France for between one and three years while the other three had lived there for under a year.

7.3.3 Future in France

We investigated how long the families of the children in the study expected to stay in France (parents' questionnaire Part 1, Question 5) as it was felt that this information might contribute to our understanding of the parents' motivation for their children to acquire French and integrate into French life. This information is summarised in Table 7.7.

Table 7.7 Family's future in France by family profile

	1-2 years	*3-5 years*	*6-9 years*	*10 or more years*
FE (N=19)	-	4	-	15
FF (N=11)	-	1	1	9
EEa (N=4)	-	1	1	2
EEb (N=4)	1	1	-	-

Fifteen of the 19 FE families expected to stay in France for at least ten years while the remaining four estimated that they would stay between three and five years. Nine of the 11 FF families planned to remain in France for at least the following ten years, while the other two families thought they would stay for three to five, or six to nine years respectively. Two of the EEa families considered that they would be in France for at least the coming ten years whereas the remaining two estimated a three to five year stay and a six to nine year stay. None of the EEb families had long-term plans to stay in France, with one family estimating a one to two year stay and the other three estimating a three to five year stay.

7.3.4 Parents' language competence in French and English

We now consider the parents' language competence in French and English in each family profile (parents' questionnaire Part 1, Questions 8, 9, 10, 11 and 12). We investigate, first, which language each parent acquired first as a child, secondly, the dominant language of each parent at the time of the study and, finally, how each parent rated his/her current oral competence in French and English. In Part 1, Question 12 of the parents' questionnaire, parents were asked to rate their competence in speaking, writing, listening and reading in French and English. However, we will report only on their scores for speaking here as we believe that these are the most relevant when considering language strategies in the home, which will be discussed in Section 7.4. Data on the mothers will be presented first and the different family profiles will be discussed in turn. Tables 7.8 and 7.9 give an overview of the mothers' self-evaluation of their oral competence in English and French respectively, while Tables 7.10 and 7.11 provide equivalent information for the fathers.

Table 7.8 Mother's self-evaluation of oral competence in English by family profile

	5	*4*	*3*
FE (N=19)	18	1	-
FF (N=11)	-	3	8
EEa (N=4)	4	-	-
EEb (N=4)	4	-	-

Note: 5=native competence, 0=no competence

Table 7.9 Mother's self-evaluation of oral competence in French by family profile

	5	*4*	*3*	*2*	*1*
FE (N=19)	2	13	4	-	-
FF (N=11)	10	1	-	-	-
EEa (N=4)	-	1	2	1	-
EEb (N=4)	-	-	1	2	1

Note: 5=native competence, 0=no competence

Table 7.10 Father's self-evaluation of oral competence in English by family profile

	5	*4*	*3*	*2*	*1*
FE (N=19)	2	11	5	-	1
FF (N=11)	2	2	7	-	-
EEa (N=4)	4	-	-	-	-
EEb (N=4)	4	-	-	-	-

Note: 5=native competence, 0=no competence

Table 7.11 Father's self-evaluation of oral competence in French by family profile

	5	*4*	*3*	*2*	*1*	*0*
FE (N=19)	17	2	-	-	-	-
FF (N=11)	11	-	-	-	-	-
EEa (N=4)	1	1	1	-	1	-
EEb (N=4)	-	1	1	-	-	2

Note: 5=native competence, 0=no competence

In the FE families, 15 mothers were native, first-language speakers of English, two were native, first-language speakers of French and two had another language as their mother-tongue although they rated English as their dominant language. Sixteen of the 19 FE mothers considered English to be their dominant language; one estimated that French was her dominant language while two considered themselves to be of native speaker level both in French and English.

When asked to estimate their oral competence in English and French on a scale of one (low competence) to five (native competence), 18 out of 19 FE mothers awarded themselves the maximum score of five overall in English while one estimated her level at four. For French, two awarded themselves the maximum score of five while 13 considered their level to be four. The remaining four awarded themselves an average of three. In the FE families, 11 out of the 19 mothers had studied languages at university, while seven described themselves as English language teachers, although they were not all necessarily working at the time of the study. We consider that this interest in language and language learning may have given these mothers an added motivation for encouraging their children's acquisition of English, the minority language in France.

In the FF families, ten of the 11 mothers were native, first-language speakers of French. The remaining mother in this profile had another language as her mother tongue although she rated her skills in French as being near-native. All 11 mothers in the FF profile

considered French to be their dominant language at the time of the study. Estimating their competence in English, none of the FF mothers awarded themselves the maximum of five points. Three estimated their competence at four while eight awarded themselves three points. For French, ten mothers gave themselves the maximum of five while the remaining one awarded herself a score of four. Five out of the 11 mothers in this profile had studied languages at university, although none taught languages.

In the EEa and EEb families, all the mothers were native, first-language speakers of English which was their dominant language. Consequently, they all awarded themselves the maximum score of five for English. There was more variation in the estimations given for French competence. In the EEa group, one mother gave herself a score of four, two a three and one a two. For the EEb mothers, one awarded herself a three, two gave themselves a two and the last mother a one. None of the EEa mothers had studied languages at university while two of the EEb mothers had. None was a language teacher.

We will now consider the languages spoken by the fathers of the children in the study. In the FE families, 16 of the 19 fathers were native, first-language speakers of French and considered themselves to be dominant in this language. Two were native, first language speakers of English who considered themselves to be dominant in English. The remaining father had another native language although he estimated his competence in English and French at native-speaker level. When asked to estimate their current oral competence in English on a scale of one (low competence) to five (native competence), two awarded themselves the highest score, eleven scored four, five scored three and one scored one. For French, 17 fathers gave themselves the top score of five while the other two gave themselves a four. Six of the 19 fathers had studied languages at university but only one was a language teacher.

In the FF families, ten out of 11 fathers were native, first language speakers of French who claimed to be dominant in French. The last father considered his French to be of native speaker level although he had another native language. Estimating their current language competence in English, two fathers awarded themselves the maximum of five, two scored four and the remaining seven scored three. They all awarded themselves the top score of five for French. Five of the fathers in the FF profile had studied languages as part of their university studies but none of them was currently teaching languages.

In the EEa and EEb families, all except one of the fathers were native, first language speakers of English and they all considered themselves to be dominant in English. The remaining father had native speaker competence in English although it was not the first

language he had acquired as a child. All eight fathers in the two EE groups awarded themselves the highest scores for English. There was a lot more variation in the self-evaluation of French skills, with one EEa father awarding himself the top score of five and the remaining three scoring four, three or one. One EEb father estimated his competence in French to be four while another scored three and the remaining two gave themselves zero, indicating no competence at all. None of the EEa fathers had studied languages at university compared to two of the four EEb fathers. There were no language teachers amongst the fathers in the two EE families.

Having examined some background information on the parents of the children in the study, relating to their education and employment, the time they had spent in France, their future in France and their oral competence in French and English, we will look at the language strategies used in the home between the different family members.

7.4 LANGUAGE STRATEGIES IN THE HOME

In Section 3.4, it was argued that the quality and quantity of interaction that bilingual children have in their two languages was probably the most reliable predictor of their bilingual proficiency. We will investigate the relationship between the quantity of language input and output and the children's language proficiency measures in Section 9.3. In this section, our aim is to examine language strategies in the home which will contribute to our understanding of the quality and quantity of exposure and interaction the children have in their two languages. We will consider the language strategies employed between the parents in Section 7.4.1, between the parents and the child in Section 7.4.2, and between the child and his/her sibling(s) in Section 7.4.3. For the parents, only current language strategies will be considered, while for the parents and child, and child and sibling(s), strategies from birth will also be assessed.

7.4.1 Current language strategies between parents

The language the parents of the children in the study used to speak to each other was addressed in Part 4, Question 4.3. Each parent was asked to indicate if he/she used only English, only French or both languages to communicate with his/her partner. Here, we investigate the strength of the relationship between the language used by the children's

mothers and fathers to communicate with each other. The results will be reviewed by family profile (FE, FF, EEa and EEb).

In the FE families, nine of the 19 mothers claimed to address their husband in both English and French, while six held that they used only French and four that they used only English. Nine out of the 19 fathers affirmed that they used both English and French with their wife while seven said they used only French and three that they used only English. The relationship between the mothers' and fathers' answers was investigated using the Spearman's Rank Order Correlation and the result was found to be highly significant (N=19, ρ=.91, p<.01). In other words, there was a set of parents in the FE family group who used only one language to communicate with each other, while there was another set who used both languages with each other. It was rare to find one parent who used only one language to the other who could respond either in the other language or using both languages. Around a third of the parents in this profile did not use English, the minority language in France, to each other. Thus, the children in these families were not exposed to additional English input when they heard their parents interacting with each other.

In the FF families, ten out of the 11 sets of parents used only French with each other while the last couple used both French and English. Interestingly, both parents in this couple had a different native language, neither of which was English or French. In the two types of EE families, English was the exclusive language used between the parents.

7.4.2 Language strategies between parents and child

The language strategies between the parents and the children in the study will be reported on here. We will begin in Section 7.4.2.1 by considering the language strategies employed between each parent and the child, and the child and each parent, from the child's birth. Thus, we are interested in ascertaining whether or not the strategies have remained constant. We also investigate the strength of the relationship between the strategies employed by the mothers and the children to each other, and the fathers and the children to each other since the children's birth. The data here come from Part 4, Questions 4.2.1 and Questions 4.2.2 of the parents' questionnaire. Then in Section 7.4.2.2 we will turn our attention to the parents' and children's current language strategies referring here to the last entry given by parents in Part 4, Questions 4.2.1 and 4.2.2 of the parents' questionnaire and also to answers given by the children in Part 1, Question 2a and 2b of

the children's questionnaire. We examine the strength of the relationship between how the parents and the children represent their current language strategies. Since we have data on current language strategies both from the parents and the children, we can examine the strength of the relationship between the reported language behaviour of each parent and the reported language behaviour of the child, as viewed, first, by the child, then by each of the parents. As above, the results will be reported according to the four family types.

7.4.2.1 Language strategies from birth

In this section, we examine the language(s) used by the mother and father to the child (Part 4, Question 4.2.1 of the parents' questionnaire), and the language(s) used by the child to the mother and father (Part 4, Question 4.2.2 of the parents' questionnaire) from the child's birth to the present. The responses were classified into three categories. The first, *totally consistent*, indicated that strategies had not altered at all since the child was born. The second, *fairly consistent*, indicated that while there had been a change in strategies, globally they had remained quite constant. The third, *fairly inconsistent*, indicated that strategies had altered more frequently. The results are summarised in Figures 7.2 and 7.3 for mother and child strategies, and in Figures 7.4 and 7.5 for father and child strategies.

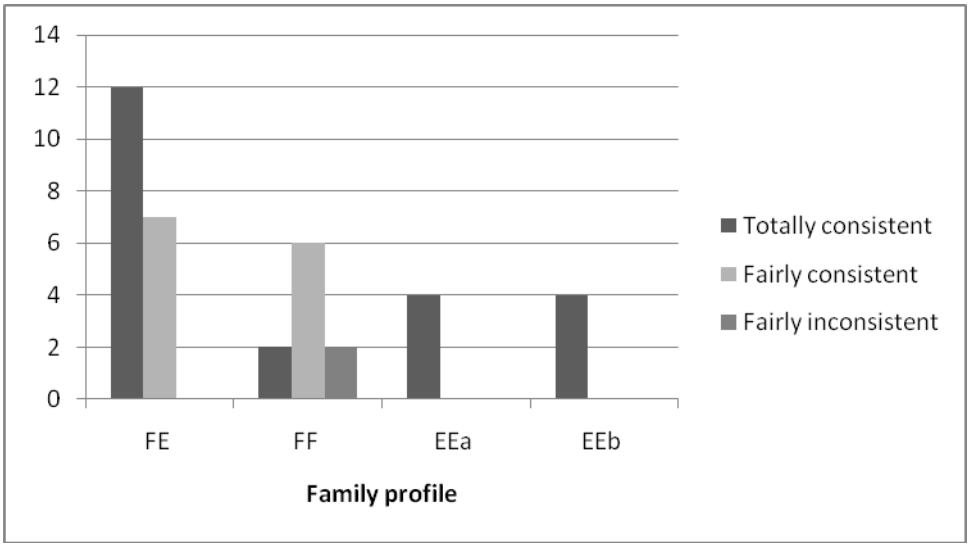

Figure 7.2 Mother's language strategies to child from birth according to parents by family profile

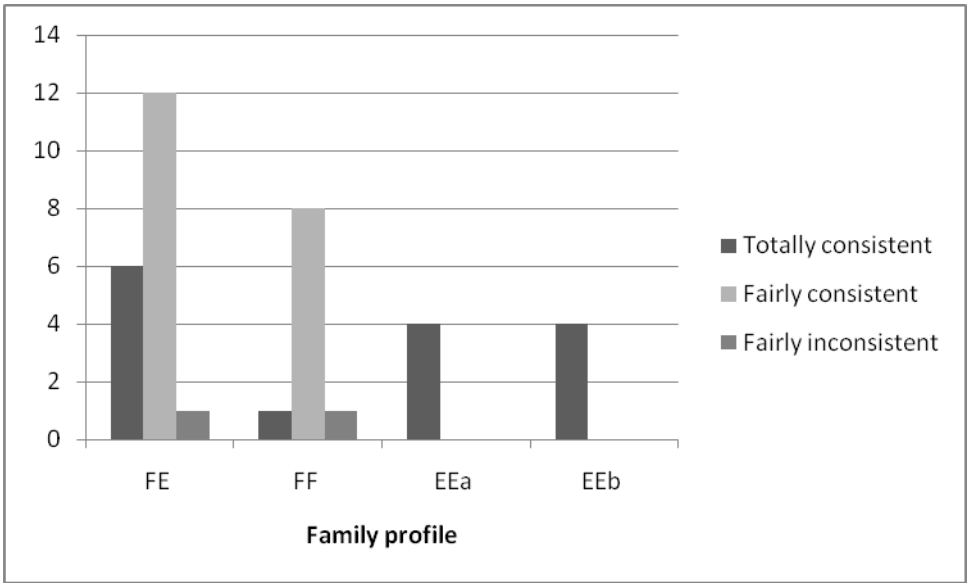

Figure 7.3 Child's language strategies to mother from birth according to parents by family profile

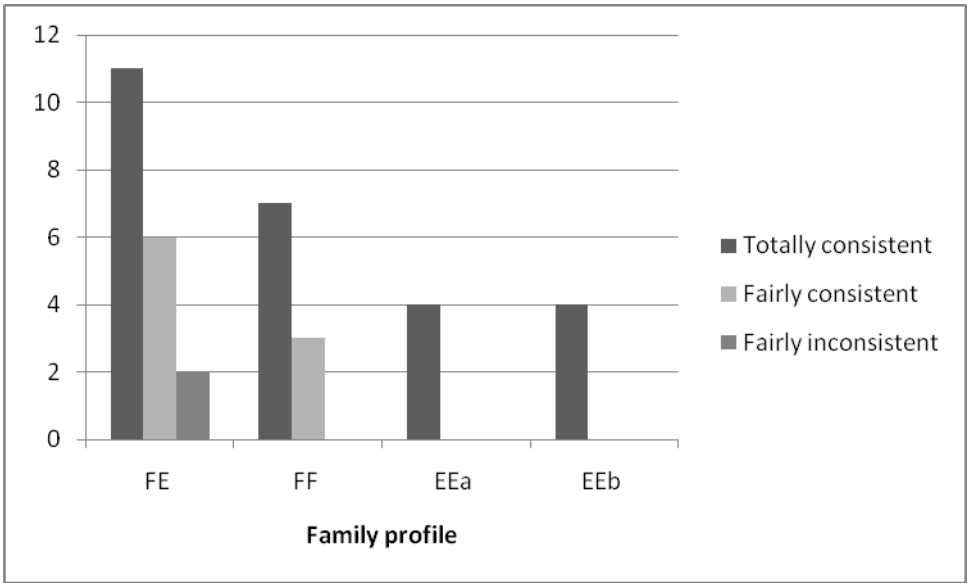

Figure 7.4 Father's language strategies to child from birth according to parents by family profile

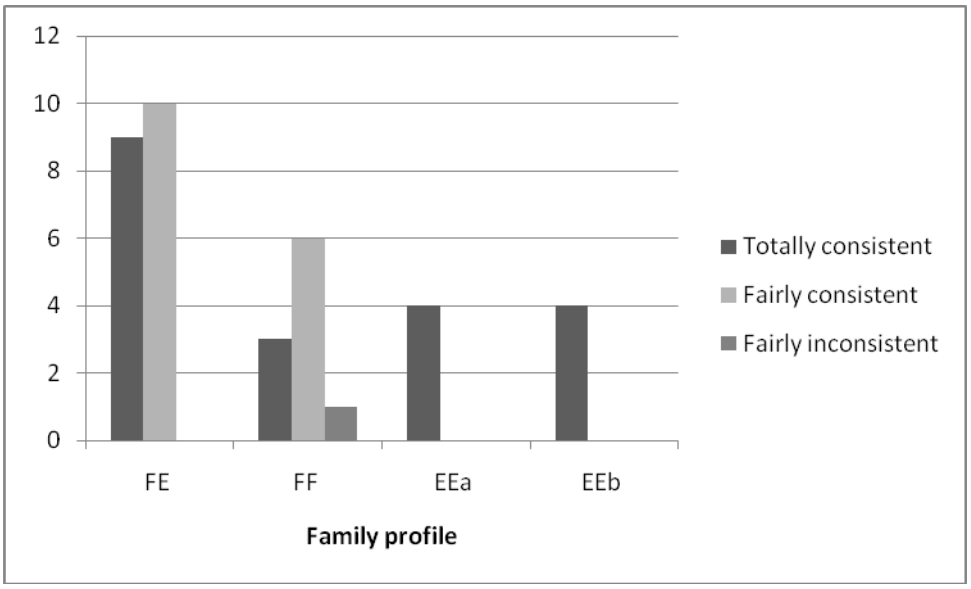

Figure 7.5 Child's language strategies to father from birth according to parents by family profile

In the FE families, 12 of the 19 mothers were totally consistent in their language strategies while the remaining seven were fairly consistent. Those who were totally consistent were all native-English-speakers and used English exclusively with their children. Those who were fairly consistent went through periods when they used either one language or the other. This included the two children who had a native-French-speaking mother and a native-English-speaking father. Regarding the children in FE families, they were totally consistent in six cases, fairly consistent in 12 cases and fairly inconsistent in one case. All the children who were totally consistent had a native-English-speaking mother with whom they used only English. The majority of children in the fairly consistent category who had a native-English-speaking mother spoke only English to their mothers until they started attending French-medium play school or nursery school. It was at this stage, when contact with French increased suddenly, that certain children began to use both languages with their mother. Spearman rho correlations taken between the mother-child and child-mother strategies are not significant (N=19, ρ=.41). In other words, if the mother used just one language, the child did not necessarily reply in the same language or he/she may have switched from one language to the other.

For the fathers in the FE profile, 11 were totally consistent in their language strategies, six were fairly consistent and two were fairly inconsistent. Of the 11 fathers who were totally consistent, two were the native-English-speakers who only ever spoke English with their children, presumably conscious that they were their major source of their children's English input. The remaining nine were native French speakers who spoke only French.

The fathers in the fairly consistent or fairly inconsistent categories were all native French speakers (except one whose native language was not French although he had native-speaker competence in it) who used English to varying degrees over the years with their children as well as using French. For the children, nine were totally consistent while ten were fairly consistent. One of the two children of the native English-speaking fathers was totally consistent in English. The Spearman rho correlation between these two sets of data is highly significant (N=19, ρ=.6, p<.01). In other words, since the child's birth, the fathers and the children in this group are quite likely to communicate with each other using the same language strategies.

One of the FF families did not complete this part of the questionnaire so we report on data from ten families. Two of the ten mothers were totally consistent, six were fairly consistent and two were fairly inconsistent in their language strategies. For the children, one was totally consistent, eight were fairly consistent and one was fairly inconsistent. The Spearman coefficient between the two sets of data is not significant (N=10, ρ=.35). For the fathers, seven were totally consistent and three were fairly consistent. However, the children were much less consistent, with only three being totally consistent, six fairly consistent and one totally inconsistent. Again, the Spearman rho coefficient here is not significant (N=10, ρ=.26).

Taking a closer look at the evolution of the language strategies in the different FF families, there were striking similarities within the group. Before the families moved from France to an Anglophone country, French was the language of communication between the parents and the child. This continued during the first year in the Anglophone country but then tended to evolve. Since the children were rapidly acquiring English from the wider environment (kindergartens, play groups, local friends), they brought the majority language into the home and started using it with their parents. Indeed, only one child out of ten continued to use only French with his parents when they were abroad. While eight out of ten fathers continued to talk to their child in French, six out of ten mothers started using both languages with their child or, sometimes, even totally switched to English over a certain period, following the child's language behaviour. Indeed, the relationship between mother-child strategies when the FF families were abroad is significant (N=10, ρ=.6, p<.05) showing that each side responded to the other and used similar strategies. By contrast, the relationship between father-child strategies when the FF families were abroad is not significant (N=10, ρ=.33) since most of the fathers continued to talk to their child in French, even if the child addressed the father in English. As the family's move to

the Anglophone country was, without exception for the FF families in this study, dictated by the father's job, since the fathers were less present in the home, the child's exposure to, and use of French decreased in these families quite considerably the longer the FF families remained abroad. Once the families returned to France, they generally passed through a period when both languages were used between the mothers and the children whereas the fathers, for the most part, continued to use only French, even if their children addressed them in English.

What is particularly striking here is that the mothers used English to their children even though, when self-evaluating their oral language skills in English in the parents' questionnaire (see Table 7.8), none of the French mothers awarded themselves the maximum of five points, while three awarded themselves a four, and eight a three. In other words, in spite of having an intermediate level in English, certain French mothers chose or perhaps felt obliged to use English with their children some time after their arrival in the Anglophone country. Presumably the input the children received in English was less rich and conceptually poorer than it would have been in French, given their mothers' competence in English. We suspect that the parents made this switch as they believed it was in the child's interest and would facilitate his/her integration into the new life in an Anglophone country. They may also have felt the pull of the power and prestige of English for their children's future. However, we wonder if the gradual reduction of French input from the mother in the young child's home environment might, in fact, have in some way been detrimental to the child at a critical stage of cognitive development. Furthermore, we wonder how the child might have been affected psychologically by his/her mother's constant switching of strategies. At a time when the child was adapting to a new life in a new country with a new language, it could be argued that the stability offered by the mother's use of the mother-tongue was important to the child's well-being, a point we raised in Section 3.3.3.1.1.

In the EEa and EEb families, the language strategies between each of the parents and the child from birth to the time of the study were totally consistent. In other words each parent addressed the child in English and the child responded in the same language. This contrasts with the switches in the language behaviour of many of the FF families when they went abroad. Admittedly, the EEb families had not been in France for a long period and they knew they were not staying in France on a long-term basis, as was shown in Table 7.7. Therefore, the maintenance of their children's English was considered to be imperative. However, Table 7.7 showed that at least two of the four EEa families

envisaged being in France for at least the following ten years. Despite this, the language routines within the home between the parents and the children remained totally fixed. Perhaps the EE families in this study had wider English-speaking social networks and facilities for child care and education than the FF families had French-speaking social networks when they were abroad. The existence of these English-speaking networks could have facilitated the maintenance of English within all the EE homes since the children were more aware of the need for English in their everyday life. In other words, they could see that it was not just a language that was used in the home as it was shared with local friends and families too. It could perhaps be argued that French was considered as a less prestigious language for the EE families than English was for the FF families. Indeed, perhaps the prestige and power attached to English meant that it had to be maintained and developed at all costs for all the families.

To sum up the findings in this section, it can be noted that within the families in each profile, even when there were few participants, some similar language behaviours have been observed. This is particularly noticeable in the FF and the EEa and EEb groups. Nevertheless, even in the FE group, common language behaviours have been identified.

7.4.2.2 Current language strategies

In this section the parents' and children's current language strategies will be investigated. We wish to know what was/were the language(s) used by parents to their child and the child to his/her parents at the time of the study. To answer this question, data were available from both the parents' questionnaire (Part 4, Questions 4.2.1 and 4.2.2) and the children's questionnaire (Part 1, Questions 2a and 2b). In the parents' questionnaire, parents were asked to choose from three possible answers with regard to language use: *French* / *English* / *Both*. In the children's questionnaire, there were five possible answers: *Always in French* / *In French more often than English* / *In French and English equally* / *In English more often than French* / *Always in English*. In order to be able to correlate the answers from the two questionnaires for our statistical analysis, we reduced the five categories in the children's questionnaire to the same three we had in the parents' questionnaire. In other words, if children answered *In French more often than English*, *In French and English equally* or *In English more often than French* we converted the answer to the single category which we called *French and English*. Thus, the three

categories which we had for the parents and the children were *French / English and French / English*.

Each family profile will be investigated in turn, beginning with the mother-child strategies then focusing on the father-child strategies. In each case, we will start by looking at what languages the children and parents claimed to use with each other, first child to parent, then parent to child. Then the strength of the relationship between how the parents and children represent their current language strategies will be examined. Finally, we will examine the strength of the relationship between the reported language behaviour of each parent and the reported language behaviour of the child, as viewed by the child and each parent. The aim here is to determine to what extent the reported language behaviour of one person was mirrored by the reported language behaviour of the other.

Table 7.12 below shows the current language strategies from child to mother and mother to child reported by the children and their mothers in FE families.

Table 7.12 Current language strategies child-mother, mother-child in FE families

N=19	*Child to mother according to child*	*Child to mother according to mother*	*Mother to child according to child*	*Mother to child according to mother*
French	-	-	1	-
English and French	6	10	3	5
English	13	9	15	14

Of the 19 families in this profile, none of the children or the mothers claimed that only French was used from the child to the mother. Thus, even in the two families where the mother was French, French was not the exclusive language used from the child to the mother. The relationship between the children's and the mothers' responses was investigated using the Spearman rho correlation. However, the result was not significant (N=19, ρ=.42). In other words, there was quite a difference in how the children and their mothers viewed the language strategies used to one another. Turning now to the strategies used from the mother to the child, one child claimed that French was the exclusive language used by the mother. However, this was not reflected in the mother's response. A similar number of mothers and children claimed that English was the only language of communication used by the mothers. Likewise, the number of mothers and children claiming that both languages were used by the mothers was comparable. However, an

investigation of the Spearman correlation between the data from the mothers and the data from the children revealed that it was clearly not always the mothers and children from the same families who answered either *English and French* or *English* since the result was not significant (*N*=19, ρ=.31).

The relationship between mother-child and child-mother strategies will now be considered, first from the point of view of the child, then from the mother's point of view. Our objective here is to determine to what degree the reported language behaviour of one person is echoed by the reported language behaviour of the other. Spearman correlations demonstrated that there was a highly significant relationship between the strategies used from the children to their mothers and the mothers to their children as represented by the child (*N*=19, ρ=.76, *p*<.01). Although the coefficient of correlation is lower from the point of view of the mother (*N*=19, ρ=.57, *p*<.05), it is nevertheless significant. In other words, the children and their mothers in FE families tended to have similar language behaviour – either they used both languages with each other or they used just one, which in most cases was English. There were comparatively few who employed different language strategies with one another, that is to say situations in which one person used both languages while the other used just one, or one person used one language whilst the other used the other language.

The current father-child, child-father language strategies in FE families will now be discussed. The results are shown in Table 7.13

Table 7.13 Current language strategies child-father, father-child in FE families

N=19	*Child to father according to child*	*Child to father according to father*	*Father to child according to child*	*Father to child according to father*
French	8	10	9	11
English and French	11	6	9	5
English	-	3	1	3

None of the FE children reported using only English to their father, including therefore the two children whose fathers were native mother-tongue English speakers. On the other hand, three fathers claimed to use only English with their child. The relationship between the two sets of responses was investigated using the Spearman correlation and it yielded a highly significant result (*N*=19, ρ=.6, *p*<.01). In other words, the fathers and the children

had a similar representation of their language behaviour when considering child to father strategies. For father to child strategies, only one child considered English to be the exclusive language used by the father, while three fathers considered this to be the case. The coefficient of correlation between the children's and fathers' overall responses to this question was highly significant (N=19, ρ=.81, p<.01) demonstrating that both parties held similar representations of their language behaviour.

The relationship between child-father and father-child language strategies will now be examined considering first the child's representation, then the father's. The Spearman rho coefficients of correlation were highly significant in both cases. From the child's point of view, ρ=.68 (N=19, p<.01) while from the father's point of view, ρ=.76 (N=19, p<.01). In other words, like the FE mothers discussed above, the FE fathers and their children tended to employ similar language strategies with each other. In this case, either both parties used both languages or they used just one which was more often French in the father-child exchanges.

Since one FF family did not complete this part of the questionnaire, data from ten FF families will be presented here. All 11 children completed the children's questionnaire. Table 7.14 presents the current language strategies employed in the FF families between children and mothers and mothers and children.

Table 7.14 Current language strategies child-mother, mother-child in FF families

	Child to mother according to child (N=11)	*Child to mother according to mother (N=10)*	*Mother to child according to child (N=11)*	*Mother to child according to mother (N=10)*
French	2	5	4	5
English and French	9	5	5	5
English	-	-	2	-

In Section 7.4.2.1, we discussed how the strategies in a number of FF families had evolved between when the families lived initially in France, to when they moved to an Anglophone country, to when they returned to France. In the data presented above, it is clear that English continued to be used between various mothers and children at the time of the study. As we pointed out above, given how certain mothers self-evaluated their skills in English (see Table 7.8), this result is quite surprising.

Looking first at child to mother communication, the majority of children reported speaking both languages to their mother, while from the mothers' point of view the responses were split evenly between using just French and using both languages. However, none of the children or the mothers claimed that English was the exclusive language used by the children. Correlating the two sets of data, the result was not significant (N=10, ρ=.5). Thus, the children and their mothers did not generally have the same representations of child to mother communication. For mother to child communication, two children claimed that English was the only language addressed to them by their mothers, whereas only four out of 11 reported that French was the only language used to them. From the mothers' point of view, the results were split between using just French, or using both languages. The Spearman coefficient for this relationship was low (N=10, ρ=.15), suggesting that the mothers and children had quite different representations of mother to child communication strategies.

We will report now on the relationship between the child to mother and mother to child strategies as represented first by the children, then by the mothers in FF families. In both cases, the Spearman rho correlation yielded insignificant results (for the children, N=11, ρ=.56; for the mothers, N=10, ρ=.2). This is quite different from the results we reported from the FE mother-child language strategies. Clearly, in the case of the mothers and children in FF families, the reported language behaviour of one member is much less likely to be echoed by the reported language behaviour of the other. In other words, if for example a mother speaks systematically in French, it is more likely that the child will speak either in English or French, or in English, than systematically addressing the mother in French. We believe that since the FF families had not been back in France for very long at the time of the study, their language routines within the home were still in a state of flux. Since English was clearly very present in certain homes when the families were living abroad, it would have been unnatural for it to disappear abruptly in the home on their return to France, even if the majority language had suddenly switched from being English to French. The data reported here show that English continued to be present in certain homes, albeit to a much lesser extent than it was when the families lived abroad. We suspect that the language routines between the FF mothers and their children would stabilise the longer the FF families remained in France, with French gradually becoming their principal language of communication.

Having investigated the language strategies employed between the FF mothers and their children, the fathers will now be considered. Table 7.15 presents the relevant data.

Table 7.15 Current language strategies child-father, father-child in FF families

	Child to father according to child (N=11)	*Child to father according to father (N=10)*	*Father to child according to child (N=11)*	*Father to child according to father (N=10)*
French	7	6	8	8
English and French	4	4	3	2
English	-	-	-	-

None of the fathers or the children reported using only English to the other. While the figures for child to father communication as represented by the children and the fathers looked very similar, the insignificant Spearman correlation (N=10, ρ=.58) reveals that it was not always the same children and fathers who were included in the different sets of figures above. The situation was very similar for father to child communication, with similar figures reported in Table 7.15 but an even lower Spearman correlation coefficient (N=10, ρ=.22). In other words, the fathers and the children had a quite different representation of the language strategies that they used with each other. What is striking in Table 7.15 is that clearly a high proportion of FF fathers claimed to be using only French with their children, compared to the FF mothers shown in Table 7.14 who were more likely to use a combination of French and English. This confirms what was reported in Section 7.4.2.1 when we discussed the FF language strategies from birth to the present. Thus, FF fathers were much more likely to use French, their dominant language, with their children even if their children sometimes addressed them in English.

Turning now to the language strategies of the child to the father and the father to the child, as represented first by the child, then by the father, the data were very similar to those reported for the FF mothers, meaning that the language strategies of one were not mirrored by those of the other. The Spearman coefficients for the children's and the fathers' views of child to father, father to child communication did not reach statistical significance in either case (N=10, ρ=.39 for the children's view; N=10, ρ=.61 for the fathers' view). The arguments put forward above with regard to the FF mothers are equally relevant here for the FF fathers. That is to say that the language routines between the FF fathers and their children had probably not stabilised since the families returned to

France and would probably evolve, so that French eventually became the main language of communication.

Turning now to the two sets of EE families, it is not surprising, in view of the discussion in Section 7.4.2.1, that the linguistic situation at the time of the study in both sets of EE families was very straightforward, as is shown in Tables 7.16 and 7.17 below. Since there was very little variation between the EEa and EEb families, the data are grouped together into Table 7.16 for the mothers and Table 7.17 for the fathers.

Table 7.16 Current language strategies child-mother, mother-child in EE families

N=8	*Child to mother according to child*	*Child to mother according to mother*	*Mother to child according to child*	*Mother to child according to mother*
French	-	-	-	-
English and French	1	-	-	-
English	7	8	8	8

Table 7.17 Current language strategies child-father, father-child in EE families

N=8	*Child to father according to child*	*Child to father according to father*	*Father to child according to child*	*Father to child according to father*
French	-	-	-	-
English and French	-	-	-	-
English	8	8	8	8

Clearly, even in the EEa families who had been in France for several years at the time of the study, English remained the language of communication between parents and children despite the dominant presence of French, the majority language, outside the home. Only one EEa child reported using some French to her mother but this was not echoed in the mother's report of language use.

We have examined the language strategies used between the parents and the children in the study. Now the strategies used between the children and their siblings will be considered.

7.4.3 Language strategies between child and siblings

We begin Section 7.4.3.1 by investigating the language strategies used between the children and their siblings from birth to the time of study as judged by the parents, in order to see whether the children's strategies were *totally consistent*, *fairly consistent* or *fairly inconsistent*. Possible explanations for switches in language strategies will also be considered. In Section 7.4.3.2, we will focus on the children's current language strategies. Having examined how the parents regarded their child's current language behaviour with siblings, we will then consider this language behaviour from the child's point of view and the relationship between the two sets of data will be examined. We will also consider the relationship between the language strategies of the child to his/her sibling(s) and the sibling(s) to the child as reported by the child. Here, our aim is to examine the strength of the relationship between the reported language behaviour of the children and their siblings, as viewed by the child in order to assess to what extent one person's language behaviour is reflected by the other's.

7.4.3.1 Language strategies from birth

We will begin by considering the language strategies used between the children and their siblings from birth to the time of the study as reported by their parents (Part 4, Question 4.2.3 of the parents' questionnaire), to see whether the children's strategies were *totally consistent*, *fairly consistent* or *fairly inconsistent*. Our particular interest here lies with the possible changes in language strategies between siblings from birth to the present which might be accounted for by certain environmental factors that we hope to identify. However, it is unfortunately not possible to do any statistical analyses on these data, given the small number of children concerned and the number of possible variables which could explain the modifications in the children's language behaviour. The four family profiles will be investigated in turn. It should be noted that a number of children in the study either did not have any siblings or, if they did, they were extremely young at the time of the study, thereby limiting the amount of two-way communication between siblings. Figure 7.6 summarises the information on child-sibling communication by family profile.

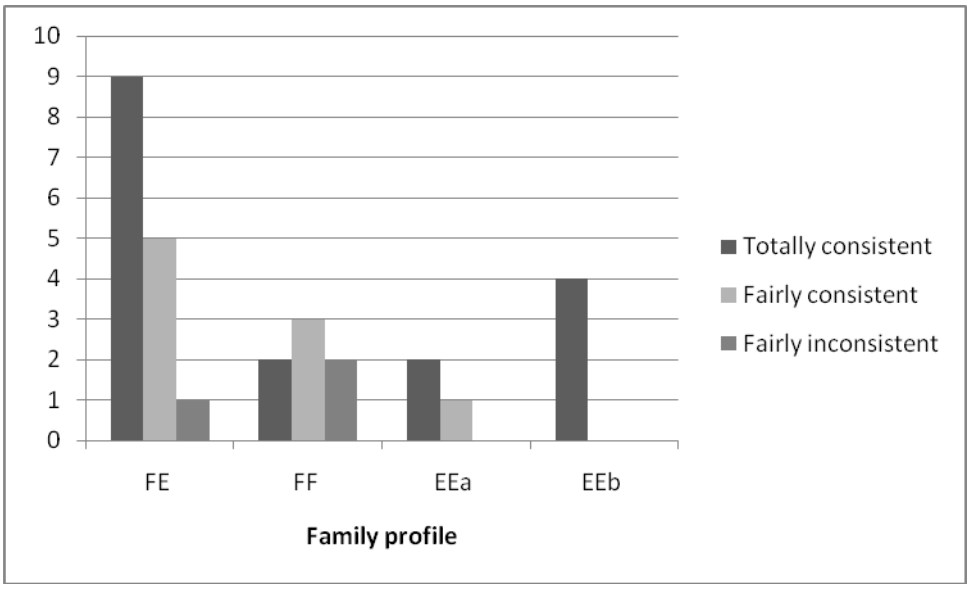

Figure 7.6 Child's language strategies with siblings by family profile

Four of the FE children had no siblings at the time of the study. Of the remaining 15, according to the parents' reports, nine were totally consistent in their language strategies with their siblings since their birth, five were fairly consistent and one was fairly inconsistent. Of the children whose language strategies were totally consistent, three always spoke to each other in French, four always spoke in English and two used both languages. The children who used only French had all attended French child care for a number of years and then went to French-medium nursery school from age three. Two of the three children who always used French had older siblings who no doubt brought French into the home from the wider community. The third was attending full-time French school by the time the younger siblings were born.

Regarding the children who always spoke English, two had an English-speaking au-pair over several years which no doubt increased the need for English in the home and encouraged the children to play and interact in English. The third had only ever lived in an English-speaking country until his arrival in France four months before the beginning of the study. The last child in this group had a younger and an older sibling. None of the children had been in child care, as their English-speaking mothers wished to spend as much time as possible with them to ensure their acquisition of English (personal communication from the child's mother and additional information provided in the parents' questionnaire).

The children who used both languages with their siblings occasionally attended French child care and from age three went to French-medium nursery school. However, the

children's English-speaking mothers did not work when their children were very young in order to encourage their acquisition and maintenance of English (personal communications from the children's mothers). Of the five children whose language strategies were fairly consistent, two began by speaking only English before switching to both languages at age four to five; two began by speaking only French before switching to both languages at age six; and one began by speaking both languages before switching to English at age six. The children who began by speaking only English were at home with an English-speaking mother until they attended French nursery school at age three – which could explain why French was then also used between siblings. The children who began speaking only French with siblings both attended French nursery schools but then added English to their communication with their siblings once they attended the IS, where they were exposed to speakers of both languages. The last child in this group, who was already speaking both languages with his older sibling, made a total switch to English once he went to the IS. Just one child had strategies with his older sibling which were more inconsistent than the other FE children. However, the child's switching strategies can be explained by his family's changing countries. Up to age two, the family lived in France and the child spoke only French with his older sibling. Indeed, both parents spoke only French to the child during this period. When the child was three, the family moved abroad, returning to France when the child was six. While living abroad, the child attended an English-medium nursery school followed by an English-medium primary school. During this period, he spoke both English and French with his sibling. On returning to France, the child had made a total switch to English.

The FF children's language strategies will now be examined. Out of the 11 children in the sample, three families did not complete this part of the parents' questionnaire. Of the remaining eight children, six had only older siblings, one had an older and a younger sibling and one had a younger sibling who was not speaking at the time of the study so will not be considered further here. All the FF children attended English-medium nursery school when they were living abroad, while those who were old enough also attended English-medium primary school there before returning to France. Two of the FF children's strategies were totally consistent. One of them, who was born in an Anglophone country where he lived until the age of five before returning to France, consistently used both languages with his two older siblings. They undoubtedly brought English into the home where both French and English were spoken by the parents. The second child whose language strategies were totally consistent only ever used French with

her two older siblings in a home where French was the only language of communication between all family members. Three of the FF children were fairly consistent in their language strategies. In each case, they began by speaking only one language with their older siblings. Two of them began by speaking French, the language of their country of residence, since the families did not move to an Anglophone country until the children were older. Within a year of the move, both children had switched to both English and French with their siblings. English was the first language of communication for the third child who was born in an Anglophone country with her three older siblings until the family returned to France when, according to the parents, there was a total switch to French. The remaining two FF children could be classified as having fairly inconsistent language strategies with their siblings since, according to their parents, their strategies changed twice. Nevertheless, like the FE child who had fairly inconsistent strategies, it is clear that the modifications occurred following a change of country and, therefore, a change of majority language. For both children French was the initial language of communication until the family moved to an Anglophone country where, within a year, English had become the new language of communication. On returning to France, both languages were used between siblings and were still being used at the time of the study.

Finally, we will assess the language strategies between siblings in the EE families. One child in the four EEa families had no siblings. The other three all attended French only nursery schools for three or four years, yet two of them spoke only English with their siblings. The remaining child spoke only English with her siblings until she was three when, according to her mother (additional information given in the parents' questionnaire), the two older siblings occasionally spoke to her in French, although she tended to respond to them in English. English was the only language of communication between the four EEb children. As we saw in Section 7.4.2.1 when we considered the language strategies between the children in the study and their parents, the very stable language behaviour of EEa and EEb children contrasted sharply with the shifting language strategies of siblings in FF families. Indeed, as we saw above, in all but one FF family, French did not remain the only language of communication between siblings once the family moved to an English-speaking environment.

7.4.3.2 Current language strategies

In this section, our interest lies in the children's language strategies with their siblings at the time of the study. To investigate this, data were available from the parents' questionnaire (Part 4, Question 4.2.3) in which parents were asked which language(s) their child used with their sibling(s) at the time of the study. However, parents were not asked in the questionnaire which language(s) the sibling(s) used with the child. There are also data from the children's questionnaire (Part 1, Question 2a and 2b) for current child-sibling and sibling-child strategies. In Section 7.4.2.2, we explained that we reduced the five categories in the children's questionnaire on the frequency of use of the two languages to the same three we had in the parents' questionnaire, in order to be able to correlate the answers from the two questionnaires. The same modifications were made for the data on sibling language strategies to enable us to carry out statistical analyses. Therefore, the three categories are *French* / *English and French* / *English*.

As in the previous sections, the four family profiles will be investigated (FE, FF, EEa and EEb). First, we will compare how the children and their parents viewed the language strategies employed by the children with their siblings and the strength of this relationship will be investigated. Then the strength of the relationship between the reported language behaviour of the children and their siblings, as viewed by the child will be examined, to discover to what extent one person's language behaviour was reflected by that of his/her interlocutors.

As we noted in Section 7.4.3.1, four children in the FE families had no siblings. We therefore have data for 15 children. Table 7.18 shows the current language strategies between the children and their siblings according to the children and their parents.

Table 7.18 Current language strategies child-siblings, siblings-child in FE families

N=15	*Child to siblings according to child*	*Child to siblings according to parents*
French	1	3
English and French	9	6
English	5	6

The relationship between the two sets of data was investigated with the Spearman rho coefficient of correlation which yielded a highly significant result (N=15, ρ=.8, p<.01). So the parents and the children in FE families had a similar representation of the language strategies used between the children and their siblings. The relationship between child-sibling and sibling-child language strategies as reported by the children was also highly significant (N=15, ρ=.98, p<.01). This demonstrates that the children considered that when interaction took place between them and their siblings, there was a strong tendency for the children to use the same language strategies with each other. Similar results were reported for FE families in Section 7.4.3.1 when mother ↔ child and father ↔ child language strategies were investigated. Taken together, these results suggest that there was a certain stability in the communication routines in the FE families which, we argue, can be explained by the fact that most of the families had been living in France, so in the same linguistic environment, for some time and planned to stay there for years to come, as we reported in Sections 7.3.2 and 7.3.3. Therefore, since the need for both languages had remained constant and there had been no major changes in the amount of exposure to and use of each language, they were able to establish consistent language strategies with their parents and siblings.

Table 7.19 shows the language strategies at the time of the study between the children and their siblings in FF families according to the children and their parents. Although all 11 children in the FF families had siblings, we have data from the parents' questionnaire for only nine of them since two families did not complete this question. In contrast, there are data from all the FF children from the children's questionnaire.

Table 7.19 Current language strategies child-siblings, siblings-child in FF families

	Child to siblings according to child (N=11)	*Child to siblings according to parents (N=9)*
French	2	3
English and French	7	6
English	2	-

The two sets of data were correlated using the Spearman correlation but the result was not found to be significant (N=9, ρ=.28). So the parents and the children did not tend to have the same representations of the language strategies used between the child and his/her

sibling(s). We suggest that this might be explained by the fact that language behaviour of several of the FF children had still not stabilised having returned to France quite recently from an Anglophone country. It was, therefore, perhaps more problematic for these children and their parents to identify with any certainty which language(s) the children were using at the time of the study. The relationship between child-sibling and sibling-child language strategies reported by the FF children was found to be highly significant (N=11, ρ=.89, p<.01) demonstrating that they tended to respond to one another with the same language behaviour.

Given the small number of subjects in the two EE groups, the data are grouped together in Table 7.20 below. Data are presented for seven children as one of the EEa children had no siblings.

Table 7.20 Current language strategies child-siblings, siblings-child in EE families

N=7	*Child to siblings according to child*	*Child to siblings according to parents*
French	-	-
English and French	2	1
English	5	6

As we observed in Section 7.4.2.2 above, when we investigated the language strategies between the EE children and each of their parents, it is clear that English was dominant between the children and their siblings. None of the EEb children or their parents reported French being used between the children and their siblings at the time of the study. On the other hand, French was sometimes present in the language exchanges of the children in at least one of the EEa families. Given that all three EEa children attended three or four years of French-medium nursery school, we believe that it was to be expected that French was sometimes the language of communication between these children and their siblings, particularly in two of the three EEa families where, in each case, there were two older siblings who no doubt brought the majority language into the home. There was no difference reported by any of the children between child-sibling and sibling-child current language strategies in this group showing that one person's reported language behaviour was always echoed by the other's.

7.4.4 Comment

We have shown in Sections 7.4.2 and 7.4.3 that there were certain factors which might account for changes in bilingual children's communication strategies with parents and siblings. It was not possible, however, to conduct statistical analyses on the data, such as regression analysis, to identify more precisely the role played by the different factors because the sample was too small. However, our data show that the following factors appeared to have an important role to play:

- The role of siblings, particularly older siblings who brought the majority language into the home;
- The language used in child care;
- The language of instruction in school;
- Moving from one country to another which led to a switch in the majority language;
- Additional input in the minority language from minority language speaking au-pairs;
- Parents not using the majority language with their children in the home;
- Minority language speaking mothers who opted to stay at home while their children were young in order to provide them with as much exposure as possible to the minority language in the home.

While these factors were not necessarily all present in each family, we have shown that they appear to explain certain language behaviour phenomena. When families are intent on maintaining and developing their children's use of the minority language, it seems that the last two elements in the list above have a key role to play, as was observed in certain FE families, one FF family and all the EE families.

As we noted earlier in this chapter we believe that the quality and quantity of interaction that bilingual children have in their two languages is likely to be the most reliable predictor of bilingual proficiency. Given the amount of time the six to eight year old children in this study spent in the company of their parents and their siblings, it is essential to establish how the two languages were distributed between the different family members, as we have done in Sections 7.4.1, 7.4.2 and 7.4.3 above. This has enabled us to have a clearer picture of the children's language contact and use within the home. In Section 3.3.2, we discussed how important it was, for the maintenance and development of children's bilingualism, to be exposed to quality language input and to produce large

amounts of output in both languages. Clearly, the exposure to, and use of one or two languages with parents and siblings are key factors to take into consideration, particularly when the children are young and spend so much time in the company of their families. The question of the relationship between the children's overall language exposure and language proficiency in each language will be investigated in Section 9.3 of this study.

7.5 CULTURAL AND SOCIAL ALLEGIANCE

In Section 3.3.3.5 we provided a working definition of the rather difficult concept of culture and we explained the concept of cultural identity. We also highlighted the crucial role that parents have in transmitting their culture to their children and we discussed the possible relationship between cultural identity and bilingualism. In this section we consider the question of the cultural and social allegiance of the parents (parents' questionnaire Part 1, Questions 14, 15, 16 and 17) and the children in the study (parents' questionnaire Part 1, Questions 18 and 19; children's questionnaire Part 3, Questions 1). The term *English culture* will be used here to apply to any culture from an Anglophone country, not just from England, while the term *bicultural* will be employed to describe those who feel they have adapted to and adopted the cultures of both the Anglophone and Francophone countries to which they are connected.

In Section 7.5.1 we will investigate how the parents of the children in the sample felt in different French and English social and cultural situations and then we will consider to what extent they felt themselves to be bicultural. In Section 7.5.2 we will consider the child's cultural allegiance as assessed by the parents, then the children themselves. Then the strength of the relationship between the parents' view and the child's view will be examined and discussed. We will report on each family profile in turn, beginning with the mothers and then considering the fathers.

7.5.1 Parents

In the FE families, 14 out of the 19 mothers claimed to feel equally comfortable in French and English social and cultural environments whereas the remaining five, who were all monolingual English speakers before they acquired French, continued to feel nervous about making social and cultural errors in French environments. However, only three of the mothers actually described themselves as being totally bicultural, while 14 felt more

English and two felt more French. The latter were both monolingual speakers of French before they acquired English. Twelve of the 19 FE fathers were equally at ease in French and English social environments. Five, who were all monolingual speakers of French before they acquired English, were more wary of making English cultural errors while the other two, originally monolingual speakers of English, were more nervous about making them in French. Just two of the fathers considered themselves to be totally bicultural, whereas 14 felt more French and three felt more English.

Five out of the 11 FF mothers considered themselves at ease in social and cultural situations in both languages, while the other six were afraid of making English social and cultural errors. Only one FF mother described herself as being totally bicultural with the remaining ten feeling more French. For the fathers, four declared that they were at ease in social and cultural environments related to both languages, while the remaining seven felt less comfortable in English situations. Like the FF mothers, only one FF father considered himself to be totally bicultural while the other ten felt more French than English.

Three of the four EEa mothers and all four EEa fathers affirmed that they were equally at ease in English and French social and cultural environments. One mother was more nervous about making French social and cultural errors. Yet only one of the EEa mothers and one of the EEa fathers regarded themselves as being totally bicultural; the others felt more English.

All the EEb parents were more uncomfortable in French social and cultural environments and felt much closer to their English culture.

These results show that very few parents felt totally bicultural, even those who had spent many years living in the country of their non-dominant language and who were married to a native of that country. Indeed, a number of these parents were still afraid of making cultural and social errors in their non-dominant culture.

7.5.2 Children

In this section, we consider the children's cultural allegiance from the point of view of the parents (parents' questionnaire Part 1, Question 18 and 19) and the children (children's questionnaire Part 3, Question 1). First, the two sets of data will be compared by family profile. Then the relationship between the two will be considered. Three additional questions which aimed to tap into the children's cultural allegiance were asked in the children's questionnaire (Part 3, Questions 6, 7 and 8). The questions dealt with the

children's English or French preferences in relation to sports teams, music and sweets and biscuits. However, since the Spearman rho coefficients of correlation were low and insignificant when the answers to these three questions were related to the two mentioned above which enquired directly about cultural allegiance, we will not consider them further here.

The four family profiles will be considered in turn. Table 7.21 presents the data on cultural allegiance for the FE families.

Table 7.21 Children's cultural allegiance in FE families

N=19	*According to the parents*	*According to the child*
French	7	1
English and French	9	11
English	3	7

All nineteen parents and children in the FE families answered the question on cultural allegiance. The number of parents and children claiming the children were bicultural was quite similar. By contrast, the results for dominance in French or dominance in English culture were more or less reversed from the parents' and the children's point of view. In Section 7.2, we reviewed the data on where the children in the study were born and in which countries they had lived. It is particularly striking, considering the number of years most of the FE children have lived in France, that just one of the FE children claimed to feel more French. This must be an indication of the amount of effort parents put into ensuring the presence of English culture in their children's lives and also of the input of English culture at the IS. Why did seven families feel that their children's dominant culture was French? We believe this could be explained by the fact that their children had never actually lived in an Anglophone country so that parents considered that French must be their dominant culture. When the two sets of data were correlated, the Spearman correlation coefficient was not significant (*N=19,* ρ=.44) showing that the parents and the children tended not to view the child's cultural allegiance in the same way.

In Table 7.22, we have the parents' and children's representation of the children's cultural allegiance in FF families.

Table 7.22 Children's cultural allegiance in FF families

N=10	*According to the parents*	*According to the child*
French	8	6
English and French	2	3
English	-	1

Of the ten parents who answered this question, the results show that 80% considered their children to be dominant in French culture despite their having lived in an Anglophone country for several years. Perhaps the answer would have been different if the question had been asked when the family was still living abroad. The majority of the children also felt more French than English. These results suggest that if both sets of parents have a clearly dominant French cultural allegiance, as is the case in this sample, it is very unlikely that the children will feel closer to English culture, at least not when the family is living in France. An insignificant reading was recorded when the two sets of data were correlated (N=8, ρ=.05).

The results for the EEa and EEb families as shown in Tables 7.23 and 7.24 respectively support the results we reported earlier in this chapter on language strategies. That is to say that none of the children or the parents considered the child to feel greater French cultural allegiance than English.

Table 7.23 Children's cultural allegiance in EEa families

N=4	*According to the parents*	*According to the child*
French	-	-
English and French	1	2
English	3	2

Table 7.24 Children's cultural allegiance in EEb families

N=4	*According to the parents*	*According to the child*
French	-	-
English and French	-	-
English	4	4

English culture totally dominated in the EEb groups for all the children, as represented by both the parents and the children. This was to be expected given the length of time the families had been in France. In the EEa families, French culture was present in certain families, which was to be expected given the amount of time some of the families had lived in France. However, we can say that in this sample, it appears that if both parents are clearly dominant in English culture, it is unlikely that the children will be dominant in French culture. Indeed, taking an overview of the EE and FF families, it can be noted that if both parents share the same dominant culture and language, there is little chance that their children will be dominant in the other culture, at least not while the children are still so young.

The relationship between the children's cultural allegiance and their stronger language will be examined in Section 9.4.6. Now having considered the question of the families' social and cultural allegiance, we will try to determine why the parents chose to send their children to the IS and how they participated in school life.

7.6 PARENTS' REASONS FOR CHOOSING THE INTERNATIONAL SCHOOL AND PARTICIPATION THERE

The fact that the parents chose to send their children to the IS rather than a monolingual French school gives some indication as to the values parents attached to bilingualism. Here, we enquire as to why parents made this choice and we assess the full group of 38 families together in view of the similarity of their responses to the questions.

When asked to provide the three most important reasons for choosing the IS (parents' questionnaire Part 2, Questions 1 and 2), 22 of the 38 families considered that being able to acquire literary skills in two languages was the main priority for their children. Indeed, 35 families (92%) placed this in their top three reasons for choosing to send their child to the school. Given the educational backgrounds of the parents of the children in the study discussed in Section 7.3.1, it is not surprising that so many placed the acquisition of literacy in two languages at the top of their list of priorities. Of the other reasons selected by parents, 26 families placed in their top three that the IS would enable their children to have a strong identity as a bilingual and bicultural individual. Twenty-two families placed the quality of the education offered in their top three, and 19 felt it was important for their children to be able to communicate with both their English and French families. Only eight families claimed to have chosen the IS for the academic or social advantage it might

offer their children. An additional reason for choosing the IS, added spontaneously to the list by ten of the 38 families was that the school offered a multicultural environment. Eight families also added that their bilingual children would feel more normal at this school than in a French school since, like them, their peers were also able to speak two languages and often came from bilingual homes.

In response to the question which enquired about parents' participation in activities in school such as school library visits, school outings and attendance at parents' association meetings (parents' questionnaire Part 2, Question 3), not surprisingly the mothers were more present. This can perhaps be explained because half the mothers were not working at the time of the study, as we noted in Section 7.3.1, so they presumably had more free time to devote to the school than their partners had. Overall, 27 of the 38 mothers took part regularly in some kind of activity in school compared to just one father. Looking at the different family types, there were 12 out of 19 FE mothers, eight out of 11 FF mothers, three out of four EEa mothers and all four EEb mothers who participated regularly in school activities.

Parents' regular participation in school activities demonstrates to the children the parents' keen interest in their education, which brings the school and the home environments closer together. In the case of the IS, when children saw their parents making an effort in school to interact in French and English with teachers, other parents and children, even if they did not necessarily have strong language skills in both languages, it must have sent out a positive message to them. Indeed, it was an indication of the positive values attached by the parents to bilingualism and bilingual education which in turn could help the children's integration. The question of the importance of positive attitudes will be developed further in the following section, where we look more closely at the parents' and children's attitudes towards bilingualism.

7.7 ATTITUDES TO BILINGUALISM

This section is divided into three parts. In the first part, Section 7.7.1, we investigate how parents viewed a number of factors related to being bilingual. In Section 7.7.2 we examine the effects parents believed bilingualism had on a range of academic and non-academic skills and behaviours. Finally, in Section 7.7.3 we consider, first, the children's attitudes to bilingualism as represented by the parents and, secondly, we assess how the children themselves thought other people viewed their bilingualism.

7.7.1 Importance of factors related to being bilingual

Parents were asked to consider the importance of various factors related to being bilingual (parents' questionnaire Part 5, Question 1) and to score the given statement on a scale of one (least important) to five (most important). The factor which scored five most frequently was the possibility of having oral and written fluency in both languages which was awarded five by 22 families out of 38. Interestingly, this was also the most important reason chosen by parents for sending their child to the IS which we saw in Section 7.6 above. Clearly then, their children's acquisition of literacy skills in both languages is of key importance to most parents. The second factor which was awarded five by 21 families was being fluent in two languages. Using both languages on a regular basis was awarded five by 16 families, while belonging to two cultures received 11 scores of five. The least important of the five statements, passing as a monolingual in both languages, received just three scores of five. Since each statement could score from one to five, the total number of points per statement was calculated and the results are shown in Table 7.25. The scores have been organised from the highest score to the lowest.

Table 7.25 Importance of factors relating to bilingualism according to parents

Factors	*Total score*
Being fluent in both languages	158
Having both oral and written fluency in both languages	154
Using both languages on a regular basis	147
Belonging to two cultures	113
Passing as a monolingual in two languages	87

Once again, the statements relating to language fluency and language use were considered by parents to be the most important for bilingualism. The mean scores for each of the five statements by family profile are shown in Table 7.26.

Table 7.26 Mean score by family profile for factors relating to bilingualism

	Using both languages on a regular basis	*Being fluent in both languages*	*Belonging to two cultures*	*Passing as a monolingual in two languages*	*Having both oral and written fluency in both languages*
FE (N=19)	4.3	4.4	3.5	3.1	4.2
FF (N=10)	4	4.6	3.4	2.1	4.6
EEa (N=4)	4.5	4.3	2	2	4.3
EEb (N=4)	4	4	2.3	1.7	5

The table shows that the priorities of the parents from the different family profiles were very similar, with the highest scores being awarded to the top three factors in Table 7.25 which all scored between four and five, and the lowest scores going to the bottom two factors which scored between 1.7 and 3.5.

7.7.2 Effects of bilingualism on skills and behaviours

We will now consider the effects parents believe bilingualism had on a range of academic and non-academic skills and behaviours (parents' questionnaire Part 5, Question 2). The overall results can be found in Table 7.27. The answers have been sorted in the table according to the number of positive responses given by parents.

Positive outcomes were reported in 61.4% of parents' responses while negative ones were reported in just 4.5% of cases. Neutral effects were reported in 15% of responses, whereas parents claimed not to know if bilingualism affected certain skills and behaviours in 19% of cases. Thus, three-quarters of responses (76.4%) claimed that bilingualism had either a positive or neutral effect. Children were likely to be aware of the positive attitudes of their parents towards bilingualism which should in turn have influenced their own attitudes towards it. Furthermore, the fact that parents had chosen to send their child to a school which clearly encouraged and promoted bilingualism confirmed their positive beliefs and again should have had a positive influence on the child.

Table 7.27 Effects of bilingualism on a range of skills and behaviours according to parents

	Positive	*Negative*	*No effect*	*Don't know*
Language awareness	38	-	-	-
Ability to learn additional languages	37	-	-	1
Mental flexibility/intellectual functioning	37	-	-	1
Open-mindedness	34	-	2	2
Social sensitivity	34	-	2	-
Sociability	27	1	6	3
Self-image	26	1	2	9
Reading skills	22	3	5	7
Creativity	21	-	9	8
Quantity of vocabulary in each language (compared to monolinguals)	18	10	1	9
Powers of expression in each language (compared to monolinguals)	18	8	2	9
Writing skills	18	5	5	9
Performance at school	17	1	10	10
Problem-solving	14	-	13	11
Musical ability	13	-	11	14
Abstract thinking	12	-	10	16
Mathematical ability	7	-	18	13
TOTAL	393	29	96	122
PERCENTAGE OF TOTAL RESPONSES	61.4%	4.5%	15%	19%

Table 7.27 shows that between 90 and 100% of the parents in the study believed that bilingualism had a positive effect on language awareness, learning additional languages, mental flexibility and intellectual functioning, and social sensitivity. While there were proportionately few cases in which parents believed that bilingualism may have a negative effect, it is interesting to consider which skills were highlighted, albeit for a small proportion of parents overall. We presume here that parents based their responses on what they had seen principally in their own children's language behaviour or, to a lesser degree, in the language behaviour of other bilingual children with whom they had regular contact. The highest negative score was given to quantity of vocabulary in each language compared to monolinguals, with over a quarter (26%) of parents suspecting that their children may have lower levels of vocabulary in each of their languages compared to

matched monolinguals. Indeed, these feelings are supported by research findings which we reported in Section 6.6.2.2.1, when we stressed that while bilinguals may have smaller vocabularies in each of their languages, their total conceptual vocabulary could well equal or exceed that of matched monolinguals. Interestingly, if we consider how the parents in the different family profiles reacted to this statement, it can be noted that none of the four families in the EEb group voiced a negative point of view on the subject of vocabulary acquisition. Although there were only four families in this group, since their children had been acquiring French for a only short period, the parents had probably not seen any signs that their children's English lexical knowledge had in any way suffered or been influenced by French. For these children, the English lexical items were probably still more salient than the French, even in certain domains linked to school where they were exposed to more French. Therefore, these children who were still in the early stages of their acquisition of French were unlikely to mix French lexical items into English stretches of discourse when talking to their parents. Added to this is the fact that the children were aware that their parents were not competent speakers of French, so the parents may not actually have understood their children if they had code mixed. In the other three profiles, six out of 19 FE parents, three out of 11 FF parents and one out of four EEa parents suspected that bilingualism may have a negative effect on vocabulary acquisition. What is it in the children's language behaviour that might have led these parents to hold this point of view? We believe that when parents heard their child code mixing which is common in bilingual children, they may have interpreted this as a sign that the child had lexical gaps in the base language. In fact, more often than not this type of lexical code mixing is because the lexical item is more salient in one language as it is used more often, but that does not mean that it is not present in the other language. It is perhaps significant that six of the nine parents, who said they felt bilingualism may have a negative effect on the acquisition of vocabulary in each language, said they always remarked on language mixing to their child and actually discouraged him/her from doing it (parents' questionnaire Part 4, Question 4.7.1). So by discouraging the child from code mixing, the parents presumably hoped to succeed in introducing or activating the relevant lexical items in the appropriate language, thereby keeping the two languages quite separate.

Related to the observation that bilingualism may lead to lower levels of vocabulary in each of their languages than they would have if they were monolingual, is the reaction of 21% of parents that being bilingual might have a negative effect on children's powers of

expression in each of their languages. Indeed, seven out of the eight parents who gave a negative answer to this question also did so to the question related to vocabulary acquisition. Perhaps when parents compared their own bilingual child to other monolingual children from similar family backgrounds, they felt that in some ways their child was less articulate and used language which was not as rich and varied. Again, the question of language mixing might also have influenced their perception of their child's powers of expression.

Five families believed that bilingualism may have a negative effect on writing skills. Four of them had also answered that it may have a negative effect on vocabulary acquisition and powers of expression in each language. Finally, two of the three families who believed that bilingualism may have a negative effect on reading skills also believed that it would negatively affect writing skills and vocabulary acquisition and powers of expression in each language. Although there were negative outcomes reported for sociability, self-image and performance at school, since in each case these involved just one negative response out of a possible 38, they will not be discussed further here.

7.7.3 Children's attitudes to bilingualism

In view of the overall positive attitudes of the parents as discussed above, we anticipate that as a result the children are likely to feel comfortable with their bilingualism. The question of the children's attitudes to bilingualism was investigated in Part 4, Question 4.7.9 of the parents' questionnaire. If parents reported that their child had demonstrated negative attitudes towards bilingualism, they were then asked to indicate what had alerted them to this. Table 7.28 below shows the children's attitudes to bilingualism according to their parents. Data were available for 37 children as one FF family did not complete this part of the parents' questionnaire.

Table 7.28 Children's attitudes to bilingualism as reported by their parents

	FE (N=19)	*FF (N=10)*	*EEa (N=4)*	*EEb (N=4)*	*Total (N=37)*	*Percent*
Negative	7	2	1	1	11	29.7
Positive	12	8	3	3	26	70.3

The results show that two thirds of the children never expressed negative attitudes to their parents about being able to speak two languages. Of those who did, three main reasons can be identified according to parents' reports. First, five children were embarrassed about speaking the minority language to the minority language speaking parent in front of their majority language speaking friends. This was the case for three FE children with regard to their English-speaking parent when they attended French nursery school in France, and for two FF children in relation to their French-speaking parent when they went to English-medium nursery school while living in an Anglophone country. Clearly, these children did not want to be seen as being different from their monolingual peers. Indeed, for one FE child living in France, when the time came to learn an English song at her French nursery school, her parents reported that she deliberately pronounced it with a marked French accent so as to sound the same as her peers. The second reason for expressing negative attitudes towards bilingualism was given by four parents, who reported that their children had shown frustration at not being able to express certain ideas in their weaker language, while they were highly articulate for their age in their stronger language. This resulted in negative comments about the weaker language, such as "French is stupid" or "I hate French classes". Finally, two parents reported that their children complained that being bilingual resulted in their having more homework from school than their monolingual peers who attended French primary schools, since they had to do it in two languages.

The question of the attitudes to the children's bilingualism of people outside their family was addressed in Part 4, Question 4.7.10 of the parents' questionnaire and also in Part 3, Question 11 of the children's questionnaire. According to the 37 sets of parents who answered the question on the parents' questionnaire, only two parents reported that their children had been on the receiving end of negative comments relating to their bilingualism. One family reported that their FF child was mocked by some IS classmates for having a French accent when she spoke English. The other family explained that their EEa son had become less extrovert over a period when the family first moved to France.

In reply to the question on the children's questionnaire (Part 3, Question 11) enquiring how people reacted to their bilingualism, 26 children replied that people reacted positively ("*great*" on the questionnaire) and 11 said that they did not know how other people felt as they did not express an opinion. Only one child said that people thought it was bad but did not elaborate. Clearly, if the children were aware that outsiders as well as

their close family had a positive attitude to their bilingualism, their self-image would be enhanced and they were more likely to feel favourable to being bilingual.

In the next section, we consider another aspect of how parents can transmit positive values about bilingualism to their children, investigating the efforts made by parents to maintain and develop their children's bilingualism.

7.8 LANGUAGE MAINTENANCE AND DEVELOPMENT

Given the positive attitudes towards bilingualism of the parents of the children in the study which we showed in Section 7.7, and the parents' reasons for choosing to send their children to the IS which were discussed in Section 7.6, we presume that the parents would be prepared to put a lot of effort into maintaining and developing their children's two languages. In the parents' questionnaire, parents were asked to provide information on the frequency of a range of activities which might encourage the maintenance and development of their child's bilingualism. We have chosen to focus on a small number of these which we felt were the most relevant and representative. Thus, we will consider how often parents from each family profile spent reading to their children in French and English in Section 7.8.1, how often the children visited an English-speaking country in Section 7.8.2, and finally in Section 7.8.3 whether parents made a conscious effort to mix with French and English people (Parents' questionnaire Part 2, Questions 2, 3 and 4).

7.8.1 Reading in French and English

We will consider here the four family profiles in turn, before taking an overview of the reading habits of the families of the 37 children in the sample whose parents responded to this question. Tables 7.29 and 7.30 summarise this information for French and English respectively.

Table 7.29 Parents' reading frequency to child in French by family profile

Frequency	*FE (N=19)*	*FF (N=10)*	*EEa (N=4)*	*EEb (N=4)*
Usually daily	3	3	1	-
4-5 times per week	3	2	1	-
1-2 times per week	9	5	2	3
1-2 times per month	2	-	-	-
A few times per year	1	-	-	-
Never	1	-	-	1

Table 7.30 Parents' reading frequency to child in English by family profile

Frequency	*FE (N=19)*	*FF (N=10)*	*EEa (N=4)*	*EEb (N=4)*
Usually daily	9	3	3	3
4-5 times per week	2	4	1	1
1-2 times per week	7	3	-	-
1-2 times per month	1	-	-	-
A few times per year	-	-	-	-
Never	-	-	-	-

Beginning with the FE families, 15 out of 19 claimed to read in French to their children at least once a week, with six of these claiming to read in French at least four times a week. Two families reported reading in French once or twice a month, while one reported reading a few times per year, and another, never reading in French. Eighteen out of the 19 families reported reading in English at least once a week, with 11 claiming to do so at least four times a week. Only one family reported reading in English just once or twice a month.

In the FF families, data were available from ten out of 11 families, all of whom reported reading in French at least once a week, with five families claiming to read at least four times a week. Similar reading frequency was reported for English, with all ten families claiming to read at least once a week, while seven of them said they read in English to their children at least four times a week.

All four EEa families reported reading in French at least once a week, with two families claiming to read at least four times a week. Three families reported reading in English every day while the last claimed to do so at least four or five times a week.

In the EEb families, three out of four families said they read in French to their children once or twice a week. We believe that this is a clear indication of the parents' positive attitudes towards the language and the school which was no doubt communicated to the children. Nevertheless, in view of the parents' self-evaluation of their own French oral language skills reported earlier in Tables 7.9 and 7.11, we wonder if the model of language they provided, particularly in the case of those parents who awarded themselves a score of three or below for French, was actually helping their children to progress. The last EEb family claimed never to read in French with their child. In contrast, three families reported reading in English every day and one reported doing so four or five times a week.

Tables 7.31 and 7.32 give an overview of the frequency of reading in French and English respectively of the 37 parents who completed this part of the parents' questionnaire.

Table 7.31 Overview of parents' reading frequency to child in French

Frequency	*Number of parents (N=37)*	*Percent*	*Cumulative Percent*
Usually daily	7	18.9	18.9
4-5 times per week	6	16.2	35.1
1-2 times per week	19	51.4	86.5
1-2 times per month	2	5.4	91.9
A few times per year	1	2.7	94.6
Never	2	5.4	100

Table 7.32 Overview of parents' reading frequency to child in English

Frequency	*Number of parents (N=37)*	*Percent*	*Cumulative Percent*
Usually daily	18	48.6	48.6
4-5 times per week	8	21.6	70.2
1-2 times per week	10	27	97.2
1-2 times per month	1	2.7	100

These results clearly show how the parents were present for their children and committed to their development of literacy and to their education generally. This is to be expected, given the parents' educational background and SES discussed earlier in Section 7.3.1. Reading in English was more frequent overall than reading in French, highlighting again the determination of parents to maintain and develop their children's English while living in a French environment. Indeed, children were read to in English every day in 48.6% of cases while the corresponding figure for French was 18.9%. Furthermore, 70.2% of parents claimed to read in English at least four times a week to their children whilst half that number (35.1%) claimed to read in French.

7.8.2 Visiting an English-speaking country

Table 7.33 shows the frequency of visits to an Anglophone country of the children in the four family profiles.

Table 7.33 Frequency of visits to an English-speaking country by family profile

Frequency	*FE (N=19)*	*FF (N=10)*	*EEa (N=4)*	*EEb (N=4)*
3-4 times per year	2	-	2	-
1-2 times per year	16	8	2	4
Less than once a year	1	1	-	-
Never	-	1	-	-

Of the 19 FE families, 18 visited an Anglophone country at least once or twice a year with two of these families doing so three to four times per year. Only one FE family visited an English-speaking country less than once a year. Of the ten FF families who completed this question, eight went to an Anglophone country once or twice a year, while one family visited less than once a year and one never visited. All four EEa families visited an Anglophone country at least once a year, with two families going three or four times per year. All four EEb families went to an Anglophone country once or twice a year.

Table 7.34 gives an overview of the frequency of visits to an English-speaking country of all the families in the study.

Table 7.34 Overview of frequency of visits to an English-speaking country

Frequency	*Number of parents (N=37)*	*Percent*	*Cumulative Percent*
3-4 times per year	4	10.8	10.8
1-2 times per year	30	81.1	91.9
Less than once a year	2	5.4	97.3
Never	1	2.7	100

Parents were evidently aware that the more contact their children had with English, the more likely they were to maintain and develop it. In fact over 90% of the families visited an Anglophone country at least once a year, with a number of these families making more frequent trips.

7.8.3 Mixing with French and English people

Table 7.35 and 7.36 compare the efforts made by the families in the different profiles to mix with French-speaking and English-speaking people. One family from the FF group did not complete this part of the parents' questionnaire. There are, therefore, data on 37 families.

Table 7.35 Parents' efforts to mix with French people

	FE (N=19)	*FF (N=10)*	*EEa (N=4)*	*EEb (N=4)*	*TOTAL (N=37)*
Yes	6	-	3	3	12
No	13	10	1	1	25

Table 7.36 Parents' efforts to mix with English people

	FE (N=19)	*FF (N=10)*	*EEa (N=4)*	*EEb (N=4)*	*TOTAL (N=37)*
Yes	13	9	3	1	26
No	6	1	1	3	11

In the FE families, there was clearly more of a conscious effort being made to meet English-speaking rather than French-speaking people. Indeed, more than double the number of FE families admitted to deliberately establishing English-speaking social networks compared to French. Since these families lived in France and had one parent who was a native French speaker, it was virtually impossible for their children to avoid mixing with French people such as family, neighbours, school friends and generally people in the wider community. On the other hand, if a conscious effort was not made by parents to find English-speaking networks outside the home, English could become limited to exchanges between family members. Having social networks in which the children's two languages were present encouraged the children to see that both their languages were important and essential to their communicative needs in their everyday life. It also helped them to realise that they were no different from other children since many of the children they met outside school also spoke two languages. We pointed out in Section 7.7.3 how important it is for children not to feel any different from their peers. So by establishing networks where English is present beyond the close family circle, parents are more likely to ensure that their children feel comfortable and positive towards the language and everything it represents.

The results are even more striking for the FF families with nine out of ten of them making conscious efforts to mix with English-speaking people, while no particular efforts were made by any of the families to mix with French people. The huge efforts made by parents to build up English-speaking social networks demonstrates once again how aware the French families were of the importance of increasing their children's exposure to English outside school. Indeed, the IS English teachers regularly remind the FF parents in particular, at parent-teacher meetings, that their children's English level cannot be maintained solely by contact with English in school and that it is essential for them to create multiple opportunities outside school for their children to use and develop their English with native English speakers.

In the EEa families, three out of four made conscious efforts to mix with both French and English speakers. We presume that the motivation for wishing to have wide English social networks was similar to that of the FE families discussed above. As far as French is concerned, since these families were living in France on a long-term basis, parents were aware how important it was for their children to feel socially and culturally well-integrated into French life, so that they did not consider themselves as being different from their French peers. In addition, from a linguistic point of view, since French was

acquired outside the home by the EEa children, the more French social networks they had, the more exposure they had to French and, as a result, the more efficient their acquisition of French was likely to be.

The results for the four EEb families are quite striking. Although the results for efforts to mix with French people were the same as those reported above for the EEa families, the situation of the two types of family is quite different, since in contrast to the EEa families, the EEb families only had short-term plans to remain in France, as was shown in Table 7.7. Nevertheless, despite the relatively short length of their stay in France, the four EEb families wished to enable their children to take full advantage of the experience in order to acquire a new language and culture. Interestingly, the same three families claimed to make no particular efforts to mix with other English-speakers. This seems to reinforce the fact that they wished their children to integrate into French life as fully as possible during their stay there, although clearly these families were bound to meet other English-speaking families through the IS, so would inevitably move in English-speaking social networks too.

7.9 CONCLUSION

In this chapter we have examined the family backgrounds of the 38 children in the study using the data we collected through the parents' and children's questionnaires. Our objective was to have a better understanding of, first, the children's language contact and experiences and, secondly, how the parents contributed to the children's bilingual acquisition and maintenance, cultural identity and attitudes towards bilingualism.

We began in Section 7.2 by noting where the children were born, in which countries they had lived since their birth, and at what age they had acquired each language. The data showed that within each family profile there was a certain amount of variability. The parents were the focus of Section 7.3 where we began by considering their educational backgrounds and professions. These data showed that all the families of the children in the study were of middle to high SES. We then considered the length of time each of the parents had been in France and how long they planned to stay there. What was striking here was that, apart from the EEb families, most of the other families planned to remain in France for the foreseeable future which can explain the parents' motivation for their children to learn French and integrate into French life and culture. Our focus then shifted

to the parents' self-evaluation of their oral language skills in French and English where once again we noted a certain amount of variation within the different family profiles.

In Section 7.4 we focused on the language strategies in the home between parents, parents and children, and children and siblings. We noted that language strategies in FE, EEa and EEb families tended to be consistent or fairly consistent, even when families moved from a country speaking one of the languages to a country speaking the other. In contrast, strategies within FF families were shown to change more frequently particularly between the children and their mothers. What was noteworthy here was that while none of the FF mothers self-evaluated their English oral proficiency at a native level, certain of them nevertheless used English rather than their native French to communicate with their children. We also highlighted certain common factors which we felt might lead to a change in language strategies within families, such as a change in country and, thus, a switch in majority language. Furthermore, we noted a number of factors which could help maintain and develop the minority language, for instance the minority-language speaking mothers opting to stay at home when the children are still young in order to increase the child's contact with the minority language.

In Section 7.5, we focused on social and cultural allegiance, noting first that very few parents felt fully bicultural, even though certain of them had been living in the country of their non-dominant language for many years. Next, we considered the children's cultural allegiance from the parents' point of view and from the point of view of the children themselves. We observed that the parents and the children in the FE and FF families did not necessarily have the same representation of the children's cultural allegiance. Furthermore, we noted that, in general, if both parents were dominant in the same culture and language, it was unlikely that these young children would feel closer to another culture even if the family were resident in the country of the non-dominant culture. This underlines further the key role played by parents in transmitting culture to their children, particularly when the children are young.

In Section 7.6, we investigated what motivated parents to send their children to the IS and in what ways parents participated in school activities. Our results were as we had expected given the SES of these families and the high value they put on education. Indeed, their main reasons for choosing the IS for their children were the acquisition of biliteracy, the quality of education it offered and the acquisition of a strong bilingual and bicultural identity. Our findings also demonstrated the active participation in school of many parents, particularly the mothers, which no doubt was a further indication of the

high value parents attached to education and to their children's bilingualism. This was highlighted again in Section 7.7 where we began by investigating how parents rated several factors related to bilingualism. Here, factors related to written and oral language fluency in two languages were rated the highest by parents. Furthermore, we observed that over three-quarters of parents' responses demonstrated their belief that bilingualism would have either neutral or positive effects on a wide range of academic and non-academic skills and behaviours. The parents' positive attitudes towards bilingualism were no doubt to a large extent responsible for the children's positive attitudes, with few reports of children expressing negative attitudes to being bilingual.

In Section 7.8 we examined how parents maintained and developed their children's two languages. Our findings showed that while parents were clearly committed to developing their children's biliteracy, reading in English was more frequent, with nearly 70% of parents claiming to read in English to their children at least four or five times a week. The desire to maintain and develop English language and cultural awareness was demonstrated again through the data that showed that almost 90% of families in the study visited an English-speaking country at least once a year. Finally, our data showed that many families made conscious efforts to establish both English-speaking and French-speaking social networks, particularly seeking out friends to provide support for the language with which their children had less contact.

Overall this chapter has demonstrated the very strong commitment of these middle to high SES parents to developing and maintaining their children's dual language acquisition. Clearly, the children in this study are growing up in additive bilingual environments in which a very high value is placed on bilingualism. The positive beliefs and values of the parents must inevitably impact on the children. In Chapter 9 of our empirical study, we investigate how a number of input factors relate to the children's proficiency in each of their languages. Before doing this, however, we will report in Chapter 8 on the children's performance on the two different measures we used to assess their proficiency in English and French.

CHAPTER 8 – MEASURING BILINGUAL PROFICIENCY

8.1 INTRODUCTION

This chapter examines the scores obtained by the 38 children from the International School on the two measures used to assess language proficiency. The first assessment measure was the Peabody Picture Vocabulary Test, given in the British English version, *The British Picture Vocabulary Scale 2nd Edition* (BPVS) (Dunn *et al*., 1987), and the French version, *L'Echelle de Vocabulaire en Images Peabody* (EVIP) (Dunn *et al*., 1993). Both tests were presented in Section 6.6.2.2. The second measure was the Student Oral Language Observation Matrix (SOLOM), presented in Section 6.6.2.3, a criterion-referenced rating scale which was completed in English and French by the children's teachers and, independently, by the researcher.

While some tentative explanations of the scores on the language proficiency measures will be offered throughout this chapter based on data on the families which were presented in Chapter 7, the full investigation of how certain input factors impact on the children's language proficiency in French and English will not be conducted until Chapter 9. In the current chapter, we will comment on the scores obtained by the children according to the four different family profiles – 19 children with one Francophone and one Anglophone parent (FE); 11 with two Francophone parents (FF) who had lived in an English-speaking country for between three and five years and have been back in France for between four and 30 months; four with two Anglophone parents who have been in France for more than three years (EEa), and, finally, four with two Anglophone parents who have been in France for under 18 months (EEb). In view of the small number of children in the EEa and EEb groups, we have to be extremely cautious in our remarks.

The scores on the Peabody tests will be examined in Section 8.2. The means and standard deviations of each of the four family types will be assessed on the BPVS and then on the EVIP, before we consider the distribution of scores on each of the tests according to the score bands provided in the testing manuals accompanying the Peabody tests. The aim here is to compare the performance of the children from the different family profiles in order to have an initial overview of the scores and their general distribution. The question of bilingual balance and level of competence in each language will then be addressed by

first comparing the children's scores on the two language versions of the tests and, secondly, looking more closely at the level of competence attained in each. The question of how degree of bilingualism relates to cognitive competence will be discussed here in relation to Cummins' (1976) threshold hypothesis.

Having considered the Peabody scores, we will then turn to the scores on the SOLOM scales in Section 8.3. First, the strength of the relationship between the total scores awarded by the children's teachers and the researcher will be investigated using the Pearson product-moment coefficient of correlation for the English version, then, for the French version. Our objective here is to assess to what extent the teachers and the researcher held similar representations of the children's competence in each language. Next, having compared the means and standard deviations of each of the four family profiles on the two language versions of the teacher SOLOM scales, we look closer at the distribution of scores within each family profile. Here we comment on the overall scores obtained by the children on the SOLOM in each language before focusing on their scores in the five individual domains of proficiency evaluated by the scale.

In Section 8.4 we examine the strength of the relationship between the children's scores on the Peabody tests and those on the SOLOM scales in order to assess if the two evaluation tools are providing similar information on the children's language skills. Finally, the advantages and drawbacks of the two testing instruments will be discussed in Section 8.5 with the aim of selecting just one of them as our main measure of language proficiency for the rest of the study.

8.2 SCORES ON THE PEABODY TESTS OF RECEPTIVE VOCABULARY

8.2.1 Descriptive statistics

A description of the Peabody tests can be found in Section 6.6.2.2. Table 8.1 shows the means and standard deviations on the BPVS and EVIP of the 38 children according to the four family profiles, FE, FF, EEa and EEb.

Table 8.1 Means and standard deviations for the BPVS and EVIP by family profile

		Mean	*Standard Deviation*
FE (N=19)	*BPVS*	96.8	12.9
	EVIP	117.2	13.9
FF (N=11)	*BPVS*	89.8	8.6
	EVIP	113.1	10.7
EEa (N=4)	*BPVS*	96	6.4
	EVIP	106.3	11.9
EEb (N=4)	*BPVS*	112	5.6
	EVIP	69	18.7

The EEb group had the highest mean on the BPVS. Indeed, it was 15.2 points higher than that of the FE children, 16 points higher than the EEa children and 22.2 points higher than the FF children. The EEb children had been in contact with French for a maximum of 18 months. Until that point, their language input and output were entirely in English. If quantity and quality of input, and quantity of output are, indeed, the determining factors in the level of competence attained in a language as we suggested in Section 3.4, it is to be expected that the EEb children would obtain the highest mean. This question will be investigated further in Chapter 9. The mean scores of the FE and the EEa children were very similar for the BPVS, while the FF children had the lowest mean. While all the FF children had lived in an Anglophone environment for between three and five years, with a mean length of time abroad of three years and seven months, they had been back in France for between four and 30 months, with a mean of 18 months. It is likely that, since their return to France, the amount of contact the children had had with English compared to when they were living in an Anglophone environment had been reduced considerably since at the time of testing, their main contact with English was restricted to English classes at the IS (six hours per week). This could explain why their English scores were generally lower than those of the children in the other family types. The overall amount of contact time the children in the sample had with English will be investigated in Section 9.3.2.2 while the relationship between their overall language contact and their BPVS scores will be considered in Section 9.3.3.2.

Turning to the scores on the EVIP, we note in Table 8.1 that the FE children had the highest mean of 117.2. As discussed in Section 7.2, 12 out of the 19 FE children had only

ever lived in France, while three others had lived in France for all but one year of their life. Only two children from the FE families had lived in France for three years or under. The mean amount of time these children had spent in France was five years and eight months. The FF children had a mean of 113.1 while the EEa children had a mean of 106.3. The EEb children, not surprisingly given that they had been in France for under 18 months, had the lowest mean of 69.

Having taken an overview of the children's scores, in the following section, we will explore how the children's scores on the English and French versions of the Peabody were distributed according to the different score bands provided in the testing manuals.

8.2.2 Distribution of scores according to Peabody testing manuals.

The Peabody testing manuals classify the scores obtained on the BPVS and EVIP into six different bands as shown in Table 8.2.

Table 8.2 BPVS and EVIP score bands according to the Peabody testing manuals

Peabody Score	*Score band name*
> 130	Extremely high
115-130	Moderately high
100-115	High average
85-100	Low average
70-85	Moderately low
< 70	Extremely low

Tables 8.3 and 8.4 show the distribution of scores of the children within each family profile according to the different score bands provided in the testing manuals for the BPVS and EVIP respectively. If a child received a score which fell at the cut-off point between two score bands (i.e. 70, 85, 100, 115 or 130), the child was placed in the higher score band.

Table 8.3 Distribution of BPVS scores by family profile according to Peabody score bands

	Extremely low	*Moderately low*	*Low average*	*High average*	*Moderately high*	*Extremely high*
FE (N=19)	-	4	9	5	1	-
FF (N=11)	-	3	6	2	-	-
EEa (N=4)	-	-	3	1	-	-
EEb (N=4)	-	-	-	3	1	-

Table 8.4 Distribution of EVIP scores by family profile according to Peabody score bands

	Extremely low	*Moderately low*	*Low average*	*High average*	*Moderately high*	*Extremely high*
FE (N=19)	-	1	-	9	6	3
FF (N=11)	2	-	-	4	5	-
EEa (N=4)	-	-	1	2	1	-
EEb (N=4)	2	1	1	-	-	-

In Table 8.3 we can observe that none of the 38 children in the sample had scores falling in the highest possible score band for the BPVS. Of the FE children, one scored in the moderately high band while 14 scored in either the high or low average bands and four scored in the moderately low band. Eight of the 11 FF children scored in either the high or low average bands while three had scores in the moderately low band. All four EEa children scored in either the high or low average bands. Finally all four EEb children scored in either the high average or moderately high bands.

There is a wider spread of marks on the EVIP as we can see in Table 8.4. All but one of the FE children scored at least in the high average band, with three children obtaining scores in the extremely high band. One child scored in the moderately low band. Nine out of the 11 FF children scored in the high average or moderately high band while two scored in the extremely low band. Three out of the four EEa children scored in the high average or moderately high bands while the fourth scored in the low average band. Finally, all four of the EEb scored between the low average and extremely low bands.

Our objective here has been to have an overview of the distribution of scores on each of the Peabody tests. Nevertheless, in view of what we already know about the typical language contact patterns of the children in the different family profiles, it does appear that there is a relationship between the amount of exposure to, and use of a language, and

the level of competence attained in that language. This question will be investigated in depth in Section 9.3.

8.2.3 Degree of balance between the children's two languages

Having considered the spread of scores on the Peabody tests in each family profile, we now address the question of degree of balance between the children's two language. An index of bilingual balance was calculated by subtracting each child's French score from his/her English score. This is based on an idea from a study by Cromdal (1999) on Swedish-English bilingual children. The difference between our study and Cromdal's is that Cromdal subtracted the children's highest score from their lowest, which simply indicated whether a child was balanced or not. In our study, we systematically subtracted the French score from the English score so as to identify, not just how balanced a child's language skills were, but also which language was dominant. The closer the index was to zero, the more balanced the child's language skills were. A score of below zero indicated dominance in French while a score of above zero showed dominance in English. Therefore, the further away the score was from zero, the more dominant the child was in that language.

Since the standard deviation on the Peabody vocabulary tests is 15, we decided to subdivide the bands into multiples of 15. Thus, if the difference between the child's two scores was 15 or under, we considered that his/her language skills were fairly balanced. Between 16 and 30, the child was moderately dominant in one language. A difference of between 31 and 45 indicated that the child was clearly dominant in one language. Finally, a difference of more than 45 points suggested that the child's weaker language was in only the early stages of acquisition. Table 8.5 shows the index of language balance for the children by family profile.

Table 8.5 Index of language balance on Peabody tests by family profile

	F>E 31-45	*F>E 16-30*	*F>E 1-15*	*F=E*	*E>F 1-15*	*E>F 16-30*	*E>F 31-45*	*E>F > 46*
FE (N=19)	4	9	5	-	1	-	-	-
FF (N=11)	2	7	2	-	-	-	-	-
EEa (N=4)	-	1	2	-	1	-	-	-
EEb (N=4)	-	-	-	-	1	-	1	2

In the FE families, only one child out of 19 had a higher score on the BPVS than on the EVIP. This child had lived in the United States for the first six years of his life and had been living in France for under 18 months at the time of testing. Although he was exposed to both languages in the home when living in the United States, we can assume that his contact with English exceeded his contact with French. Clearly, at the time he was tested, the child had not been in his new language environment for sufficient time to change the balance between his two languages. The remaining 18 FE children all scored higher on the French version of the test. Six children had scores on the two tests which were within 15 points of each other suggesting that their two languages were fairly balanced. Nine had scores on the two versions between 16 and 30 points of each other, so were moderately dominant in French. Four showed a more definite dominance in French with scores between 31 and 45 points of each other. No FE children fell into the final category of a difference in scores of more than 46 points.

None of the FF children scored higher on the BPVS than the EVIP. Two were moderately dominant in French, with a French score of between 16 and 30 points higher than the English one. Finally, two showed a more marked dominance in French with a difference of between 31 and 45 points, which was the highest difference in this family type.

One out of four of the EEa children scored higher on the English version of the test than on the French version. Three out of the four were fairly balanced in their languages with scores falling within 15 points of each other. The fourth child was moderately dominant in French.

As expected, the EEb children were dominant in English, with three out of the four having at least a difference of 31 points. Indeed, two of these had more than 46 points more on the English version of the test. The final EEb child who had been in France longer than the other three had a difference of only 14 points on the two versions of the test.

While Table 8.5 gives an index of language balance for the children, it gives no indication as to how high the children scored in each language. In other words, we know that a child who fell into the *F>E 0-15* band had similar scores on the French and English versions of the test, but there is no way of knowing from the index if the child had a low, average or high score on each language version of the Peabody test. We saw in Section 4.2.2 which addressed Cummins' threshold hypothesis that it is important to have a clear idea of the levels of competence attained in each of the child's languages as this may influence the type of cognitive effects conferred on the child by bilingualism. Indeed, Cummins (1976)

claimed that acquiring high levels of competence in both languages could lead to cognitive advantages for the bilingual child, while having a high level of competence in one language and a much lower one in the other would lead to neither cognitive advantages nor disadvantages. The more worrying case would be for the bilingual child who failed to achieve age-appropriate skills in either of his/her languages since Cummins claimed that this could lead to cognitive deficits and academic difficulties. In view of one of our main research questions in Chapter 10 which investigates the effects of differing levels of bilingualism on metalinguistic awareness, we need to know not only how balanced the children's two languages are but also what scores the children achieved in each, in order to evaluate if a high level of proficiency in two languages does indeed lead to advantages on certain types of metalinguistic tasks, as Bialystok (1986a and 2001a) claimed (see discussion in Section 5.3.7.1).

In order to estimate both the balance between the children's two languages and the level of competence in each, we classified the scores on the BPVS and EVIP into three broad categories based on the score bands given in the Peabody testing manuals shown in Table 8.2 above. These three score bands are given in Table 8.6. Having done that, we were able to have a clearer idea both of the degree of balance and the level attained in each language.

Table 8.6 Reduced BPVS and EVIP score bands according to Peabody testing manuals

Peabody Score	*Score band name*
115 and above	High (H)
85-114	Average (A)
Below 85	Low (L)

When presenting the Peabody vocabulary test in Section 6.6.2.2, we noted that the different language versions of the test have often been employed by researchers to provide an indication of balance between the bilingual child's two languages. However, one should not forget that the tests were designed to assess vocabulary knowledge in monolingual rather than bilingual children. Therefore, as we emphasised in Section 6.6.2.2.1, using a standardised vocabulary test normed on monolinguals does not do justice to bilinguals as it fails to take into account the children's total lexical knowledge across their two languages. So we might expect that, had the bilingual children in this

sample been monolingual, they would have obtained higher scores on the appropriate language version of the Peabody test. In view of this, it was decided that any scores falling within the Average (A) and High (H) score bands on the Peabody tests would be considered as age-appropriate for these middle to high SES children who came from families who put a high value on literacy and educational achievement, as discussed in Chapter 7 of this study. Thus, in relation to Cummins' threshold hypothesis, we might expect that all the children having any combination of scores falling in the A and H bands (resulting in the possible combinations HH, HA, AH, AA) may have cognitive advantages or, at the very least, neutral effects from their bilingualism. Children with one score in the Low (L) band and the other in either the A or H bands (resulting in the possible combinations HL, AL, LH, LA) may have neutral cognitive effects. Only children with both scores in the L band may be at risk of cognitive disadvantages.

We classified the children into balanced or dominant bilinguals. Balanced bilinguals are defined in this study as children who have attained high levels of performance in both their languages. On the other hand, dominant bilinguals are defined as children who have attained a high level of competence in one language and a much lower level in the other. Since the Peabody tests are designed to assess vocabulary knowledge in monolingual children, it was decided that children with any combination of scores in the A and H bands would be considered to be balanced bilinguals, whereas dominant bilinguals had one score in the L band and the other in either the A or H bands. The distribution of the 38 children by family profile is given in Table 8.7. In each case, the letter on the left corresponds to the score awarded for English on the BPVS, while the letter on the right corresponds to the score in French on the EVIP.

Table 8.7 Degree of balance and level of competence in the Peabody tests by family profile

	HH	*HA*	*HL*	*AH*	*AA*	*AL*	*LH*	*LA*	*LL*
FE (N=19)	1	-	-	9	5	-	1	2	1
FF (N=11)	-	-	-	4	5	-	1	1	-
EEa (N=4)	-	-	-	1	3	-	-	-	-
EEb (N=4)	-	-	1	-	1	2	-	-	-

Notes:

- *H=High score band; A=Average score band; L=Low score band*
- *Letter on the left is the BPVS band; letter on the right is the EVIP band*
- *Shaded columns=balanced bilinguals; unshaded columns=dominant bilinguals*

Twenty-nine children were balanced bilinguals and nine were dominant bilinguals according to our classification system explained above. Following Cummins' threshold hypothesis, we might expect the balanced bilinguals to achieve certain cognitive benefits while the dominant bilinguals should have neither cognitive advantages nor disadvantages. Only one child had both scores in the L band which according to Cummins may lead to cognitive disadvantages. However, since one of these scores was just one point below the cut-off point between the A and L bands, he was kept in the study and placed in the dominant bilingual group. In Chapter 10, we compare the performance of these balanced and dominant bilinguals on a range of English and French metalinguistic tasks.

Looking at the scores now according to family type, in the FE families only one child out of the 19 had a BPVS English score in the High band, as we saw above. Apart from the seven FE children whose scores for their two languages fell into the same band, the remaining 12 children all obtained higher scores on the EVIP than on the BPVS. If we take an overview of the FE children, we can observe that 12 of the 19 children had only ever lived in France; three had lived in France for all but one year of their life; and four had been in France for the past four years. In other words, 18 out of the 19 children in the FE group had spent at least half of their life in France. This could explain why none of these children performed better on the BPVS than on the EVIP.

None of the FF or EEa children scored in a higher band for English than for French. Eight scored in the same bands for both languages while the remaining seven all obtained scores in a higher score band in French than in English. It was only in the EEb group that there were children who scored in a higher band for English than for French. Since these children had been in France for a relatively short time, this was to be expected. Only one of the four EEb children scored in the same band for both languages and, interestingly, it was the child who had been in France for longer than the other three.

We have investigated the scores obtained on the Peabody tests and we will now consider the scores obtained on the French and English versions of the SOLOM scales which were completed independently by the children's French and English teachers and by the researcher.

8.3 SCORES ON THE STUDENT ORAL LANGUAGE OBSERVATION MATRIX (SOLOM)

8.3.1 Descriptive statistics and correlations

In Section 6.6.2.1, we explained that we chose to employ two different measures to assess the children's language skills in each language, the Peabody tests and the SOLOM rating scale, in order to have a better representation of their proficiency. In addition, we indicated that we wished to see the strength of the relationship between the scores obtained on the two different measures of proficiency taken in each language. The SOLOM was described in detail in Section 6.6.2.3.2. The present section begins with a comparison between the SOLOM scores for English and French given by the children's French and English teachers and those awarded by the researcher. The aim is to see how closely related the teacher and researcher assessments were. Then we compare the means and standard deviations of the children from the four family profiles on the two language versions of the scale completed by the teachers. In each case we begin by commenting on the English scores and then consider the French. Having reported on the total scores awarded out of 25, the maximum possible score on the scale, we will then focus on the individual scores out of five on the areas of proficiency which are evaluated in the scale (comprehension, fluency, vocabulary, pronunciation and grammar).

Table 8.8 shows the means and standard deviations by family profile for the English SOLOM, first for the scale completed by the teacher, then for the scale completed by the researcher. For each family profile we can see that means on the teacher and researcher evaluations are very similar. Pearson product-moment coefficients were calculated to determine the strength of the relationship between the teacher and researcher English SOLOM scores and they were found to be very significantly related to each other (N=38, r =.91, p<.01). Therefore, the teacher and researcher assessments of the children on the English SOLOM were very similar.

Table 8.8 Means and standard deviations for the English SOLOM by family profile

		Mean	*Standard Deviation*
FE (N=19)	Teacher English SOLOM	22.7	2.1
	Researcher English SOLOM	22.7	2.2
FF (N=11)	Teacher English SOLOM	20.5	1.1
	Researcher English SOLOM	19.2	1.7
EEa (N=4)	Teacher English SOLOM	24.8	0.5
	Researcher English SOLOM	24.8	0.5
EEb (N=4)	Teacher English SOLOM	25	0
	Researcher English SOLOM	25	0

The means and standard deviations by family profile for the French SOLOM are given in Table 8.9, first, for the scale completed by the teacher, then for the scale completed by the researcher. As for the English SOLOM, the means on the teacher and researcher scales were very close. Pearson product-moment correlation coefficients showed that the two sets of scores were closely related (N=38, r =.98, p<.01), demonstrating again that the teachers and the researcher made very similar assessments of the children's oral language competence.

Table 8.9 Means and standard deviations for the French SOLOM by family profile

		Mean	*Standard Deviation*
FE (N=19)	Teacher French SOLOM	22.2	3.9
	Researcher French SOLOM	22.6	3.2
FF (N=11)	Teacher French SOLOM	22.5	3
	Researcher French SOLOM	22.9	2.7
EEa (N=4)	Teacher French SOLOM	20.8	1
	Researcher French SOLOM	20.8	1
EEb (N=4)	Teacher French SOLOM	14	3.8
	Researcher French SOLOM	14.3	2.4

Since the SOLOM scores given by the children's French and English teachers and those given by the researcher were so highly correlated, it was decided for the remainder of this chapter to report only on the scores awarded by the teachers since they had been able to

observe the children in a range of situations in school for considerably longer than the researcher had.

The following table shows a comparison of the means and standard deviations on the teacher English and French SOLOM scales according to family profile.

Table 8.10 Means and standard deviations for teacher English and French SOLOM by family profile

		Mean	*Standard Deviation*
FE (N=19)	English SOLOM	22.7	2.1
	French SOLOM	22.2	3.9
FF (N=11)	English SOLOM	20.5	1.1
	French SOLOM	22.5	3
EEa (N=4)	English SOLOM	24.8	0.5
	French SOLOM	20.8	0.9
EEb (N=4)	English SOLOM	25	0
	French SOLOM	14	3.8

For the English SOLOM, the EEb children scored highest, all gaining the maximum of 25 points. Until very recently these four children were all monolingual English speakers who had had no contact with any other language. Thus, their maximum score on the English SOLOM was to be expected. The EEa children's mean score of 24.8 is very close to the maximum score. We noted in Sections 7.4.2 and 7.4.3 that language strategies within the EEb families from the children's birth to the time of testing were extremely consistent, with English being clearly dominant in the home. Therefore these children were exposed to considerable amounts of English input and produced substantial English output. The FE children had a mean of 22.7 for the English SOLOM while the FF children had the lowest mean of 20.5.

On the French SOLOM, the FF and the FE children had very similar means of 22.5 and 22.2 respectively. They were followed by the EEa children with a mean of 20.8, and the EEb children with a much lower mean of 14. If quantity of input and output are indeed the factors that are most likely to be related to the level of proficiency attained in a language, then the distribution of the means on both the English and French versions of the SOLOM for the different family types could have been predicted. In other words, the

more input and output the bilingual child has in each of his/her languages, the higher he/she is likely to score on the SOLOM.

Having compared the means of the different family types on the English and French SOLOM scales, we will now take a closer look at the distribution of scores for each language within each family profile.

8.3.2 Distribution of scores within each family profile

In Section 6.6.2.3.2 we explained that the designers of the SOLOM scale considered a score of 19 and above out of 25 as being in the proficient range, enabling a child to participate fully in academic oral language tasks typically expected in the classroom at the appropriate age level. On the other hand, they stated that a score of below 19 corresponds to non-fluent speakers. The distribution of teacher English SOLOM scores by family profile will be considered before we investigate the distribution for French scores.

In Table 8.11 we show the distribution of English SOLOM scores. All the children in the sample scored above 19, showing themselves to be sufficiently competent in English to follow lessons in the English curriculum at the IS. Six out of the 19 FE children scored full marks indicating that the teachers considered them to have native-speaker competence in all five areas being assessed – comprehension, fluency, vocabulary, pronunciation and grammar. A further five were rated at either 23 or 24. The remaining eight scored between 19 and 22. The 11 FF children all scored between 19 and 22. In other words, although all the children were considered to be proficient, none was rated by their teacher as being indistinguishable from a native-speaker in all five areas which were assessed. As we saw above, the EEa and EEb children were all awarded high scores with seven out of eight gaining full marks and one dropping just one mark.

Table 8.11 Distribution of teacher English SOLOM scores by family profile

	> 15	*15-16*	*17-18*	*19-20*	*21-22*	*23-24*	*25*
FE (N=19)	-	-	-	3	5	5	6
FF (N=11)	-	-	-	6	5	-	-
EEa (N=4)	-	-	-	-	-	1	3
EEb (N=4)	-	-	-	-	-	-	4

The children's scores on the individual sections of the teacher English SOLOM will be considered next. The FE children all scored either 4/5 or 5/5 for comprehension, vocabulary and pronunciation with a means of 4.7, 4.6 and 4.6 respectively. For fluency and grammar, scores ranged from 3/5 to 5/5 with means of 4.3 and 4.4 respectively. The FF children scored either 4/5 or 5/5 for comprehension and pronunciation with a mean of 4.4 for both. All of these children had lived in an Anglophone environment for a number of years and attended English-medium nursery school and, for some, primary school there, too. Thus, from a very young age, they were exposed to an extensive range of native-speaking models of English both inside and outside school in naturalistic settings. Without specific linguistic instruction, they had all acquired native or near-native pronunciation in English and high level comprehension skills in a relatively short period of time. None of the FF children scored 5/5 for fluency, vocabulary or grammar. Indeed, 10 children scored 4/5 for fluency and grammar while one scored 3/5. They all had 4/5 for vocabulary. All the EEa children gained the maximum score for comprehension, fluency, pronunciation and grammar. Three out of the four scored 5/5 for vocabulary while the remaining child scored 4/5. As we saw above, the EEb children all scored 5/5 for the five parts of the teacher English SOLOM.

Turning now to the distribution of scores on the teacher French SOLOM, the same observation can be made as we made in Section 8.2.2 when comparing the scores on the EVIP to the BPVS. Indeed, there was considerably more variability in the scores obtained by the children on the teacher French SOLOM than on the English version, as Table 8.12 demonstrates. This is to be expected since the main entry requirement to the IS is native or near-native English, whereas children with little or no French are accepted in the school as we noted in Section 2.4.3.2.

Table 8.12 Distribution of teacher French SOLOM scores by family profile

	> 15	***15-16***	***17-18***	***19-20***	***21-22***	***23-24***	***25***
FE (N=19)	1	2	1	-	2	5	8
FF (N=11)	-	-	1	2	1	2	5
EEa (N=4)	-	-	-	2	2	-	-
EEb (N=4)	2	-	2	-	-	-	-

As for the English SOLOM scores, the overall scores by family profile will be discussed before we consider the scores for the individual sections of the assessment scale. Table 8.12 shows that there is a wide spread in the French scores obtained by the FE children which is confirmed in the standard deviation of 3.9 given in Table 8.9. Nevertheless, eight FE children were considered to have native speaker competence in French, with a further five scoring either 23 or 24. Four children were awarded 18 or below. We noted above that children scoring below 19 on the scale were considered by the designers as non-fluent and may, thus, find it challenging to participate fully in classroom activities in the language being assessed. In Sections 2.4.1 and 2.4.6, we explained that the IS offered special tuition in FFL for six hours a week to children whose French was not of a sufficiently high level to work on more complex aspects of the French language, which were considered necessary in order to engage fully with the school curriculum. However, this tuition was available for only up to two years regardless of the child's level, after which it was withdrawn. At the time of testing, none of the four children who scored below 19 was attending FFL classes, yet their scores on the French SOLOM suggested that they might perhaps have benefited from them. Three of these four children had never actually lived outside France and had attended a French nursery school before joining the IS. However, they came from homes where English was clearly dominant. Indeed, the parents used English with each other and with the children, and two of the families employed English-speaking au-pairs to increase the children's contact with the language. The fourth child with a relatively low score for French had very recently returned from a four year stay in an Anglophone country where he had attended English-medium nursery and primary school although both languages were spoken in the home throughout this period.

Turning now to the FF children, five out of 11 were awarded full marks on the French SOLOM with a further five scoring 19 or above. Only one child in this family type scored below 19. This child had been back in France for only six months at the time of testing, having lived for the previous four years in an Anglophone country. Although the parents had maintained French as their language of communication with their children, the children used both languages with one another and with their parents. Like the four FE children mentioned above, this child was not attending FFL classes.

All the EEa children scored between 19 and 22. One was still attending FFL classes. The EEb children scored between 9 and 17 and were all attending FFL classes.

We will now comment on the scores in the individual sections of the French SOLOM. All the FE children scored between 3/5 and 5/5 for comprehension, fluency, vocabulary and pronunciation with means of 4.4 for comprehension, fluency and vocabulary and 4.6 for pronunciation. Four children out of 19 scored 3/5 for comprehension, fluency and vocabulary while three children scored 3/5 on pronunciation. Grammar scores for the FE children ranged from 2/5 to 5/5 with three out of the 19 children scoring below four. The mean for grammar was 4.5. For the FF children scores ranged from 3/5 to 5/5 in each section of the teacher French SOLOM. The mean for pronunciation was 4.7, while it was 4.6 for comprehension and grammar and 4.3 for fluency and vocabulary. If we consider the number of children who scored either 4/5 or 5/5 in each category, there were ten out of 11 for comprehension, pronunciation and grammar, and eight out of 11 for fluency and vocabulary. None of the EEa children scored below four in any of the sections of the teacher French SOLOM. All four children scored 4/5 for fluency, vocabulary and grammar while three out of four scored 4/5 for comprehension and two out of four scored 4/5 for pronunciation. In other words, none of the four EEa children was considered to have native speaker skills for all five sections of the SOLOM although all of them had been in France for three years or more. The EEb children scored 3/5 or below on comprehension, fluency, vocabulary with means of 2.5, 2.3 and 2.5 respectively. Two out of the four children had 4/5 for grammar while the remaining two had either 1/5 or 2/5. All four EEb children scored 4/5 on pronunciation which shows that even after a very limited amount of time in France they were approaching native-like pronunciation.

Having considered the scores obtained by the 38 children on the Peabody vocabulary tests and the SOLOM scales, we will now examine the strength of the relationship between the scores obtained from the two different testing instruments.

8.4 RELATIONSHIP BETWEEN PEABODY AND SOLOM SCORES

Having evaluated the IS children's language proficiency, using the English and French versions both of the Peabody tests and the SOLOM scales, we wished to see to what extent the results from the two evaluation tools were related. There were two reasons for doing this. As we explained in Section 6.6.2.1, we chose to measure the children's proficiency in each language using two different measures in order to have a better representation of their skills. We also wished to investigate the strength of the relationship between the scores obtained on the two testing tools for each language in order to assess

whether they were providing us with similar information about the children's language skills. Therefore, we hypothesise that if there is a strong positive relationship between the scores obtained on each language version of the Peabody test and on the corresponding language version of the SOLOM, we may conclude that they are, indeed, assessing similar language skills. Secondly, if we found that the two sets of scores were closely related, it would not then be necessary to continue to refer systematically to both of them for the remainder of the study. Rather, we could choose either the Peabody tests or the SOLOM scales as our main measure of language proficiency which would then be related to input factors in Chapter 9 and to metalinguistic awareness in Chapter 10.

The strength of the relationship between the Peabody tests and the SOLOM scales is investigated using the Pearson product-moment coefficient of correlation. The resulting coefficients showed that there were highly significant associations between the BPVS scores and the total scores on the teacher English SOLOM (N=38, r =.5, p<.01), and between the EVIP scores and the total scores on the teacher French SOLOM (N=38, r =.74, p<.01). We can, thus, accept our hypothesis stated above. The strong correlations reported on here between the two language versions of the SOLOM scale and the English and French versions of the Peabody vocabulary tests support the findings we reported in Section 6.6.2.3.1 with regard to Lindholm-Leary's (2001) study on Dual Language education in California. She also noted a strong association between teacher ratings on the SOLOM scales and other standardised tests of language proficiency.

While the Peabody vocabulary tests and the SOLOM do not claim to assess the same areas of language competence (with the exception of the vocabulary section of the SOLOM, and the Peabody test), we have demonstrated that there is a strong association between the overall scores obtained by the children on each evaluation tool and in each language. Since the distribution of scores is similar on each testing instrument and in each language, we can conclude that the two testing instruments are providing similar information on the children's language skills. In view of this, we wished to select one of the two assessment tools as our main measure of language proficiency for what follows in this study. In order to reach such a decision the advantages and disadvantages of each measure will now be considered.

8.5 SELECTING A TOOL TO MEASURE LANGUAGE PROFICIENCY

As we saw above the SOLOM scale has five categories which evaluate different aspects of oral language proficiency. Each area can be considered individually or the five areas can be combined to give a total score out of 25. Although it is useful to be able to break down oral language proficiency into these different elements, it is not particularly helpful for us in this study in view of our main research questions. Indeed, a single measure of proficiency is required for each of the children's languages which we then relate to input factors in Chapter 9 and to aspects of metalinguistic awareness in Chapter 10. In contrast to the SOLOM, the Peabody test yields a single score which is not designed to be broken down.

When we take the total scores on the SOLOM scale out of 25 and the scores on the Peabody tests, there are arguments for and against each evaluation instrument. It is important to stress again that the objectives of the two tests are not at all the same, as we showed in Section 6.6.2.2.1 for the Peabody vocabulary tests and Section 6.6.2.3.1 for the SOLOM scale. The Peabody is a standardised test of receptive vocabulary designed for monolingual children, while the SOLOM is a criterion-referenced scale designed to assess the oral language skills of minority language children. The SOLOM scale has the advantage of enabling us to determine rapidly how close a given child is to the top score of 25. A child who gains full marks on the SOLOM can be considered to have the equivalent oral language skills of a typical native speaker of that language as judged by his/her school teacher. However, according to the designers of the SOLOM, only seven marks separate the child with native-speaker oral language competence from the non-fluent child who achieves a score of 19 or below. In other words, the range of possible marks on the SOLOM is very limited so the final scores on the SOLOM are more clustered. In fact only 20 points separate the highest from the lowest score on the SOLOM while scores on the Peabody tests range from 40 to 160 which allows for much more variation. Furthermore, if we were to assess a sample of monolingual children of the same age and SES who had no particular learning difficulties using both the SOLOM scale and the Peabody vocabulary test, the children would all score full marks on the SOLOM since the top score simply indicates whether a child has native speaker oral language proficiency or not. In comparison, there would be a wider range of scores on the Peabody test since it is designed to assess vocabulary knowledge in native speakers, and

vocabulary knowledge in children of the same age and SES can vary enormously. Therefore, the Peabody tests are able to make much finer distinctions between the children being assessed. The main disadvantage of the Peabody tests is that they are not designed to assess bilingual children. As we saw in Section 6.6.2.2.1, although the bilingual's total conceptual vocabulary may exceed that of a matched monolingual, his/her vocabulary in each language may be lower. Thus, the bilingual children in our study may have lower scores on each of the Peabody tests simply because their vocabulary knowledge is shared between their two languages. However, since our aim in this research is to compare balanced bilinguals to dominant bilinguals, rather than to compare bilingual children to matched monolingual children, we do not believe that this point is really problematic.

For the reasons discussed above, we have decided to use the scores on the Peabody vocabulary tests as our principal measure of linguistic competence for this research. In addition, given that the Peabody tests are standardised on very large populations and have been validated by many studies on bilingual children, it was felt that they provided a more reliable, robust and recognisable measure of language competence than the SOLOM scales. We will nevertheless use the scores obtained on the teacher and researcher SOLOM scales as well as those from the Peabody tests in Chapter 9 when we investigate the relationship between language input and output measures and language proficiency measures. In this case we believe that it is particularly useful to have more than one measure of language proficiency to relate to the measures of overall language contact, because this may offer additional support to one of our main hypotheses which states there is a strong, positive relationship between overall language contact and language proficiency.

8.6 CONCLUSION

In this chapter we have examined the scores obtained in English and French by the 38 children at the IS on two measures of language proficiency, the Peabody Picture Vocabulary Test and the SOLOM. For each language testing instrument, we inspected the scores according to the four family profiles in this study: FE, FF, EEa and EEb.

We began by focusing on the Peabody tests. Here, without actually investigating precise details of the children's exposure time to English and French, we observed that the mean scores and the distribution of scores of the children from the four family profiles that we

had investigated in Chapter 7 seemed to be related to the amount of contact we anticipated they had with each language. Having examined the question of bilingual balance and level of competence attained in each language, we subdivided the group of 38 children into two – balanced and dominant bilinguals. The former contained 29 children while the latter contained nine. Again, our results suggested that language proficiency and language exposure appeared to be strongly related.

We then focused on the children's performance on the SOLOM rating scale and noted a very strong association between the assessments of the children provided by the teachers and the researcher. For this reason, we chose to report only on the teacher SOLOM evaluations for the remainder of the chapter. Our focus then moved to the descriptive statistics on the French and English versions of the SOLOM. We noted again that, based on our overall knowledge of the children and their language contact and exposure patterns, the greater the input and output in a language, the higher the SOLOM scores were likely to be. The distribution of scores on the SOLOM was then discussed and it was observed that the scores on the English version all fell within the proficient range (from 19 to 25), whereas there was much greater variation for the French scores with several falling in the non-fluent range. These results were to be expected given the IS linguistic entry requirements, that is to say at least near-native proficiency in English, but no specific requirements for French as the school catered for non-French speakers.

In the next section, the relationship between the Peabody and SOLOM scores for each language was investigated and our findings revealed an extremely strong association between the two testing instruments, suggesting that each one was providing similar information on the children's language skills.

Finally, the merits and drawbacks of the two language testing instruments were discussed in order to select one of them as our principal measure of linguistic competence for the rest of the study. The Peabody test was chosen, not only since we considered that it was able to make much finer distinctions between the children being evaluated, but also because it had undergone a rigorous standardisation process and had been validated by many key studies on bilingual children.

In this chapter, we have offered some tentative explanations for the children's results on the Peabody tests and SOLOM scales based on our knowledge of the families' background data provided in Chapter 7. We know that the children within each of these four family profiles have not had exactly the same language contact and exposure patterns. Nevertheless, we believe that there are numerous similarities within each profile

which we think will help to explain the levels of proficiency attained by the children in each language. In the next chapter, we will investigate in depth how certain linguistic and sociolinguistic factors may lead to variation in the levels of bilingual proficiency attained by these 38 French-English bilingual children.

CHAPTER 9 – THE RELATIONSHIP BETWEEN INPUT FACTORS AND BILINGUAL PROFICIENCY

9.1 INTRODUCTION

In this chapter, we investigate the relationship between certain input factors and the bilingual proficiency of the 38 French-English bilingual children in the study. In Chapter 3, we discussed certain key factors which have been shown in the literature to influence language acquisition, development and maintenance in bilingual children. We first examined the linguistic factors of quality and quantity of language input and quantity of language output. Then we considered several sociolinguistic factors, beginning with language use in the home. We investigated how parents' language strategies can impact on dual language acquisition, the role played by birth order and the strategies employed by parents to maintain and develop their children's bilingualism. We then examined how bilingual children's peers and language(s) of instruction in school may influence their dual language acquisition. Language attitudes and cultural identity were then discussed, before we addressed the question of the role played by SES.

In the current chapter, a number of the factors addressed in Chapter 3 will be investigated in relation to the children's performance in English and French. Certain input factors operate in the same way in all the children in the study. These will, therefore, not be the factors responsible for differences in the children's performance on the various evaluations of language proficiency since they are shared by all the participants. These factors will be reviewed in Section 9.2. In Section 9.3 we will focus on those factors which differentiate the children and, thus, are likely to account for differences in performance. In Section 9.3.2, we will examine the data for the children's overall current language contact in French and English, both when they were at school and during the school holidays. Then in Section 9.3.3, we will investigate research question 1. What is the strength of the relationship between overall language exposure estimates and the language proficiency measures in each language? We use the Pearson product-moment coefficient of correlation to test the null hypothesis of no significant relationship between

overall language contact and language proficiency measures in each language. We hypothesise that there will be a strong significant relationship.

In Section 9.3.4, we address two research questions related to the children's current language input and output with their immediate family and friends in school. For research question 2 we investigate the strength of the relationship between the children's current language input and their scores on the language proficiency measures in each language. The Pearson product-moment coefficient of correlation is used to test the null hypothesis of no significant relationship between the children's current language input and their scores on the language proficiency measures in each language. Research question 3 is then investigated. What is the strength of the relationship between the children's current language output and their scores on the language proficiency measures in each language? Again, we use the Pearson product-moment coefficient of correlation to test the null hypothesis of no significant relationship between the children's current language output and their scores on the language proficiency measures in each language. We hypothesise that the results to research questions 2 and 3 will produce significant and positive relationships.

In Section 9.4, we examine research question 4. What is the strength of the relationship between the child's stronger language and a number of variables related to language use? The variables under investigation are: the language the child finds easier to speak and prefers speaking; the language the child finds easier to read in and prefers reading in; the child's cultural allegiance; the language used with friends in the school playground; the language used with toys, and the language(s) the child would choose to use in his/her perfect school. We employ the Spearman rho coefficient of correlation to test the null hypothesis of no significant relationship between the child's stronger language and each of these variables. In each case we hypothesise that the relationship between the child's stronger language and the variable which relates to language use will be significant and positive.

Finally, in Section 9.5 we present data on several questions assessing if certain input and output variables within FE families make a significant difference to the children's performance in English or French as measured by the BPVS and EVIP respectively. We wished to focus on these families in particular since the FE children were more likely to have fairly consistent exposure to quality models of both English and French from their native-speaking parents. This was not generally the case in the FF, EEa and EEb families where quality models were available for one language but not necessarily the other, as

was demonstrated in Section 7.4.2. Unfortunately, given that the FE group contained only 19 children once we subdivided it according to the independent variable we were testing, we either had two rather small groups of a similar size, or two unequally sized groups with the smaller group being very small indeed. In the former case, we will report the results of the independent *t*-tests we conducted. In the latter, we will report only the descriptive statistics since there was clearly not enough variation in the two groups to produce any valid or reliable results. Full details of each of the questions we investigated can be found in Section 9.5.

9.2 INPUT FACTORS COMMON TO ALL THE CHILDREN IN THE STUDY

9.2.1 Introduction

The linguistic and sociolinguistic factors discussed in this section are shared by all the children in the study and are, therefore, unlikely to lead to differences in performance on the various language proficiency tests. It is important to recall these factors at this stage of our study so that they can be eliminated from our analysis which aims at identifying those input factors which differentiate the participants. Two sets of variables will be considered here – those related to the school and those related to the children's family background. Where necessary cross-references will be made to earlier sections of this study in which the relevant information was provided.

9.2.2 Input factors related to school

All the children in this study attend the same international school in France which was profiled in detail in Section 2.4. Here we will present a number of key points about the school which, in view of the literature reviewed in Chapter 3, we expect will have a positive influence on all the dual language acquisition, development and maintenance of all the children.

In Section 2.4.4, the linguistic and cultural objectives of the IS were presented. Clearly, by attending the IS, all the children in the study are learning in an environment in which bilingualism and intercultural awareness and exchange are highly valued. In Section 2.4.1, we reported that both French and English are used as languages of instruction by

native speakers of each language to all the children throughout their schooling, and in Section 2.4.6 we explained how literacy is developed in both languages.

In Section 2.4.7, we discussed how the different languages were used in class by teachers and pupils. In the questionnaire we gave to the children, in Part 1, Questions 2a and 2b, we asked for the children's representation of language use in class in order to determine if it corresponded to what we had reported in Section 2.4.7. First, we enquired what languages the children spoke to their friends and their teachers, then what languages their friends and teachers used to them. Without exception, the 38 children in the study reported that they only used English to communicate with their English teachers and French to communicate with their French teachers. Similarly, all 38 children reported that English was the only language used by their English teachers while 37 children reported that French was the only language used in class by their French teachers. Just one EEb child claimed that the French teacher sometimes used English to help him understand the instructions in exercises given in class. In other words, the language contact and use with teachers in the classroom was very similar for all the children. Concerning language use with friends in the classroom, only seven children claimed to communicate exclusively in French in their French classes while the remaining 31 sometimes communicated in English. In comparison, communication in the English class was much stricter, with over 30 children claiming only ever to use English. Thus, although our data show that there was some variation in the languages used by and to the children when in class, particularly when communicating with their friends, overall we believe that their language contact and use there was very similar.

In Section 7.7.3, we discussed how certain children in the study had expressed negative feelings to their parents about being overheard by their majority language speaking peers when using the minority language with their minority language speaking parent. In Part 3, Questions 2 and 4 of the children's questionnaire, the children were asked to say if they felt different from children who only spoke one language, and if so, in what way. In response to Question 2, 32 out of the 38 children claimed that they felt different from monolingual French children in France because they spoke another language. Replying to Question 4 which addressed the same situation, but this time with regard to playing with monolingual English-speaking children in an Anglophone country, 24 out of 38 participants claimed to feel different because they spoke another language. In Part 3, Questions 3 and 5, the children were asked how they thought monolingual children felt about their speaking two languages. While these questions were more exacting for the

children to answer, undoubtedly because they found it harder to imagine what other children might feel about their being bilingual, numerous children imagined that monolingual children felt different from them because of the language question. The responses to these four questions highlight how aware the children were about not being quite the same as their monolingual peers because they spoke two languages. Once at the IS, this should no longer have been an issue since all their peers were already bilingual or, in the case of the EEb children, in the process of becoming bilingual. Therefore, any negative attitudes about being different from their peers because of the language question that the children might have had when attending monolingual nursery or primary school should have gradually diminished when they attended the IS.

9.2.3 Input factors related to family background

In this section, we focus on several key input factors which relate to the children's family background. As in the previous section, in view of the research findings discussed in the literature review in Chapter 3 on input factors influencing bilingual language acquisition, we believe that the factors discussed below will impact positively on the children's acquisition, development and maintenance of bilingualism.

We reported in Section 7.3.1 that all the children in the study came from middle to high SES families, and in Section 7.8 we reported that they all had access to a wide range of linguistic stimuli in both languages, inside and outside the home, which encouraged their dual language acquisition and development. Clearly, the children's parents put a high value on education and learning and are committed to the development of their children's biliteracy as was shown in Section 7.8.1.

All the participants in the study were acquiring the same two prestigious languages, English and French. This probably explains, to a large extent, why the vast majority of the children were never exposed to negative comments about their bilingualism from outsiders, as we reported in Section 7.7.3. Indeed, we noted that almost all the children believed that other people admired the fact that they spoke two languages and we observed too that the children themselves had positive attitudes towards their own bilingualism. We also reported that, to their parents' knowledge, two-thirds of the children had never expressed negative feelings towards being bilingual, while those who had, did so on just isolated occasions. The parents themselves generally manifested very positive reactions towards bilingualism, as was demonstrated in Section 7.7.1 where

factors related to being bilingual were discussed, and in Section 7.7.2 where the effects of bilingualism on certain skills and behaviours were assessed. Furthermore, by choosing to send their children to the IS rather than to a monolingual French school, the parents confirmed that bilingualism was something to be valued and developed, as was shown in their reasons for choosing the school which we discussed in Section 7.6. This was demonstrated further by the fact that many parents were actively involved in activities and committees within the IS, as also discussed in Section 7.6. We believe that the children must have been aware, albeit subconsciously perhaps, of their parents' impact belief (De Houwer, 1999, discussed in Section 3.3.3.1.1) which could only increase their own positive attitudes, making them feel favourable to being bilingual.

9.2.4 Comment

The input factors discussed above relating to school and family background were shared to a great extent by all the children in the study. All these factors must have impacted positively on the children, making them feel very favourable to being bilingual. Indeed, because of the nature of the IS and the profile of the children's families, the children were in a very privileged environment for acquiring two languages since bilingualism was clearly encouraged and valued by everyone around them. However, there were also input factors which operated differentially in the children in the study. We believe it is these factors which led to variation in the levels of proficiency attained by the participants in French and English. They will be investigated in the rest of this chapter.

9.3 INPUT FACTORS DIFFERENTIATING THE CHILDREN IN THE STUDY

9.3.1 Introduction

In Section 3.4, we argued that the quality and quantity of interaction that bilingual children had in their two languages was likely to be the most reliable predictor of their bilingual proficiency. In Section 7.4, we investigated the language strategies within the home since the birth of the children in the study in the four family profiles (FE, FF, EEa and EEb) with their parents and siblings. We identified numerous differences which no doubt impacted to some degree on the children's language performance in each language.

However, because of the small number of participants in each family profile and because of the range of different strategies employed over a period of six to eight years, it is not possible for us to investigate the relationship between these variables and the children's current proficiency in English and French.

Henceforth, our interest lies with the relationship between the children's current language exposure and use and their levels of performance on the various measures of language proficiency. While we are aware that the variables related to current language exposure and use cannot give a complete representation of the children's overall language contact since their birth, we nevertheless believe that there will be a strong association between them and the children's performance in each language. Indeed, for most of the children in the sample, language contact and exposure both inside and outside the home has remained constant for a number of years. This is the case for all but one of the children in the FE families and all those in the EEa families. In the EEb families, there was no variation in the children's language contact and exposure until the families moved to France, at which point the children were exposed to French in the wider community but English remained the language used within the home. There was undoubtedly more variation in the FF families, particularly those who had only recently returned to France and whose language strategies within the home were yet to stabilise, as we reported in Section 7.4.2.2 with regard to the children's language strategies with their parents, and in Section 7.4.3.2 with regard to the language strategies employed with their siblings.

We will begin in Section 9.3.2 by examining the data for the children's overall current language contact in French and English both when they were at school and during the school holidays. Then, in Section 9.3.3, the strength of the relationship between the children's overall language exposure estimates and their scores on the language proficiency measures in each language will be investigated (research question 1).

Next, the children's current input and output will be studied in Section 9.3.4 and this will be related to the scores obtained on the language proficiency measures. We begin by investigating the strength of the relationship between the children's current language input and their scores on the language proficiency measures in each language (research question 2). Then we will examine the strength of the relationship between the children's current language output and their scores on the language proficiency measures in each language (research question 3). In each case we will consider the percentage of the children's input and output in English and French when communicating with their mother, father, siblings and friends in school.

In Section 9.4 we investigate research question 4 which explores the relationship between the child's stronger language and a number of other variables related to language use. They are: the parents' representation of the child's stronger language; the language the child finds easier to speak and prefers speaking; the language the child finds easier to read in and prefers reading in; the child's cultural allegiance according both to the child and the parents; the language the child uses with friends in the playground at school; the language used by the child with his/her toys; and the language the child would choose to use in his/her perfect school.

In Section 9.5 we report on a number of questions which examine whether certain input and output variables within FE families make a significant difference to the children's performance in English or French.

Information will be provided throughout the chapter about which questionnaire and particular questions provided the relevant data enabling us to conduct our statistical analyses.

9.3.2 Overview of data for overall language contact

9.3.2.1 Introduction

In the parents' questionnaire, Part 3, Questions 1.1 and 1.2, parents were asked to estimate the total number of waking hours per week that their child was in contact with English and French inside and outside school during term-time and during the school holidays. We then converted the figures they provided to percentages so that the readings for all the participants were comparable. In this section, we will take an overview of the data for English and then French exposure. In each case, we will first consider the data for language contact during term-time, then for language contact during the school holidays. We will examine the data for the full group of 38 children first in order to have an idea of the amount of variability within the sample. Then we will study the results within each of the four family profiles (FE, FF, EEa and EEb).

9.3.2.2 Contact time in English

Table 9.1 gives an overview of percentage contact time per week with English during term-time for the group of 38 children. There is a sizeable difference between the minimum contact time of 12.8% and the maximum of 75%. The standard deviation of 17.8 shows that there is quite a lot of variability within the group.

Table 9.1 Percentage contact time per week in English during term-time for full group

N	*Minimum*	*Maximum*	*Mean*	*Standard Deviation*
38	12.8	75	42.7	17.8

Turning now to the percentage of contact time per week in English during term-time by family profile, Table 9.2 below shows that there is considerable difference between the four family types.

Table 9.2 Percentage contact time per week in English during term-time by family profile

	Minimum	*Maximum*	*Mean*	*Standard Deviation*
FE (N=19)	20.9	61.7	44.1	11.7
FF (N=11)	12.8	35.2	23.5	7.4
EEa (N=4)	58	65	61.2	3.6
EEb (N=4)	65	75	70.6	4.3

Not surprisingly in view of discussion on the EE families in Section 7.4.2.2 on current language strategies between parents and children, and Section 7.4.3.2 on current language strategies between children and siblings, it is the EEb children who have the highest contact time with English, closely followed by the EEa children. For both sets of EE families, we know that English is used predominantly between family members. The standard deviations are low for both EE groups, showing that their scores are fairly homogeneous. The FE group is less homogeneous with a standard deviation of 11.7. Compared to the FF group, the FE children generally have more contact with English. Indeed, the maximum contact time with English for any of the FF families is 35.2%, equivalent to approximately a third of the children's waking hours, which is considerably lower than for any of the other family types. The results given in this table support the data on which we reported in Sections 7.4.2.2 and 7.4.3.2.

Table 9.3 presents an overview of language contact per week in English during the school holidays for the full group.

Table 9.3 Percentage contact time per week in English during school holidays for full group

N	*Minimum*	*Maximum*	*Mean*	*Standard Deviation*
38	8.3	100	53.7	26.1

The difference between the lowest and the highest percentage of contact is even greater than it was for language contact in term-time in Table 9.1 and the standard deviation is very high.

Table 9.4 gives details of contact per week with English during the school holidays in each family type.

Table 9.4 Percentage contact time per week in English during school holidays by family profile

	Minimum	*Maximum*	*Mean*	*Standard Deviation*
FE (N=19)	34.5	96.1	58.7	15.2
FF (N=11)	8.3	33	22.5	7.8
EEa (N=4)	50	88.9	77.4	18.3
EEb (N=4)	89	100	92.3	5.2

The standard deviations for the FE and EEa groups are quite high showing a lack of homogeneity, particularly for the EEa group containing only four children. It is striking that contact with English in the FE and EEb families increases quite substantially over the school holidays. The EEa scores are harder to interpret given the small number of participants although overall, there is more contact with English in the holidays than in term-time. In contrast, contact with English is slightly reduced in the FF families, presumably since the children lose the contact with English in school but do not manage to compensate for this fully with alternative contacts with English over the holidays.

9.3.2.3 Contact time in French

Table 9.5 gives an overview of the percentage amount of contact time per week with French for the full group of 38 children during term-time. The fact that there are no readings falling below 25% is because all the children were exposed to French in school for considerably longer than they were exposed to English there.

Table 9.5 Percentage contact time per week in French during term-time for full group

N	*Minimum*	*Maximum*	*Mean*	*Standard Deviation*
38	25	87.2	57.3	17.8

The percentage of contact time per week with French during term-time per family type is shown in Table 9.6 below.

Table 9.6 Percentage contact time per week in French during term-time by family profile

	Minimum	*Maximum*	*Mean*	*Standard Deviation*
FE (N=19)	38.2	79.1	55.9	11.7
FF (N=11)	64.8	87.2	76.5	7.4
EEa (N=4)	35	42	38.8	3.6
EEb (N=4)	25	34.9	29.4	4.2

The standard deviations for the two EE groups and FF group are quite low, confirming that the readings within each group are quite homogeneous. In view of the discussions in Section 7.4 concerning language strategies within the home, the high readings in the FF groups are to be expected since French is dominant there. Conversely, the lower readings in the two EE groups highlight the dominance of English within the home. Once again, there is a greater range in the readings for the FE families where there is greater variability in the amount of contact with both languages since the parents have different mother tongues.

In Table 9.7 below, we observe the very large difference between the minimum and maximum amounts of contact per week with French during the school holidays for the group as a whole.

Table 9.7 Percentage contact time per week in French during school holidays for full group

N	*Minimum*	*Maximum*	*Mean*	*Standard Deviation*
38	0	91.7	46.2	26.1

Breaking down this information into the different family profiles in Table 9.8, we note that the FF families slightly increase their contact with French during the holidays while the three other groups decrease theirs to some degree.

Table 9.8 Percentage contact time per week in French during school holidays by family profile

	Minimum	*Maximum*	*Mean*	*Standard Deviation*
FE (N=19)	3.8	65.5	41.3	15.3
FF (N=11)	66	91.7	77.4	8
EEa (N=4)	11.1	50	22.6	18.3
EEb (N=4)	0	11	7.8	5.2

The most striking readings come from the four EEb families where there is clearly very little French contact during the school holidays. This could be explained by the fact that certain of these families may visit an English-speaking country during the school holidays. However, this is certainly not the case for all the families during every school holiday. Rather the children's social networks outside school seem to be predominantly English speaking, despite parents' apparent efforts to mix with French speakers, as we discussed in Section 7.8.3. Clearly, it is the parents of the EEb children who still exercise a certain amount of control over their young children's social circle. Although the parents are clearly very positive about their children becoming bilingual, as was demonstrated in Section 7.7, they are perhaps not fully aware how important it is for their children to have consistent, regular contact with French even during their school holidays in order to facilitate their acquisition.

Having examined the current language exposure in the four family profiles, we will now investigate the strength of the relationship between this and the language performance measures in English and French.

9.3.3 Relationship between overall language contact and language proficiency measures

9.3.3.1 Introduction

In this section, we consider research question 1. What is the strength of the relationship between overall language exposure estimates and the language proficiency measures in each language? We hypothesise that there will be a significant positive relationship between these two sets of variables. We use the Pearson product-moment coefficient of correlation to test the null hypothesis of no significant relationship between overall language contact and language proficiency measures in each language. The overall language exposure estimates are the same as those explained in Section 9.3.2.1 which were calculated from data provided in the parents' questionnaire, Part 3, Questions 1.1 and 1.2. The language proficiency measures referred to here were outlined in Section 6.6.2. For English, these were the British Picture Vocabulary Scale 2nd edition (BPVS) (Dunn *et al.*, 1987) and the Student Oral Language Observation Matrix (SOLOM) completed by the children's English teachers and the researcher. L'Echelle de Vocabulaire en Images Peabody (EVIP) (Dunn *et al.*, 1993) was used for French with the SOLOM completed by participants' French teachers and the researcher. We start by examining this relationship for English before assessing it for French. In both cases, term-time exposure and exposure during the holidays will be considered.

9.3.3.2 Results and discussion

Tables 9.9 and 9.10 show the Pearson product-moment correlation coefficients between the overall language estimates and the various language proficiency measures for English and French respectively.

Table 9.9 Pearson correlations between children's percentage contact time for English and English proficiency measures

N=38	*BPVS*	*English SOLOM teacher*	*English SOLOM researcher*
% contact time English term	.58**	.77**	.77**
% contact time English holidays	.51**	.73**	.73**

***p*<.01

Table 9.10 Pearson correlations between children's percentage contact time for French and French proficiency measures

N=38	*EVIP*	*French SOLOM teacher*	*French SOLOM researcher*
% contact time French term	.37*	.49**	.54**
% contact time French holiday	.38*	.43**	.48**

***p*<.01
* *p*<.05

For English, there was a highly significant relationship between each of the language exposure variables and each of the language proficiency variables. For French, the relationships between the two sets of variables were either highly significant or significant. In other words, language performance in each of the children's languages is closely related to the amount of time they are exposed to each, as we had predicted. Therefore, higher levels of exposure are associated with higher levels of performance, while lower levels of exposure are associated with lower levels of performance. We can, therefore, reject the null hypothesis of no significant relationship between overall language estimates and the various language proficiency measures. This correlates with research findings discussed in Chapter 3 (e.g. Kessler, 1984; Hoffmann, 1985; Harding and Riley, 1986; Harley *et al*., 1990; De Houwer, 1995; Yamamoto, 2001; Oller and Eilers, 2002a; Genesee *et al*., 2004).

Having investigated the relationship between the children's overall language contact as reported by the parents and the scores obtained on the language proficiency measures in English and French, we will now examine the relationship between these proficiency measures and the amount of language input and output as reported by the children.

9.3.4 Relationship between language input and output and language proficiency measures

9.3.4.1 Introduction

In this section, we will investigate two research questions. Research question 2 examines the strength of the relationship between the children's current language input and their scores on the language proficiency measures in each language. We hypothesise that there will be a positive relationship between each set of variables under investigation and we use the Pearson product-moment coefficient of correlation to test the null hypothesis of no significant relationship. Research question 3 investigates the strength of the relationship between the children's current language output and their scores on the language proficiency measures in each language. Again, we predict a positive relationship between the two sets of variables and employ the Pearson product-moment coefficient of correlation to test the null hypothesis of no significant relationship. As in Section 9.3.3 above, the measures for English were the BPVS and the SOLOM completed by the children's English teachers and the researcher, and for French, the EVIP and the SOLOM completed by the participants' French teachers and the researcher.

The readings for language input and output come from the children's questionnaire - Part 1, Question 2b for language input and Part 1, Question 2a for language output. The children were asked to say which languages they used to certain people and had to choose from the following options: *Always in French*; *In French more often than in English*; *In French and English equally*; *In English more often than French* and *Always in English*. Since we wished to investigate the relationship between the language input and output readings and the various language proficiency measures using the Pearson product-moment coefficient of correlation, we converted the children's nominal responses for language input and output to interval data by giving each reading a percentage score. For example, if a child answered that he/she spoke more in French than English to his/her mother, he/she might have a reading of 75 for French and 25 for English. If the child replied he/she spoke French and English equally, the readings for both French and English would be 50. Finally, if the child claimed only to speak in one language, he/she would have 100 for that language and zero for the other. Thus, by having two sets of interval data, we were able to investigate the relationship between the input and output

measures and the language proficiency measures using the Pearson product-moment correlation coefficient.

We consider the language input and output used by or to the children in the study with their mothers, fathers, siblings and friends in the playground at school. These particular people were chosen as it was felt that they were the closest to the children and, thus, spent a considerable amount of time with them on a daily basis.

We chose not to consider further the input and output used by or to the children with their neighbours, grandparents, cousins, other relatives, friends outside school, and babysitters for the following reasons. With regard to neighbours and friends outside school, numerous children in the group said that they did not have much contact with their neighbours and did not generally play with children outside school. Concerning babysitters, they either said they did not have a regular babysitter, or that they had several, some of whom spoke French and some who spoke English. Given that we were left with very few responses for these three variables, we decided that we had insufficient data to conduct further investigations. In the case of the variables related to interaction with grandparents, cousins and other family members, although most of the children were able to provide answers to the questions, we realised that there would not be a strong association between the language proficiency measures and the input and output language estimates, for two principal reasons. First, in the FE families, the children said they interacted in English with relatives on the side of their Anglophone parent but a lot of children added that they did not have the opportunity to see these Anglophone relatives very frequently. Secondly, for the other families in the study, the FF children said that they used French exclusively with all their relations while both sets of EE children only used English. In other words, in these families, none of these children claimed to use both languages with members of their wider family.

9.3.4.2 Results

9.3.4.2.1 Language input and output in English

Table 9.11 shows the Pearson product-moment correlations between language input measures for English and the English proficiency measures while Table 9.12 gives the correlations for English output measures and the English proficiency measures.

Table 9.11 Pearson correlations between language input measures for English and English proficiency measures

N=38	*BPVS*	*English SOLOM teacher*	*English SOLOM researcher*
Mother to child	.28*	.42**	.48**
Father to child	.55**	.52**	.46**
Sibling(s) to child	.34*	.49**	.53**
Friends in school to child	.25	.4*	.43**

**$p<.01$
* $p<.05$

Table 9.12 Pearson correlations between language output measures for English and English proficiency measures

N=38	*BPVS*	*English SOLOM teacher*	*English SOLOM researcher*
Child to mother	.3*	.6**	.62**
Child to father	.52**	.54**	.49**
Child to sibling(s)	.44**	.51**	.56**
Child to friends in school	.24	.41**	.44**

**$p<.01$
* $p<.05$

In both tables, numerous readings are significant or highly significant, emphasising the strong association between quantity of input and output in English and the resulting language proficiency. This supports research findings presented in Chapter 3 which found a strong association between language proficiency and language input and output (e.g. Cahill, 1987; Harley *et al*., 1990; Döpke, 1992; De Houwer, 1995; Gathercole, 2002a and 2002b; Oller and Eilers, 2002a). Furthermore, it is the correlations for language output which are higher than those for language input in all but two cases. The two cases which produced slightly lower readings for output all came from the BPVS, whereas the teacher and researcher SOLOM readings were always higher for output than for input. In Section 3.3.2.3, we underlined the importance of using two languages productively with the people playing an important role in the bilingual child's life in order for bilingualism to be maintained and developed. Our results suggest that the quantity of output is a slightly more reliable predictor of language performance than the quantity of input.

The highest readings in Table 9.12 relate to output from the children to their mothers and the children to their siblings ($r=.62$, $p<.01$ and $r=.56$, $p<.01$ respectively). We presume

that these were the family members with whom the children spent the most time, particularly in the case of those mothers who were at home when the children were at home, even if they were in employment when the children were at school. As we reported in Section 7.3.1, all but one of the fathers of the children in the study were working and, thus, no doubt spent less time in the children's company on a daily basis than their mothers and siblings did. We will illustrate this with an example in order to explain the differences in the readings between those for fathers and those for mothers and siblings. If a father spent only about an hour a day on a normal school day interacting in English with his/her child, this would impact less on the child's performance in English than a situation in which a mother interacted with the child in English for five hours a day. Over a working week, that would mean approximately five hours' interaction in English with the father compared to 25 hours with the mother.

The readings for input and output in English with friends in the playground at school were consistently lower than those with all the different members of the children's family. Nevertheless, they are either significant or highly significant for all the SOLOM correlations. Clearly, the children in the study spent proportionately less time with their friends in the playground than they did with the different members of their close family. Yet in spite of this, there was a definite relationship between the input and output readings and the language performance readings for interaction with friends in the playground. This finding highlights the important role played by peers in promoting the minority language, a point we raised in Section 3.3.3.2. We suspect that the quality of interaction with friends in school in some way compensates for the reduced quantity of time spent with them. Having to negotiate meaning and make oneself understood in play situations requires considerable effort, particularly when the children are interacting in large groups. Furthermore, it is possible that those children who have a more limited contact with English outside school are aware that the time spent playing with friends in the playground is quite crucial for their maintenance and development of English and, thus, for their future at the IS. For this reason, they perhaps put more effort and intensity into their play sessions in English. This could explain why there is a fairly strong relationship between these input and output measures and the various English proficiency measures.

In view of the results discussed above, we can conclude that higher levels of input and output in English correlate with higher levels of performance in English whereas lower levels of input and output are associated with lower levels of performance in English, as

we hypothesised. We can, therefore, reject the null hypothesis of no significant relationship between the children's current language input and output and their scores on the language proficiency measures in English.

9.3.4.2.2 Language input and output in French

Table 9.13 shows the Pearson product-moment correlations between language input measures for French and the French proficiency measures while Table 9.14 gives the correlations for French output measures and the French proficiency measures.

Table 9.13 Pearson correlations between language input measures for French and French proficiency measures

N=38	*EVIP*	*French SOLOM teacher*	*French SOLOM researcher*
Mother to child	.21	.19	.24
Father to child	.42**	.43**	.47**
Sibling(s) to child	.38*	.43**	.45**
Friends in school to child	.24	.28*	.32*

**$p<.01$
* $p<.05$

Table 9.14 Pearson correlations between language output measures for French and French proficiency measures

N=38	*EVIP*	*French SOLOM teacher*	*French SOLOM researcher*
Child to mother	.16	.12	.19
Child to father	.4*	.36*	.41**
Child to sibling(s)	.34*	.53**	.55**
Child to friends in school	.24	.28*	.32*

**$p<.01$
* $p<.05$

There are very some striking differences between the readings for French and those for English which were discussed in Section 9.3.4.2.1 above. First, most of the coefficients of correlations for French are lower than the corresponding correlations for English. Looking more closely at them, we note that the first major difference concerns the readings for mother-child communication which were all insignificant for French with no correlation coefficients reaching above .24. We believe this can be explained by considering the amount of French which was used in mother-child communication. As we

reported in Section 7.4.2.2, English was used more or less exclusively in all eight of the EE families. In the FE families, the majority of mothers were native English speakers so were much more likely to use English with their children. English input was, therefore, considerably higher than French input. While more of these FE children used both languages when communicating with their mothers, their English output probably still exceeded their French output. In the FF families, mother-child communication was mixed between French and English for around half the families but was still fairly unstable, as we noted in Section 7.4.2.2 because certain mothers were trying to increase their children's contact with English by using it with them. So when we assess the sample as a whole, the amount of French used in mother-child communication was fairly low. In comparison, while the scores on the EVIP were quite widely dispersed, 30 out of the 38 children scored at least in the high average band on the EVIP, as we showed in Table 8.4. So clearly, the principal source of input for French for most of the children in the sample was not their mothers.

The next difference between the English and the French readings relates to child-father communication. Although the French correlations were lower than the English ones, they all reached statistical significance, with those for input being highly significant while those for output were either significant or highly significant. Looking at the use of French with fathers within the different family profiles, we can once again exclude both types of EE family since English was used exclusively. In the FE families, French was much more present in child-father communication with French being used exclusively in around half the families. In the FF families, French was dominant in father-child exchanges with the exclusive use of French in well over half the families, as we showed in Section 7.4.2.2. Taking an overview of child-father French communication, we can conclude then that there was a wide range of readings which can explain the significant relationships discussed above. Finally, the readings for interaction with friends in the playground were lower for French than they were for English although most reached statistical significance. This is a point we will return to in the Discussion section below.

Taking an overview of the results discussed here, we can conclude that, with the exception of the readings for mother-child communication which were discussed and interpreted above, there is a relationship between the children's current input and output in French and their scores on the French language proficiency measures, as we predicted. This relationship is, nevertheless, generally weaker than it was for English. We can therefore reject the null hypothesis of no significant relationship between the children's

current language input and output and their scores on the language proficiency measures in French.

9.3.4.3 Discussion

We will begin this section by explaining why we believe the relationships between language input and output measures and language proficiency measures were much stronger for English than they were for French. Then we will consider the importance of language output in the minority language, which in our study is, of course English. Finally, the importance of using the minority language with friends will be discussed.

In Section 2.4.1, we explained that 20 hours per week of the primary school curriculum at the IS are spent in French classes whereas only six hours are spent in English classes. In other words, contact with French in school is substantially higher than it is for English. For English proficiency to be maintained and developed, therefore, the children must feel that they have real need for this language beyond the boundaries of the English classroom. It is therefore essential for the children to be exposed to good quality input and to produce plenty of output outside school. Clearly, when the children are young, their main interlocutors are the members of their close family and, to a lesser degree, their friends. Therefore the amount of English contact the children have with these people is likely to determine their proficiency in English when they are young. So if English, the minority language, is not present in the home environment, it will be hard for it to be maintained and developed. This finding supports those of numerous studies discussed in Chapter 3 (e.g. Umbel *et al*., 1992; Hakuta and Pease-Alvarez, 1994; Döpke, 1998; Yamamoto, 2001; Cobo-Lewis *et al*.,2002a; Gathercole, 2005a; Eilers *et al*., 2006).

On the other hand, French which is the majority language is widely available in a full range of contexts outside the home. Therefore even if the children are not exposed much to French in the home, they should have plenty of contact with it, not only in school but also in other domains and social networks outside the home such as through sports, music or dance after school clubs or with friends in their neighbourhood. So French should be acquired, maintained and developed through school and the wider community whether it is used with close family members or not. This explains why the relationship between the French input and output readings and the French proficiency measures looked quite different from the corresponding English readings. Therefore, the French language contact readings were not representative of the children's total contact with French,

whereas the English readings were much more representative of the children's total contact with English. For this reason, we argue that in this study the correlations reported for English relating to interaction with parents, siblings and friends in school are more reliable indicators of the relationship between language input and output estimates and the language proficiency measures than they are for French.

The very strong relationships between output in English and the English proficiency scores in Table 9.12 emphasise how crucial it is for children to use their minority language productively, a point which was highlighted in Section 3.3.2.3 of this study (e.g. Arnberg, 1981; Döpke, 1992; Pearson *et al*., 1997). It is for this reason that it is essential for families to create opportunities for their children to use the minority language with a wide range of native-speaking interlocutors on a regular basis, particularly if there is little use of the minority language in the home, as is the case for certain FF families in the study. If the need to use the language gradually disappears, the children's performance in it will decline progressively.

Although the correlations between English language use with friends and the English performance measures were lower than they were for the corresponding correlations with parents and siblings, they were nevertheless significant or highly significant in four out of the six readings. This supports the research findings examined in Section 3.3.3.2 with regard to the key role played by friends in the promotion of the minority language (e.g. Yamamoto, 2001; Oller and Eilers, 2002a; Gathercole and Thomas, 2005a). While the children are still young, as is the case of the children in our study, they generally spend more time in the company of their close family than with their friends, hence the importance of having contact with the minority language in the home as discussed above. However, as they get older, this situation is reversed as they probably spend more and more time actively engaged in interaction with their friends and, consequently, less time with their families. Therefore, the social networks outside the home become more and more significant sources of input and output in the minority language. While this is clearly the case for the FF families where there may be minimal contact with English in the home, it can also hold true for the FE and EEa families in the study who are in France on a long-term basis. Therefore, having friends who are highly competent speakers of the minority language can be determining for its maintenance and development.

Having examined the relationship between overall language contact, language input and language output and language proficiency, we will now consider how the child's stronger

language relates to a number of other variables related to language use which were addressed in the questionnaire administered orally by the researcher to the children.

9.4 RELATIONSHIP BETWEEN THE CHILD'S STRONGER LANGUAGE AND OTHER VARIABLES

9.4.1 Introduction

In this section, we investigate research question 4. What is the strength of the relationship between the child's stronger language and a number of variables related to language use? The variables we address are: the language the child finds easier to speak and prefers speaking; the language the child finds easier to read in and prefers reading in; the child's cultural allegiance; the language used with friends in the school playground; the language used with toys and, finally, the language the child would choose to use in his/her perfect school. We hypothesise that there will be a significant positive relationship between the child's stronger language and each of the variables we have selected related to language use. In each case, we use the Spearman rho coefficient of correlation to test the null hypothesis of no significant relationship between the child's stronger language and the variable related to language use. We will begin by explaining how the variable we have called *child's stronger language* was established. Having investigated to what extent the children's parents were accurate in their judgements of their child's stronger language, we will examine the relationship between the child's stronger language and each of the chosen variables related to language use.

9.4.2 Child's stronger language

In Section 8.2.3, we explained how we arrived at an index of bilingual balance. Starting from the children's scores on the Peabody tests (BPVS and EVIP), we subtracted the French score from the English score. A score below zero showed dominance in French whereas a score above zero indicated dominance in English. However, it was decided that a child's language skills were fairly balanced if the difference between the two scores was between zero and 15, 15 being the standard deviation on the Peabody tests. Once the difference between the two scores was above or equal to 16, we decided that the child was dominant in one language or the other. We therefore created a variable called *child's*

stronger language with three possible readings: *dominant in English*, *balanced*, or *dominant in French*. This variable was then related to the other language variables discussed below.

9.4.3 Parents' representation of the child's stronger language

Having established whether or not the children had a stronger language using the method discussed above, we wished to investigate to what extent the children's parents were able to assess their children's overall language skills. In Part 4, Question 4.7.8 of the parents' questionnaire, parents were asked if their child had a stronger language and if so, which language they thought it was. Their answers were then coded in the same way as the variable *child's stronger language* so that the relationship between the two variables could be explored using Spearman's Rank Order Correlation. The relationship was found to be highly significant when the full group of 38 children was considered (N=38, ρ=.75, p<.01). However, when the correlations were examined for each family profile, the results were more varied. As expected, all four sets of EEb parents correctly claimed that English was their child's stronger language. The reading for the FE families was highly significant (N=19, ρ=.69, p<.01), suggesting that the FE parents were able to identify their child's stronger language quite accurately. The reading for the EEa families did not reach statistical significance although it was quite high (N=4, ρ=.58). However, this can be explained by the fact that the EEa group contained only four members. The low negative correlation coefficient for the FF families (N=11, ρ=-.22) suggests that certain FF parents had more difficulty identifying correctly their child's stronger language. Looking more closely at the data, we can see that the four sets of parents who did not identify the correct language thought that their children were balanced bilinguals whereas the Peabody scores indicated that they were clearly dominant in French. In Section 7.3.4, we reported that very few FF parents considered that they themselves had native-speaker competence in English. This could explain why certain FF parents tended to over-estimate their children's English language skills. Indeed, their judgement may have been influenced by their children's native or near-native English pronunciation which concealed other shortcomings in their English. However, since the parents were not highly competent in English themselves, they may have failed to notice that other aspects of their children's English were below native or near-native levels.

9.4.4 Language the child finds easier to speak and prefers speaking

In Part 2, Question 1 of the children's questionnaire, the children were asked which of their two languages they found easier to speak. If they answered that it was French or English, we considered that this would be their representation of their stronger language. On the other hand, if they replied that it was just as easy for them to speak one language as it was for them to speak the other, we concluded that their bilingualism was balanced. In Part 2, Question 2 of the children's questionnaire, the children were asked which language they preferred speaking.

For both questions discussed here, the children's answers were coded in the same way as we coded the variable called *child's stronger language*, so that the relationship between them could be investigated. Table 9.15 gives the relevant Spearman rho correlation coefficients.

Table 9.15 Spearman correlations between child's stronger language, language child finds easier to speak and language child prefers speaking

N=38	*Language child finds easier to speak*	*Language child prefers speaking*
Child's stronger language	.7**	.46**
Language child finds easier to speak		.47**

**p<.01

There is a highly significant relationship between the child's stronger language and the language the child claims to find easier to speak (N=38, ρ=.7, p<.01). In other words, the children in the sample are generally able to judge quite accurately which their stronger language is. Likewise, there is a very strong association between the child's stronger language and the language the child prefers speaking (N=38, ρ=.46, p<.01), as we hypothesised. There is also a highly significant correlation between the language the child finds easier to speak and the language he/she prefers speaking (N=38, ρ=.47, p<.01). Therefore, we can reject the null hypothesis of no significant relationship between the child's stronger language and the language the child finds easier to speak, and no significant relationship between the child's stronger language and the language the child prefers speaking. These results confirm our prediction that there would be a significant and positive relationship between the child's stronger language and the language the child finds easier to speak and the language the child prefers speaking.

Although the Spearman correlation coefficient tells us nothing about cause and effect, we wonder if a child is more likely to create opportunities, consciously or unconsciously, to interact with people who speak the language he/she prefers speaking, which tends also to be the language he/she finds easier to speak. If this were the case, the child would increase input and output in his/her preferred and more proficient language which would almost certainly decrease input and output in the other. If there is indeed a strong association between overall language contact in each of the bilingual child's languages and language performance in each language, as we argued in Section 9.3.3.2, the children's language performance in the less favoured language could begin to diminish, particularly if the less favoured language is also the language in which the child is less competent. We suspect that there are certain children in our study who might find themselves in this situation. Notably, this could be the case for certain FF children who have limited contact with English outside school and who are aware that they are finding it increasingly challenging to interact in English. As a result, they may avoid interaction with their English-speaking peers where possible and seek out French interlocutors. It may also be the case for certain EEb children who are in the early stages of acquiring French and feel frustrated at their inability to interact in French with the same ease as they are able to interact in English. At the IS, they can seek out English-speaking friends which may slow down their acquisition of French. In their case, however, if they stay in France for long enough it is highly likely that they will acquire high levels of competence in French because of its dominance in school and the wider community. However, this is not the case for the FF children who have returned to France from an Anglophone environment and who need to increase their contact with English for it to be maintained and developed. It would certainly be beneficial for those FF children whose competence in English is reducing if ways could be found of encouraging friendships and interactions with their peers who were highly competent in English. This point was made by Gathercole (2005a) with regard to the promotion of the minority language, Welsh, in English-Welsh bilinguals in Wales. Indeed, by increasing contact with the minority language, performance in it should in turn increase.

9.4.5 Language the child finds easier to read in and prefers reading in

In Section 7.8.1 we reported on parents' reading habits with their children and our results showed parents' commitment to helping to develop their children's literacy skills in both languages. Here, we are interested in the children's feelings towards reading in each of their languages. In Part 2, Question 3 of the children's questionnaire, the children were asked which language they found easier to read in and in Part 2, Question 4, we asked them which language they preferred reading in. Their responses were coded in the same way as the variable *child's stronger language* so that the relationships between the variables could be examined. Table 9.16 shows the Spearman correlations.

Table 9.16 Spearman correlations between child's stronger language, language child finds easier to read in and language child prefers reading in

N=38	*Language child finds easier to read in*	*Language child prefers reading in*
Child's stronger language	.33*	.46**
Language child finds easier to read in		.46**

**$p<.01$
* $p<.05$

The relationship between the child's stronger language and the language the child finds easier to read in was significant (N=38, ρ=.33, $p<.05$), as we had predicted. This is quite logical since it is to be expected that the children would find it easier to read in their stronger language, particularly those who clearly had a stronger language, that is to say, those for whom there was a sizeable difference between their English and French Peabody scores. Likewise, there is a highly significant relationship (N=38, ρ=.46, $p<.01$) between the child's stronger language and the language the child prefers reading in, as we hypothesised. Therefore, we can reject the null hypothesis of no significant relationship between the child's stronger language and the language the child finds easier to read in, and no significant relationship between the child's stronger language and the language the child prefers reading in.

The highly significant relationship (N=38, ρ=.46, $p<.01$) between the child's stronger language and the language the child prefers reading in is striking. If the child prefers reading in his/her stronger language, which is understandable since reading is supposed to be an enjoyable activity, he/she is more likely to read for pleasure in that language. On the other hand, reading in a language in which one has more linguistic difficulties linked

to comprehension problems is probably quite frustrating and unrewarding. Thus, if the child seeks out reading material in the language in which he/she is more at ease, this will increase contact with the stronger language and consequently reduce contact with the weaker language. The coefficient of correlation for the relationship between the language the child finds easier to read in and the language the child prefers reading in is also highly significant (N=38, ρ=.46, p<.01). Once again, this suggests that the child is more likely to read in the language in which he/she feels more comfortable.

9.4.6 Child's cultural allegiance

In Section 7.5.2, we investigated how the children's cultural allegiance was viewed by the parents (parents' questionnaire, Part 1, Questions 18 and 19) and by the children themselves (children's questionnaire, Part 3, Question 1). In this section, we examine the relationship between the child's stronger language and the parents' and children's representation of the children's cultural allegiance. The results are shown in Table 9.17.

Table 9.17 Spearman correlations between child's stronger language, child's dominant culture according to parents and child's cultural allegiance according to child

N=38	*Dominant culture according to parents*	*Cultural allegiance according to child*
Child's stronger language	.74**	.52**

**p<.01

In both cases, there is an extremely strong relationship, as we had predicted. In other words, if a child is dominant in one language, it is more likely that he/she will have a greater allegiance with the culture of that language. On the other hand, if the child's bilingualism is more balanced, he/she is more likely to feel bicultural. In view of these results, the null hypothesis of no significant relationship between the child's stronger language and the child's cultural allegiance can be rejected. This finding correlates with research by Verhoeven (1991) discussed in Section 3.3.3.5 which found a strong association between degree of bilingualism in Turkish-Dutch bilingual living in Holland and their cultural attitudes.

9.4.7 Language used with friends in the school playground

In Sections 9.3.4.2.1 we reported that there was a strong association between the quantity of the children's English input and output with friends in the school playground and their English proficiency measures. In Section 9.4.4, we underlined the importance of the language used by friends for the maintenance and development of children's bilingualism and we emphasised that it is necessary to find ways of encouraging friendships and interactions with native speakers of the children's weaker language in order to increase contact with it. In this section, we examine this question further by examining the relationship between the variable *child's stronger language* and the language used with friends in the school playground. The information for the variable *language used with friends in the playground* was provided in Part 1, Question 2a and 2b of the children's questionnaire. Without exception, the answers to Questions 2a and 2b of the children's questionnaire with regard to the language used in playground with friends were identical. In other words, if a child reported using French and English equally to his/her friends, he/she also reported being addressed in French and English equally by his/her friends. The children's answers were then coded in the same way as the variable *child's stronger language* so that the relationship between them could be examined. This meant reducing the five categories on the children's questionnaire to three. To do this, the three categories on the questionnaire *In French more often than in English*; *In French and English equally* and *In English more often than in French* became a single category, called *In English and French*. Thus, we had the three nominal categories *Always in English*; *In English and French* and *Always in French*.

As our hypothesis predicted, there was a highly significant relationship (N=38, ρ=.59, p<.01) between the variable *child's stronger language* and the variable *language used with friends in the playground*. We can, thus, reject the null hypothesis of no significant relationship between the child's stronger language and the language used with friends in the playground. We cannot talk about a causal relationship between the two variables, since our result simply indicates a strong association. Nevertheless, as we suggested in Section 9.4.4, we suspect that certain children may make a conscious or unconscious decision to play with children who speak their stronger language while limiting the time they spend with children speaking their weaker language. So, by increasing exposure to the stronger language and decreasing exposure to the weaker language, the children may

improve their performance in the stronger language and consequently lower their performance in the weaker language.

9.4.8 Language used playing with toys

In Part 1, Question 2a of the children's questionnaire, we asked the children which language they used to talk to their toys. We hypothesised that they were more likely to use their stronger language, particularly if they were much more competent in this language than in the other. The Spearman rho coefficient of correlation was found to be highly significant (N=38, ρ=.58, p<.01). The null hypothesis of no significant relationship between the child's stronger language and the language used with toys can, therefore, be rejected. This result demonstrates once more the close association that exists between the child's stronger language and language the child uses in an everyday situation in which he/she has the choice between both languages.

We also wished to examine which language the children used with their pets (children's questionnaire, Part 1, Question 2a) as we thought that their responses would be similar to the question related to language choice with their toys. Indeed, we would have liked to examine the relationship between the two variables. However, this was not possible since a large number of children (21 out of the 38) in the sample did not have a pet.

9.4.9 Language used in the child's perfect school

In Part 2, Question 7 of the children's questionnaire, the children were asked which languages would be spoken and learnt at their perfect school. Their answers were coded so that they could be associated with the answers to the variable *child's stronger language*. We hypothesised that the children would choose to study in an environment in which they felt able to interact comfortably with the other speakers. In other words, if they clearly had a weaker language, they might choose to avoid a school where only this language was present. There was a strong correlation between the two variables (N=38, ρ=.43, p<.01) as we had predicted, enabling us to reject the null hypothesis of no significant relationship between the child's stronger language and the language the child would choose to use in his/her perfect school.

9.4.10 Discussion

We have investigated the relationship between the variable *child's stronger language* and a number of other variables connected to language use and in each case we have found a strong association as we predicted in our hypothesis for research question 4. While these results do not enable us to talk about causality, they do tell us that the child's stronger language is a good predictor of each of the other variables we examined. In other words if, for example, a child's stronger language is French which is the majority language in our study, he/she is more likely to:

- find it easier to speak French;
- prefer speaking French;
- find it easier to read in French;
- prefer reading in French;
- feel closer to French culture;
- use French with friends in the playground;
- use French to play with his/her toys;
- wish to attend a French-medium school.

If this is indeed the case, as we have suggested throughout this chapter, we suspect that the child will quite naturally, consciously or unconsciously, increase contact with his/her dominant language since he/she feels more comfortable with it, and as a consequence, will decrease exposure to the weaker language. If higher levels of contact with a language lead to higher levels of performance in that language, as we argued in Sections 9.3.3 and 9.3.4, French proficiency will improve as proficiency in English, the minority language, regresses. Thus, if specific measures are not taken to help maintain and develop the minority language, it could gradually be lost if a child is restricted to just six hours of English classes per week in school, particularly if it is not present in the home.

In the final section of this chapter, we turn our attention to the FE children in the study in order to investigate how certain input and output variables may affect their language performance in French and English.

9.5 INPUT AND OUTPUT VARIABLES IN FE FAMILIES

9.5.1 Introduction

In this section data are presented on several questions which investigate if certain input and output variables within FE families make a significant difference to the children's performance in English or French as measured on the BPVS or EVIP. Research findings discussed in Section 3.3.2.3 and 3.3.3.1 highlight the significant influence of the language spoken with parents on oral language performance (e.g. Bain and Yu, 1980; Döpke, 1992; Yamamoto, 2001; Cobo-Lewis *et al*., 2002a; Genesee *et al*., 2004; Eilers *et al*., 2006). Thus, we have chosen to focus on the FE children as our data show that they were consistently exposed to quality models of English and French from their native-speaking parents whereas this tended not to be the case in the other family profiles as was shown in Section 7.4.2 of the study.

Given that the FE group contained only 19 children, once we subdivided it according to the independent variable we were testing, we either had two rather small groups of a similar size or two unequally sized groups with the smaller group having no more than six participants. Clearly, in both cases in view of the small number of participants, we were restricted not only in the type of statistical analysis that could be conducted on the data but also in how much we could read into the results. In Sections 9.5.2 and 9.5.7 below, we will report the descriptive statistics and also conduct an independent *t*-test to see if there is a significant difference in the mean BPVS scores of the children when they are compared on the independent variable. In the remaining sections we will report only the descriptive statistics because of the uneven group sizes.

9.5.2 Language used by the child to the English-speaking parent

In Part 4, Question 4.2.2 of the parents' questionnaire and Part 1, Question 2a of the children's questionnaire, we enquired which language the child currently used to his/her parents. Here, we investigate whether there is a significant difference in the English performance levels of children from FE families who respond to their English-speaking parent in English and those who sometimes respond in French. We hypothesise that children who consistently use English with their English-speaking parent will have higher performance levels in English because higher amounts of output in the language are likely

to lead to higher levels of performance (Cahill, 1987; Döpke, 1992; Yamamoto, 2001; Eilers *et al*., 2006). Table 9.18 shows the means and standard deviations.

Table 9.18 Descriptive statistics for BPVS scores of children who respond only to their English-speaking parent in English and those who sometimes respond in French

	Mean	*Standard Deviation*
Children use only English (N=10)	94.2	12.6
Children sometimes use French (N=9)	99.8	13.1

An independent *t*-test conducted on the difference between the BPVS scores for children who always replied in English to their Anglophone parent, and children who sometimes used French, showed no effect ($t(17)=.94$, $p=.36$). Indeed, the children who responded only in English actually had a lower mean than those who sometimes responded in French which was not what we predicted. It is possible that these results are can be explained by the small sample size.

9.5.3 Language used by the English-speaking parent to the child

In Part 4, Question 4.2.1 of the parents' questionnaire and Part 1, Question 2b of the children's questionnaire, we enquired which language the parents currently used to their child. Now we examine if there is a significant difference in the English performance levels of children from FE families whose Anglophone parent uses only English and those whose Anglophone parent sometimes uses French. We predict that children whose English-speaking parents systematically use English will perform better in English than those whose English-speaking parents sometimes use French since it is considered that higher input in a language should increase performance in it (Döpke, 1992; De Houwer, 1995; Oller and Eilers, 2002a). Table 9.19 gives the means and standard deviations of the two groups.

Table 9.19 Descriptive statistics for BPVS scores of children whose English-speaking parents use only English and those who sometimes use French to children

	Mean	*Standard Deviation*
Parent uses only English to child (N=16)	94.7	11.7
Parents sometimes use French to child (N=3)	108.3	15.4

The results are not in line with our hypothesis but we argue that this could well be because of the small sample size and the uneven group sizes.

9.5.4 Language used between parents

In Part 4, Question 4.3 of the parents' questionnaire, parents were asked which languages they used with one another. Here, we explore if there is a significant difference in the English performance levels of children from FE families whose parents sometimes use English to each other and those whose parents use only French. We predict that children whose parents sometimes use English to one other should have higher levels of performance in English than those whose parents use only French (Arnberg, 1987; Yamamoto, 2001). As in the previous question, we consider that if the parents sometimes use English in the home, the children will have increased exposure to English which should increase their performance in it. Table 9.20 shows the descriptive statistics.

Table 9.20 Descriptive statistics for BPVS scores of children whose parents sometimes use English to each other and those who use only French

	Mean	*Standard Deviation*
Parents sometimes use English to each other (N=13)	98.1	14.8
Parents use only French to each other (N=6)	94.2	7.6

As in Section 9.5.3, once the FE children were divided according to the independent variable, the two groups were uneven in size. For this research question, although the different mean scores for the two groups are encouraging in view of our hypothesis, because of the small numbers involved and the different sizes of the two groups, we cannot read too much into the results.

9.5.5 Gender of English-speaking parent

In Part 1, Question 10 of the parents' questionnaire, parents were asked which language they learnt as a child before entering school. Here we examine if there is a significant difference in the English performance levels of children from FE families whose mothers are native English speakers and those whose fathers are native English speakers. We hypothesise that children whose mothers are native English speakers will have higher levels of performance in English than those whose fathers are native English speakers because their mothers were more likely to be present more frequently in the home (Pauwels, 1985; Boyd, 1998; Piller and Pavlenko, 2004). Once again, greater input and output in that language should result in higher performance levels. The results are given in Table 9.21.

Table 9.21 Descriptive statistics for BPVS scores of children whose mother is a native English speaker and those whose father is a native English speaker

	Mean	*Standard Deviation*
Mother native English speaker (N=17)	95.3	12.7
Father native English speaker (N=2)	110	4.2

As in Section 9.5.3, these results do not support our hypothesis but we believe that it is not possible to draw any conclusions from this in view of the small sample size.

9.5.6 Gender of French-speaking parent

The data for this question come from the parents' questionnaire, Part 1, Question 10, as in the previous section. Here we examine if there is a significant difference in the French performance levels of children from FE families whose mothers are native French speakers and those whose fathers are native French speakers. We predict that children whose mothers are native French speakers should outperform in French those whose fathers are native speakers of French as their mothers will probably be more present in the home than their fathers (Pauwels, 1985; Boyd, 1998; Piller and Pavlenko, 2004). This should lead to increased input and output in French which should improve French performance. Table 9.22 shows the results.

Table 9.22 Descriptive statistics for EVIP scores of children whose mother is a native French speaker and those whose father is a native French speaker

	Mean	*Standard Deviation*
Mother native French speaker (N=2)	130	14.1
Father native French speaker (N=17)	115.7	13.5

Although the results support our hypothesis, because of the difference in size of the two groups, they cannot be considered to be significant.

9.5.7 Birth order

In Part 1, Question 6 of the parents' questionnaire, parents were asked to give the ages of any other children in the family so that we could determine the position in the family of the child in the study. The final question in this section considers whether there is a significant difference in the English performance levels of children from FE families who are first born or only children, and later born children. We hypothesise that first born or only children will have higher performance levels in English than later born children because the former are exposed to more input in the minority language in the home (Döpke, 1992; Yamamoto, 1992 and 2001). Therefore, it would be easier to have English as the exclusive language used between the English-speaking parent and the child. The results are given in Table 9.23.

Table 9.23 Descriptive statistics for BPVS scores of children who are first born or an only child and those who are later born

	Mean	*Standard Deviation*
First born/only child (N=10)	97.4	15.4
Later born (N=9)	96.2	10.3

An independent *t*-test was conducted to compare the mean BPVS scores for first born or only children and later born children but the results showed no effect ($t(17)=.19$, $p=.85$).

9.5.8 Comment

In the different subsections of Section 9.5 above, we have examined whether certain input and output factors within FE families make a difference to the children's performance in English or French as measured on the BPVS or EVIP. As we have repeated throughout this section, the small number of children in the FE group has limited not only the statistical tests that we could conduct on the data, but also, and more importantly, the validity and the reliability of our results. It is clear that a much larger sample of FE children would be required to address these questions in order for us to assess to what extent certain input and output variables within the home environment affect young bilingual children's performance in their two languages.

9.6 CONCLUSION

This chapter aimed to investigate the relationship between a range of input factors and the bilingual proficiency of the 38 children in this study. We began in Section 9.2 by reviewing the input factors related to school and the children's family background that were common to all the children in the sample so were not likely to differentiate between the participants. We consider that these factors undoubtedly contributed to the children's positive feelings about being bilingual, since the children's bilingualism was obviously valued and encouraged by people around them.

In the rest of the chapter, we investigated the input factors which operated differentially in the children and which could, therefore, help to explain their different levels of performance in French and English. We focused here on the relationship between the children's current language exposure and use and their bilingual proficiency. In the first part of this section, Section 9.3.2, we took an overview of the language contact data for English and French during term-time and the school holidays. Not surprisingly, in view of the important contribution of language in the home, the families with the highest English contact were those with two Anglophone parents, followed by those with one Anglophone parent, and then those with two Francophone parents, whereas the reverse was true for French.

In Section 9.3.3, we found a very close association between the children's overall language contact and the different language proficiency measures for each language, and thus concluded that the more children were exposed to a particular language, the better

they would perform in it. Although these results were predictable, in view of the findings of other studies which have explored this relationship, they are nevertheless rather satisfying. The figures used to calculate overall language contact came from the parents' questionnaire (Part 3, Question 1). This demonstrates that the parents do appear to have given a reliable and honest evaluation of their child's daily contact with French and English during term-time and school holidays. We had been concerned that parents might have been tempted to inflate their child's contact with one language if they felt that he/she was not exposed to it sufficiently, but this does not appear to have been the case.

In Section 9.3.4, we investigated the association between the children's language input and output with their parents, siblings and school friends in each language and the language proficiency measures. We found that the relationship between the English variables was generally stronger than it was for the French variables. We believe this finding is of particular interest as it emphasises just how important it is to use the minority language in the home if it is to be maintained and developed, particularly when children are still young and spend a considerable amount of time interacting with their immediate family. As they get older and spend more time outside the home, we believe that the language contact they have with friends in their social networks will impact increasingly on their language proficiency in each language, while the influence of the language spoken in the home will tend to diminish.

We chose to investigate input and output measures separately in this study as we suspected that the latter would be more closely related to language performance. Our results confirmed that there was indeed a stronger relationship between quantity of output in English and English performance than there was for quantity of input in English and English performance. We believe that this is a significant finding of our study which highlights the importance of using the minority language productively with a range of interlocutors, if it is be maintained and developed.

The relationship between the child's stronger language and several other key variables related to language use was investigated in Section 9.4. To our knowledge, no other studies have examined these variables using the methodology we adopted. Our results showed quite convincingly that the child's stronger language was a reliable predictor of the language the child found easier to speak and preferred speaking, the language the child found easier to read in and preferred reading in, the child's cultural allegiance, the language the child used with friends in the playground, the language the child used with his/her toys and the language the child would choose to use in his/her perfect school. We

believe that our results offer compelling evidence for the need to create opportunities to promote the child's weaker language, especially if this is the minority language which is available only in a restricted number of domains and, consequently, has fewer potential interlocutors. While we knew that language contact was closely linked to language proficiency, these results have given us more precise insights into the relationship between language proficiency and variables associated with everyday language use. Indeed, we argue that they show the extent to which not using a language can lead to its progressive loss.

In Section 9.5 we wished to establish if a number of different input and output variables in FE families had an influence on children's performance in English or French as measured by the BPVS or EVIP. It was disappointing that because of the small size of the sample, we were unable to confirm or reject our hypotheses since we were very limited in the type of data analysis we could perform and in the interpretation of the results. It is evident that a much larger sample would be necessary to provide valid and reliable answers to the various questions addressed here.

Having examined the relationship between input factors and bilingual proficiency, in the following chapter we investigate our remaining research questions which explore the relationship between bilingual proficiency and metalinguistic awareness.

CHAPTER 10 – THE RELATIONSHIP BETWEEN BILINGUAL PROFICIENCY AND METALINGUISTIC AWARENESS

10.1 INTRODUCTION

In this chapter we investigate the relationship between the bilingual proficiency and the metalinguistic awareness of the 38 French-English bilingual children in the study. As discussed in Chapter 5, metalinguistic awareness will be considered in terms of Bialystok's (Bialystok and Ryan, 1985; Bialystok 1986a and 2001a) theoretical framework and in relation to Cummins' (1976) threshold hypothesis. Bialystok's framework describes metalinguistic performance in terms of two cognitive skill components – analysis of linguistic knowledge and control of linguistic processing. The former is involved, for instance when detecting and correcting grammatical errors in a sentence. The latter is necessary to direct attention selectively to certain specific features while ignoring other distracting elements. This skill is needed to solve problems which contain some kind of conflict or ambiguity.

Summing up the research findings on the relationship between bilingualism and metalinguistic awareness, we reported in Section 5.4 that several studies indicated a processing advantage for bilinguals, regardless of their level of bilingualism, over monolinguals on metalinguistic tasks requiring high levels of control of attention. Furthermore, certain of these studies which controlled for degree of bilingualism also indicated an advantage for bilinguals who had attained high levels of competence in both their languages over dominant bilinguals, in metalinguistic tasks evaluating this cognitive processing component. These findings support Cummins' threshold hypothesis which predicts that balanced bilinguals may have certain cognitive advantages if both their languages are developed to a high level. With regard to analysis of linguistic knowledge, while research findings were less conclusive, they nevertheless pointed to an early advantage for balanced bilinguals over dominant bilinguals and monolinguals on metalinguistic tasks assessing syntactic awareness. However, they did not reveal any

consistent advantage for balanced or dominant bilinguals over monolinguals on other metalinguistic tasks requiring analysis.

In our study, we compare the performance on a range of metalinguistic tasks of higher level bilinguals, i.e. bilinguals who have attained high performance levels in both their languages, to bilinguals who have reached a high level of competence in one language but a much lower level in the other. We refer to the former as balanced bilinguals and to the latter as dominant bilinguals. One of our objectives in this chapter is to assess to what extent our results support those of the research findings discussed in Chapter 5 and, by extension, to what extent they provide support for Bialystok's analysis and control framework and Cummins' threshold hypothesis.

We will begin in Section 10.2 by recalling briefly how we subdivided the group of 38 children into two groups based on their scores on the Peabody vocabulary tests in French (EVIP) and English (BPVS) in order to compare their performance on the English and French metalinguistic tasks. The Peabody tests were presented in Section 6.6.2.2. The two groups we created were balanced bilinguals and dominant bilinguals.

In Section 10.3, we investigate research question 5. Is there a significant difference in the mean scores of the balanced and dominant bilinguals, first on the English metalinguistic tasks and, secondly, on the French metalinguistic tasks? Here, we investigate the children's scores on each task and in each language and the children's order of difficulty of the tasks. The metalinguistic tasks used in this study are numbered as shown in Table 10.1.

Table 10.1 List of metalinguistic tasks used in the study

1. Word Order Repetition (control)
2. Word Renaming (control)
3. Symbol Substitution (control)
4. Symbol Substitution (analysis)
5. Word Order Correction (analysis)
6. Form-Meaning Judgements (analysis and control)
7a. Grammar Judgements (analysis)
7b. Grammar Judgements (control)

Our predicted order of difficulty which we put forward in Section 6.6.3.10 was based on the differing cognitive demands we estimated that the tasks made on the children. This order of difficulty is shown again in Table 10.2.

Table 10.2 Predicted order of difficulty of the metalinguistic tasks

1	Task 7a: Grammar Judgements (analysis)
2	Task 1: Word Order Repetition (control)
3	Task 5: Word Order Correction (analysis)
4	Task 4: Symbol Substitution (analysis)
5	Task 7b: Grammar Judgements (control)
6	Task 6: Form-Meaning Judgements (analysis and control)
7	Task 2: Word Renaming (control)
8	Task 3: Symbol Substitution (control)

In this section, we first consider the scores for the full group of 38 children. Then, having compared the descriptive statistics and order of difficulty on each task and in each language of the balanced bilinguals to the dominant bilinguals, we conduct an independent *t*-test for each metalinguistic task to see if there is a significant difference in the mean scores for the two subgroups. Our findings are related to Bialystok's analysis and control framework and Cummins' threshold hypothesis and to our predicted order of difficulty for the metalinguistic tasks.

In Section 10.4, we investigate research question 6. Is there a significant difference in the mean scores of the balanced and dominant bilinguals when only their best score on each metalinguistic task is taken into consideration? In other words, we take either their score on the English version or their score on the French version. We start by examining the descriptive statistics and the children's order of difficulty of the tasks before conducting an independent *t*-test to compare the performance of the two subgroups on each task. Once again, we relate our findings to Bialystok's and Cummins' predictions and to our predicted order of difficulty for the metalinguistic tasks. We then investigate research question 7. To what extent do bilinguals perform metalinguistic tasks better in their stronger language?

In the final part of this chapter, Section 10.5, we consider the relationship between the scores obtained on the BPVS and the English metalinguistic tasks, and then the

relationship between the scores obtained on the EVIP and the French metalinguistic tasks. Here, using the Pearson product-moment coefficient of correlation we examine research question 8. What is the strength of the relationship between the performance measures for each language as attested by the Peabody vocabulary test scores and the scores on the metalinguistic tasks for each language? We then investigate research question 9. Is there a significant difference in the mean scores on the metalinguistic tasks of children who have scores on the Peabody vocabulary test which fall above the median split and children who have scores which fall below it? To do this, we conduct an independent samples *t*-test for each metalinguistic task.

10.2 DIVIDING THE GROUP INTO BALANCED AND DOMINANT BILINGUALS

In this section, we recall how the 38 children in our study were divided into two groups based on their scores on the Peabody vocabulary tests. This information was given in Section 8.2.3. We classified the scores on the English version (BPVS) and the French version (EVIP) into three bands based on the score bands provided in the Peabody testing manuals – high band (H), average band (A) and low band (L). Thus, a score of 115 or above was in the high (H) score band, a score of between 85 and 114 was in the average (A) score band and a score of below 85 was in the low (L) score band. We decided that since the Peabody tests are designed primarily for assessing the vocabulary knowledge in monolingual children, any combination of scores falling in the A or H bands would be considered as age-appropriate, and the children would, therefore, be considered as balanced bilinguals. Twenty-nine of the children in the study fell into this subgroup. According to Cummins' (1976) threshold hypothesis high levels of competence in both languages might lead to cognitive benefits. Bialystok's (Bialystok and Ryan, 1985; Bialystok 1986a and 2001a) analysis and control framework predicts that these balanced bilinguals might outperform the dominant bilinguals on metalinguistic tasks requiring high levels of control of attention. They may also outperform the dominant bilinguals on analysis of linguistic knowledge tasks assessing syntactic awareness in particular.

The remaining nine children in the sample who were put in the dominant bilingual group had one score in the L band and the other either in the A, H or L band. Cummins claimed that having a high level of competence in one language and a much lower one in the other should neither lead to cognitive advantages or disadvantages, while having two languages

in which competence falls below age-appropriate levels may lead to cognitive disadvantages. While Bialystok's analysis and control framework claims that balanced bilinguals have a clear advantage over monolingual children on certain metalinguistic tasks, notably those which demand a high level of selective attention, it also implies that dominant bilinguals might perform less well on these tasks than balanced bilinguals. In Sections 10.3 and 10.4, we investigate whether or not our results are consistent with Cummins' threshold hypothesis and Bialystok's analysis and control framework.

Clearly, it is unfortunate from a methodological point of view that the balanced bilingual group was much larger than the group of dominant bilinguals. Ideally, we would have liked the two subgroups to contain similar numbers of children which would have facilitated their comparison and enabled us to provide more valid and reliable results. Furthermore, the uneven size of the two groups inevitably limits the type of statistical tests that can be carried out on the data. From a methodological point of view, it would have been preferable to have divided the group of 38 children according to the median split on the two Peabody tests in order to obtain two groups of the same size. Cromdal (1999) used this method to subdivide the 38 six to seven year old English-Swedish bilinguals by creating an index of bilingual balance from the differences of each participant's two Peabody scores. Having found the median difference score, he split his subjects into two groups of equal size, one which, according to Cromdal (1999:8), was 'partially bilingual' and the other which was 'highly bilingual'. While this method takes into account how balanced the bilingual's two languages are, it fails to consider the level of competence attained in each language. This means that a child who has a similar level of low competence in both languages will fall into the same highly bilingual subgroup as a child with very high competence in both languages. In view of our theoretical framework and research questions in which we wish to compare bilinguals who have reached a high level of competence in both their language to those who have a high level of competence in one language but a much lower one in the other, we rejected this method. To compare the performance of different level bilinguals, Ricciardelli (1992a) subdivided her group of 57 five to six year old Italian-English bilingual children into four groups (high English proficiency and high Italian proficiency; high English proficiency and low Italian proficiency; low English proficiency and high Italian proficiency; low English proficiency and low Italian proficiency) according to the median score on the English PPVT and an Italian non-standardised translation of it. However, the four groups she created were relatively small (12, 11 15 and 19 respectively) which made it difficult

to achieve statistical significance in any of the comparisons she made between the groups. We would have preferred this method of subdividing the group if we had had a larger sample as it would have enabled us to compare the different performances of the four different groups on each language version of all the metalinguistic tasks much more precisely. However, in view of the number of participants in our study, it was not possible to organise the data in this way.

We will now consider the means and standard deviations of the children in our study on the BPVS and the EVIP, first for the full group, then for the group once subdivided into balanced and dominant bilinguals. Table 10.3 shows the means and standard deviations for the full group of 38 children on the two measures of receptive vocabulary.

Table 10.3 Descriptive statistics for English and French Peabody tests for full group

N=38	*Mean*	*Standard Deviation*
BPVS	96.3	12.1
EVIP	109.8	19.4

Table 10.4 gives the means and standard deviations on the Peabody tests once the group was divided into balanced and dominant bilinguals.

Table 10.4 Descriptive statistics for Peabody scores for balanced and dominant bilinguals

	Balanced bilinguals (N=29)		*Dominant bilinguals (N=9)*	
	Mean	*Standard Deviation*	*Mean*	*Standard Deviation*
BPVS	97.7	10.1	92	16.9
EVIP	115	12.3	92.9	28.1

The standard deviations for the dominant bilinguals are greater for the EVIP than for the BPVS. This is because of the inclusion of the fairly low French scores of all four EEb children, in other words those children with two native Anglophone parents who had only been in contact with French for a limited amount of time. In contrast, all 38 children in the sample had had a considerable amount of contact with English even if the range of scores was still quite widely spread, so the group is more homogeneous. Thus, the lowest of the French scores were well below the lowest of the English scores.

We have seen that the groups of balanced and dominant bilinguals were created based on the French and English Peabody vocabulary test scores. We will now compare how these two groups of children performed on the metalinguistic tasks in each language.

10.3 PERFORMANCE ON THE METALINGUISTIC TASKS

10.3.1 Introduction

Our main aim in this section is to investigate research question 5. Is there a significant difference in the mean scores of the balanced and dominant bilinguals, first, on each of the English metalinguistic tasks and, secondly, on each of the French metalinguistic tasks? In view of the predictions made by Bialystok's analysis and control framework and the research findings discussed in Chapter 5, we hypothesise that the mean scores of the balanced bilinguals will not be lower than those of the dominant bilinguals on the metalinguistic tasks requiring high levels of control of attention (tasks 2, 3, 6 and 7b) and on analysis tasks assessing syntactic awareness (tasks 4, 5 and 7a). Indeed, the framework predicts that the balanced bilinguals may outperform the dominant bilinguals on these tasks. Similar predictions are made by Cummins' threshold hypothesis. An independent *t*-test is used to test the null hypothesis that the mean scores of the balanced and dominant bilinguals on the English and French metalinguistic tasks will be equal. The English and French metalinguistic tasks can be consulted in Appendix IV, along with examples of incorrect answers given by the children to the different questions in each task.

In Section 10.3.2, we will take an overview of the scores on the metalinguistic tasks of the full group of children, first for English, then for French. To do this, we will consider the means and standard deviations and the order of difficulty of the tasks. We have two objectives here. First, we wish to rank the tasks in order of difficulty according to the mean scores obtained by the children and compare the children's performance to our predicted order of cognitive difficulty given in Table 10.2. Then, we wish to compare the overall performance of the full group on the English tasks to their overall performance on the French tasks.

In Section 10.3.3, we will examine the scores on the English and French metalinguistic tasks once the full group has been divided into balanced and dominant bilinguals based on their BPVS and EVIP scores, according to the method discussed in Section 10.2 above. Once again, we will compare the descriptive statistics and investigate the children's order

of difficulty based on the mean scores of each task. We will then conduct an independent samples *t*-test for each of the metalinguistic tasks in English then in French to see if there is a significant difference in the mean scores for the balanced and dominant bilinguals.

10.3.2 Overview of scores on the metalinguistic tasks in English and French for full group

Table 10.5 gives the means, standard deviations, children's order of difficulty and predicted order of difficulty for the English metalinguistic tasks for the 38 children in the sample. For the column entitled "*Children's order of difficulty*" in each case, the higher the number, the less well it was performed. The figures in the column entitled "*Predicted order of difficulty*" correspond to our expected rankings with 1 being the expected highest score and 8 the lowest. This numbering method will apply throughout this chapter. Table 10.6 provides equivalent information for the French metalinguistic tasks. However, for French, data are given for 34 children since the four EEb children who had been in France for only a limited period of time did not do the French metalinguistic tasks.

Table 10.5 Descriptive statistics and order of difficulty on English metalinguistic tasks for full group

N=38	*Mean*	*Standard Deviation*	*Children's order of difficulty*	*Predicted order of difficulty*
1. Word Order Repetition (control)	89.7	10.7	2	2
2. Word Renaming (control)	80.1	19.1	5	7
3. Symbol Substitution (control)	75.2	15.5	8	8
4. Symbol Substitution (analysis)	89.9	8.3	1	4
5. Word Order Correction (analysis)	85.5	13.9	3	3
6. Form-Meaning Judgements (analysis and control)	75.7	18.1	7	6
7a. Grammar Judgements (analysis)	84.7	18.7	4	1
7b. Grammar Judgements (control)	78.1	26	6	5

Table 10.6 Descriptive statistics and order of difficulty on French metalinguistic tasks for full group

N=34	*Mean*	*Standard Deviation*	*Children's order of difficulty*	*Predicted order of difficulty*
1. Word Order Repetition (control)	90.4	11.1	3	2
2. Word Renaming (control)	80.5	11	6	7
3. Symbol Substitution (control)	79.4	14.3	7	8
4. Symbol Substitution (analysis)	73.8	18.5	8	4
5. Word Order Correction (analysis)	90	10.8	4	3
6. Form-Meaning Judgements (analysis and control)	88	14.7	5	6
7a. Grammar Judgements (analysis)	92.9	8.7	2	1
7b. Grammar Judgements (control)	95.6	6.2	1	5

For English, the children performed best on Symbol Substitution (analysis), Word Order Repetition (control) and Word Order Correction (analysis). The tasks they found most difficult were Grammar Judgements (control), Form-Meaning Judgements (analysis and control) and Symbol Substitution (control). These results partially support the predictions we made in Table 10.2 in relation to the degree of cognitive difficulty of the metalinguistic tasks. For French, the highest scores were for Grammar Judgements (control), Grammar Judgements (analysis) and Word Order Repetition (control), whilst the lowest ones were for Word Renaming (control), Symbol Substitution (control) and Symbol Substitution (analysis). Certain of these results for French are more surprising than those for English, notably that Grammar Judgements (control) achieved the highest mean. Also, Symbol Substitution (analysis) was less well done than Symbol Substitution (control) whereas we predicted that Symbol Substitution (control) was the harder task. This result could be explained by the fact that this task was given after Symbol Substitution (control) which was a particularly difficult task. Thus, even though these tasks were given in different testing sessions, separated by at least one week, we suspect that the children may have used the same complex cognitive processing demands required for the control version of the task when they later did the analysis version. Ricciardelli (1993) reported similar findings and speculated that this was a result of the fact that the two tasks had too many features in common.

The results show that the Symbol Substitution (control) task was one of the most challenging tasks for the children in both languages. As we discussed in Section 5.3.4.3,

this task assessing referential arbitrariness designed by Ben-Zeev (1977b) places particularly high demands on control of linguistic processing as the children have to ignore the meaning of the sentence and the incorrect syntax in order to produce the correct answer. By contrast, Word Order Repetition (control) was one of the tasks that children performed best in both languages. This demonstrates that tasks requiring control of linguistic processing are not necessarily the hardest. Rather it depends on level of control required and clearly, the Word Order Repetition (control) task placed fairly low demands on selective attention.

Generally, the mean scores for the French metalinguistic tasks were higher than those for the English ones. There are several possible explanations for this. The first is that the children all did the full set of English tasks before they did the full set of French tasks, as we explained in Section 6.5, although the English and French testing sessions were separated by at least four weeks. In spite of this, the children may have performed better in the French versions as they had already done the tests in English and, thus, had a better understanding of the test instructions and demands. The second possible explanation is that the overall level of competence of the children in French was higher than the overall level of competence in English which is what the EVIP and BPVS means suggest in Table 10.3 above. Finally, it could be that the French metalinguistic tasks were easier for the children than the English ones, although we had intended the two language versions to be comparable.

Having considered the performance of the full group of children on the English and French metalinguistic tasks, in the next section we will compare the performances of the balanced and dominant bilinguals on all the tasks.

10.3.3 Comparing the scores of the balanced and dominant bilinguals on the metalinguistic tasks in English and French

In this section, we investigate research question 5. Is there a significant difference in the mean scores of the balanced and dominant bilinguals, first, on each of the English metalinguistic tasks and, secondly, on each of the French metalinguistic tasks? We hypothesise that the balanced bilinguals are likely to perform as well as, if not better than, the dominant bilinguals on metalinguistic tasks requiring high levels of control of attention (tasks 2, 3, 6 and 7b) and that their performance on analysis tasks may exceed that of the dominant bilinguals, especially on tasks assessing syntactic awareness (tasks 4, 5 and 7a). We use an independent *t*-test to test the null hypothesis that the mean scores of the balanced and dominant bilinguals on the English and French metalinguistic tasks will be equal. We will begin by comparing the performance of the balanced and dominant bilinguals, first on the English metalinguistic tasks, then on the French. In each case, we will consider the children's order of difficulty of the tasks using the same numbering method used in Section 10.3.2 above before assessing to what extent the children's results provide support for Bialystok's analysis and control framework and Cummins' threshold hypothesis.

10.3.3.1 English

Table 10.7 shows the means, standard deviations and the children's order of difficulty for the English metalinguistic tasks for the balanced and dominant bilinguals according to the English Peabody scores. We also include a column in the table for the predicted order of difficulty of the tasks to facilitate comparisons between the two groups.

Table 10.7 Descriptive statistics and order of difficulty for English metalinguistic tasks for balanced and dominant bilinguals according to Peabody scores

	Balanced bilinguals (N=29)			*Dominant bilinguals (N=9)*			*Predicted order of difficulty*
	Mean	*Standard Deviation*	*Children's order of difficulty*	*Mean*	*Standard Deviation*	*Children's order of difficulty*	
1. Word Order Repetition (control)	91.1	8.8	1	85.2	14.9	2	2
2. Word Renaming (control)	81.5	19.1	5	73.7	19	8	7
3. Symbol Substitution (control)	74.7	15.8	7	75.3	15.3	7	8
4. Symbol Substitution (analysis)	89.3	7.8	2	90.8	9.7	1	4
5. Word Order Correction (analysis)	86.6	12.9	3	81.5	17.6	6	3
6. Form-Meaning Judgements (analysis and control)	74.1	18.8	8	81.5	16.6	5	6
7a. Grammar Judgements (analysis)	84.5	20.4	4	84.3	14.7	3	1
7b. Grammar Judgements (control)	75.6	26.7	6	83.3	24.3	4	5

The balanced bilinguals performed best on Word Order Repetition (control), Symbol Substitution (analysis) and Word Order Correction (analysis), while they performed less well on Form-Meaning Judgements (analysis and control), Symbol Substitution (control) and Grammar Judgements (control). These results support in part the predictions we made in Table 10.2 with regards to the order of cognitive difficulty of the tasks. The dominant bilinguals performed best on Symbol Substitution (analysis), Word Order Repetition (control) and Grammar Judgements (analysis) and less well on Word Renaming (control), Symbol Substitution (control) and Word Order Correction (analysis). For both groups, with the exception of Word Order Correction (analysis) for the dominant bilinguals, the most challenging tasks were those involving high levels of control of processing which

were more cognitively demanding, as we predicted. On the other hand, the higher scores were attained, on the whole, on tasks where the cognitive demands were lower. The standard deviations in Table 10.7 show that there was more variability in the tasks with the higher cognitive demands, so tasks 2, 6 and 7b. The high standard deviation for task 7a for the balanced bilinguals is rather surprising since for this part of task 7, the children only had to identify grammatically incorrect but meaningful sentences amongst others which were either correct and meaningful, or correct and anomalous. Perhaps the difficulty arose because the three types of sentence were mixed up in the same task so the children had to listen attentively to each sentence to identify whether or not it was grammatically acceptable. Indeed, it is possible that the children applied the same criteria to judge both types of sentence even though the requirements were different for each, a point that will be discussed further below.

An independent samples *t*-test conducted on the difference between the balanced and dominant bilinguals' scores on each of the metalinguistic tasks showed no effect for any of the tasks (Task 1: $t(36)=1.47$, $p=.15$; Task 2: : $t(36)=1.15$, $p=.26$; Task 3: $t(36)=-.004$, $p=.99$; Task 4: $t(36)=-.35$, $p=.73$; Task 5: $t(36)=1$, $p=.32$; Task 6: $t(36)=-1.11$, $p=.28$; Task 7a: $t(36)=.07$, $p=.94$; Task 7b: $t(36)=-.69$, $p=.49$). In other words, when the scores on the English metalinguistic tasks of the balanced and dominant bilinguals are compared, there was no significant difference in their performance. As we mentioned in Section 10.2, the small size of our sample ($N=38$) and the unequal size of our two groups, one of which has a very small number of participants, makes it difficult to achieve statistical significance. However, we believe it is worth looking closer at the mean scores of the two groups on each of the metalinguistic tasks to see to what extent they tend to provide support for our hypothesis and to the predictions made by Bialystok's analysis and control framework and Cummins' threshold hypothesis.

The balanced bilingual children outperformed the dominant bilingual children on Word Order Repetition (control), Word Renaming (control) and Word Order Correction (analysis), while the dominant bilingual children had a superior performance to the balanced bilinguals on Form-Meaning Judgements (analysis and control) and Grammar Judgements (control). The performance of the two groups was very similar on the remaining tasks, Symbol Substitution (control), Symbol Substitution (analysis) and Grammar Judgements (analysis). According to Bialystok's analysis and control framework and our hypothesis, we might have expected the balanced bilinguals to perform at least as well as the dominant bilinguals on the tasks requiring higher levels of

control of processing – so tasks 2, 3, 6 and 7b. In our experiment, they performed better only in task 2, Word Renaming (control), which was one of the most cognitively demanding of all the tasks. The performance of the two groups was very similar for task 3, Symbol Substitution (control), which supports our hypothesis and Bialystok's predictions. However, the dominant bilinguals outperformed the balanced bilinguals in task 6, Form-Meaning Judgements (analysis and control) and task 7b, Grammar Judgements (control). These two results are not consistent with our predictions. For the analysis tasks assessing syntactic awareness, we predicted that the balanced bilinguals might outperform the dominant bilinguals in tasks 4, 5 and 7a. In fact the two groups had a very similar performance in task 4, Symbol Substitution (analysis) and task 7a, Grammar Judgements (analysis), while the balanced bilinguals outperformed the dominant bilinguals in task 5, Word Order Correction (analysis). Therefore, although none of our results reach statistical significance, several of them offer some support to Bialystok's predictions. Interestingly, we had not predicted a difference in the performance of the two groups on task 1, Word Order Repetition (control), but the balanced bilinguals did in fact complete it more successfully.

Cummins' threshold hypothesis predicts that children who attain a high level of bilingualism in both their languages should have cognitive benefits compared to those who reach a high level of proficiency in one language and a lower level in the other. If we apply this to our data, the balanced bilinguals should have outperformed the dominant bilinguals on all the metalinguistic tasks, particularly those which were more cognitively demanding. As discussed above, there was not an overall superiority for the balanced bilinguals on the metalinguistic tasks, thus, these results do not support the threshold hypothesis.

10.3.3.2 French

Table 10.8 gives the means, standard deviations and the children's order of difficulty for the French metalinguistic tasks for the balanced bilinguals and the dominant bilinguals based on the children's EVIP scores. Our predicted order of difficulty is also given in the table to facilitate comparisons between the two groups. As we noted in section 10.3.2, the EEb children did not do the French metalinguistic tasks because of their limited linguistic abilities in French.

Table 10.8 Descriptive statistics and order of difficulty for French metalinguistic tasks for balanced and dominant bilinguals according to Peabody scores

	Balanced bilinguals (N=28)			*Dominant bilinguals (N=6)*			*Predicted order of difficulty*
	Mean	*Standard Deviation*	*Children's order of difficulty*	*Mean*	*Standard Deviation*	*Children's order of difficulty*	
1. Word Order Repetition (control)	90.8	11.4	3	88.9	10.1	4	2
2. Word Renaming (control)	80.2	11.4	6	81.8	10	6	7
3. Symbol Substitution (control)	79.1	14.7	7	81.1	13.3	7	8
4. Symbol Substitution (analysis)	75.3	16.9	8	66.7	25.3	8	4
5. Word Order Correction (analysis)	89	11.4	4	94.5	6.8	2	3
6. Form-Meaning Judgements (analysis and control)	88.7	15.4	5	84.8	11.1	5	6
7a. Grammar Judgements (analysis)	93.2	9.1	2	91.7	7.5	3	1
7b. Grammar Judgements (control)	95.6	6.2	1	95.8	7	1	5

The table shows that the balanced bilinguals performed best on Grammar Judgements (control), Grammar Judgements (analysis) and Word Order Repetition (control) and had their lowest means on the two Symbol Substitution tasks and Word Renaming (control). In fact the order of difficulty was very similar for the dominant bilinguals with the highest means on the two Grammar Judgements tasks and Word Order Correction (analysis) and the lowest means on the same three tasks as the balanced bilinguals. The order of difficulty corresponds largely to the predictions we made in Table 10.2. As we saw for the English metalinguistic tasks, Symbol Substitution (control) was clearly a challenging task for all the children in the sample, as was Word Renaming (control). Symbol Substitution

(analysis) was the least well done of the French metalinguistic tasks and was also the task with the highest standard deviations showing that there was quite a lot of dispersion in the children's scores. In Section 10.3.2, we explained that this could have been because it was given to the children after Symbol Substitution (control), albeit in a different session, and we speculate that some of the children may have found it difficult to suppress the instructions for the cognitively demanding control version of the task to complete the analysis version successfully. Task 3 also had a high standard deviation for both groups of children, as did task 6 for the balanced bilinguals.

We conducted an independent samples *t*-test on the difference between the balanced and dominant bilinguals' scores on each of the metalinguistic tasks but the results showed no effect for any of the tasks (Task 1: $t(32)=.38$, $p=.71$; Task 2: $t(32)=-.32$, $p=.75$; Task 3: $t(32)=-.31$, $p=.76$; Task 4: : $t(32)=1.04$, $p=.31$; Task 5: $t(32)=-1.13$, $p=.27$; Task 6: $t(32)=.59$, $p=.56$; Task 7a: $t(32)=.38$, $p=.71$; Task 7b: $t(32)=-.1$, $p=.92$). Thus, when the scores on the French metalinguistic tasks of the balanced and dominant bilinguals are compared, the difference in performance on each task is not significant.

In Section 10.3.3.1 for English, we reiterated the difficulties of achieving statistical significance in our sample because of the small number of participants and the unequal sizes of the two groups we are comparing. Clearly, this problem is even more apparent for French with one group containing 28 children and the other, only 6. We can nevertheless take a closer look at the mean scores of the two groups on each of the metalinguistic tasks to assess to what extent they tend to offer support to our hypothesis and the predictions made by Bialystok's analysis and control framework and Cummins' threshold hypothesis. Once again, in view of the methodological shortcomings of this part of the study mentioned above, it is hard to offer a reliable interpretation of these results.

The balanced bilinguals performed better than the dominant bilinguals on Word Order Repetition (control), Symbol Substitution (analysis), Form-Meaning Judgements (analysis and control) and Grammar Judgements (analysis). The dominant bilinguals performed slightly better on Symbol Substitution (control) and considerably better on Word Order Correction (analysis). The mean scores for the two groups were very similar for Word Renaming (control) and Grammar Judgements (control).

Bialystok's analysis and control framework predicts that the balanced bilinguals should perform at least as well as the dominant bilinguals on tasks 2, 3, 6 and 7b which involve high levels of control of linguistic processing. While the performance of the balanced bilinguals was higher on task 6, Form-Meaning Judgements (analysis and control), there

was very little difference between the two groups on task 2, Word Renaming (control), task 3, Symbol Substitution (control) and task 7b Grammar Judgements (control). Therefore, we can say that our results go in the direction of Bialystok's predictions and that they certainly do not refute them. For the analysis tasks assessing syntactic awareness, based on Bialystok's predictions, we hypothesised that the dominant bilinguals would score lower than the balanced bilinguals on tasks 4, 5 and 7a. While the balanced bilinguals scored several points higher on task 4, Symbol Substitution (analysis), the difference was smaller but in the right direction for task 7a, Grammar Judgements (analysis). For the remaining analysis task, task 5, Word Order Correction (analysis), the dominant bilinguals outperformed the balanced bilinguals by several points, which we had not predicted. With regard to Cummins' threshold hypothesis, our results show that the balanced bilinguals performed better on tasks 1, 4, 6 and 7a, slightly worse on task 3 and much worse on task 5. The two groups had a very similar performance on tasks 2 and 7b. Therefore, globally, our results do not suggest any overall cognitive advantage on the French metalinguistic tasks for the balanced bilinguals as the threshold hypothesis would have predicted.

In Section 10.3.3, the children's scores on the French and English versions of the metalinguistic tasks have been considered separately. In the next section, we focus only on their best scores for each of the tasks, so either their score in English or their score in French, and compare the balanced and dominant bilinguals' performances on each task.

10.4 COMPARING THE BEST SCORES OF THE BALANCED AND DOMINANT BILINGUALS

10.4.1 Introduction

Our main objective in Section 10.4 is to investigate research question 6. Is there a significant difference in the mean scores of the balanced and dominant bilinguals when only their best score on each task is taken into consideration? We hypothesise that the mean scores of the balanced bilinguals will exceed those of the dominant bilinguals when only their best score is taken into consideration. We use an independent *t*-test to test the null hypothesis that the mean scores of the balanced and dominant bilinguals will be equal when only their best score is taken into consideration.

In Section 10.3.3 above, we examined and compared the means, standard deviations and order of difficulty for the balanced and dominant bilinguals for each metalinguistic task in each language and assessed the results in relation to Bialystok's analysis and control framework and Cummins' threshold hypothesis. Our findings show that when the results were considered in each language separately, they offered a certain amount of support for Bialystok's framework, although none of the results of the independent *t*-tests reached statistical significance. However, our results were not generally consistent with Cummins' threshold hypothesis which predicts an overall superiority for bilinguals who have attained high levels of proficiency in both languages, compared to those having attained a high level in one language and a lower level in the other.

In Section 6.6.3.1 we reported that experts affirm that bilingual children should be given the metalinguistic tasks in both languages in order to access their metalinguistic awareness through their stronger language (Bialystok, 2001a; Oller and Eilers, 2002a; Genesee *et al*., 2004). By doing this, researchers ensure that the children's performance on the metalinguistic tasks is not impeded by language problems. In this section, we will investigate if there is a significant difference in the mean scores of the balanced and dominant bilinguals when only their best score on each task is taken into consideration. Considering only their best scores should provide a better indication of the highest level the children have attained in the metalinguistic skill component under investigation.

In Section 10.4.2, we will begin by investigating the difference between the means, standard deviations and order of difficulty of the metalinguistic tasks of the balanced and dominant bilinguals. Then we will conduct an independent samples *t*-test for each of the metalinguistic tasks to compare the performance of the two groups and we will relate the results to Bialystok's and Cummins' theories. In Section 10.4.3, we will consider to what extent the children gave their best performance in their stronger language. Finally, the results will be discussed in Section 10.4.4.

10.4.2 Comparing descriptive statistics, children's order of difficulty and performance

Table 10.9 gives the means, standard deviations and the order of difficulty of the balanced bilinguals and the dominant bilinguals when only their best performance on each metalinguistic task was taken into account. We also give the difference in means for each task between the balanced and dominant subgroups. In each case, the score of the

dominant bilinguals is subtracted from the score of the balanced bilinguals. Thus, a positive score shows a superior performance for the balanced bilinguals, whereas a negative one indicates a better performance for the dominant bilinguals. In the final column of the table, we show the predicted order of difficulty of the tasks given earlier in Table 10.2.

Table 10.9 Descriptive statistics, children's order of difficulty and differences in means for best performance for balanced and dominant bilinguals

	Balanced bilinguals (N=29)			*Dominant bilinguals (N=9)*			*Difference in means*	*Predicted order of difficulty*
	Mean	*SD*	*Children's order of difficulty*	*Mean*	*SD*	*Children's order of difficulty*		
1. Word Order Repetition (control)	94.5	7.5	3	92.6	9.7	4	1.9	2
2. Word Renaming (control)	90.6	8.6	7	81.8	16.4	7	8.8	7
3. Symbol Substitution (control)	82.7	12.4	8	80.3	15.1	8	2.4	8
4. Symbol Substitution (analysis)	92	8.3	5	90.8	9.7	5	1.2	4
5. Word Order Correction (analysis)	93.1	10	4	94.4	7.2	2	-1.3	3
6. Form-Meaning Judgements (analysis and control)	88.5	14.5	6	88	12.6	6	0.5	6
7a. Grammar Judgements (analysis)	96.6	4.2	1	94.5	5.9	1	2.1	1
7b. Grammar Judgements (control)	96.6	6.1	2	93.5	11.6	3	3.1	5

The results are quite striking compared to the results we presented in Section 10.3.3 when each language was considered separately. We will begin by discussing the children's order of difficulty of the tasks, before examining the difference in mean scores for each

group and relating the results to Bialystok's and Cummins' theories. Finally, we will compare the standard deviations for both groups of children.

The order of difficulty for the different metalinguistic tasks for the balanced and dominant bilinguals is very similar. Both groups performed best on Grammar Judgements (analysis). Although the order of difficulty for the two groups is slightly different for the second, third and fourth easiest tasks, the same three tasks are involved – Word Order Repetition (control), Word Order Correction (analysis) and Grammar Judgements (control). The order of difficulty for the four lowest scores for both groups is identical, from highest to lowest, Symbol Substitution (analysis), Form-Meaning Judgements (analysis and control), Word Renaming (control) and finally, the most difficult, Symbol Substitution (control). Thus, when we take into consideration only the children's best score on each task, we find that the most difficult tasks for both subgroups are, indeed, those involving high levels of control of linguistic processing, tasks 2, 3 and 6, as we predicted in Table 10.2. Furthermore, on the whole, the order of difficulty for all the tasks is very close to the order we predicted in Table 10.2. The Symbol Substitution (analysis) task was the most difficult of the tasks assessing analysis but may also have suffered from the methodological problem that we discussed in Section 10.3.2. Therefore, although the actual level of performance of the two groups may be different, as will be shown below, the two groups of children performed in a similar manner when completing the different metalinguistic tasks.

Regarding the difference in means between the balanced and dominant bilingual groups, the results in Table 10.9 indicate that for all except Word Order Correction (analysis), the balanced bilinguals outperformed the dominant bilinguals on all the metalinguistic tasks. For tasks 1, 3, 4, 6, 7a and 7b, the difference between the means was relatively low, ranging from 0.5 to 3.1. However, the difference between the means for task 2, Word Renaming (control) which was one of the two most challenging tasks, was 8.8. This shows a considerable difference in performance between the balanced bilinguals and the dominant bilinguals.

An independent samples *t*-test was conducted to compare the means of the balanced and dominant bilinguals on each of the metalinguistic tasks only taking into consideration their highest score on each task. Task 2 revealed a significant effect ($t(36)=2.13$, $p<.05$). However, the other results did not show a significant difference on the best scores of the balanced and dominant bilinguals (Task 1: $t(36)=.64$, $p=.53$; Task 3: $t(36)=.47$, $p=.64$; Task 4: : $t(36)=.10$, $p=.92$; Task 5: $t(36)=-.37$, $p=.71$; Task 6: $t(36)=.10$, $p=.92$; Task 7a:

t(36)=1.2, *p*=.24; Task 7b: *t*(36)=.75, *p*=.47). So, our hypothesis which stated that the mean scores of the balanced bilinguals would exceed those of the dominant bilinguals when only their best score was taken into consideration appears correct for Task 2, but not for the remaining metalinguistic tasks.

We have already referred to the methodological problem resulting from the fact that the balanced and dominant bilingual groups had unequal numbers of children, and that the number of participants in each group was low. We therefore have to be very cautious in what we say about our results. Although only one of our comparisons reached statistical significance, most of the other results go in the direction of the predictions made by Bialystok's analysis and control framework. The balanced bilinguals did, indeed, outperform the dominant bilinguals on the four tasks with high levels of control of attention, tasks 2, 3, 6 and 7b and the differences in the means were highest for tasks 2, 3 and 7b. The significant difference in the independent samples *t*-test between the mean scores on task 2, Word Renaming (control), is particularly encouraging. As we discussed in Section 5.3.4.3, this task assessing referential arbitrariness, which is based on Piaget's (1929) sun-moon test, is one of the most cognitively challenging of the metalinguistic tasks which has been found in other studies (e.g. Ianco-Worrall, 1972; Osherson and Markman, 1975; Ben-Zeev, 1977b; Cummins, 1978a; Bialystok, 1988a; Edwards and Christophersen, 1988; Ricciardelli, 1992a; Eviatar and Ibrahim, 2000) to differentiate well between bilinguals and monolinguals. In our study, it also serves to differentiate well between balanced and dominant bilinguals. With regard to the analysis tasks assessing syntactic awareness, the balanced bilinguals scored a little higher than the dominant bilinguals on two out of the three tasks, tasks 4 and 7a, whereas the dominant bilinguals scored slightly higher on task 5. Thus, the balanced bilinguals did tend to perform better than the dominant bilinguals. This is also consistent with findings reported in Galambos and Hakuta (1988) and Bialystok (2004). The results in Table 10.9 also point to a general cognitive advantage overall on the metalinguistic tasks for the balanced bilinguals, albeit quite small in most cases, which is consistent with Cummins' threshold hypothesis. Since the difference in means between the balanced and dominant bilinguals is quite low for almost all the tasks, the dominant bilinguals do not seem to be at a great disadvantage although this small difference could, of course, be related to our sample size. Clearly, it would be necessary to repeat this experiment with a much larger sample of children divided equally into a balanced and dominant bilingual group to see if the tendency revealed in our study was, indeed, confirmed.

The last striking feature in Table 10.9 relates to the standard deviations for each task. With the exception of task 5, Word Order Correction (analysis) and task 6, Form-Meaning Judgements (analysis and control), there is more variability in the scores of the dominant bilinguals than those of the balanced bilinguals. For the dominant bilinguals, it is the harder tasks assessing control of attention which have the highest standard deviations (tasks 2, 3, 6 and 7b). However, for the balanced bilinguals, task 2, Word Renaming (control) and task 7b, Grammar Judgements (control) have quite low standard deviations (8.6 and 6.1 respectively) indicating that this group's performance was much more homogeneous. This again offers support to the research findings mentioned above which have found advantages on metalinguistic tasks in which high levels of control of processing are required, for bilinguals who have attained high levels of proficiency in both their languages. In comparison, there was much more variability for the dominant bilinguals on these two tasks, with standard deviations of 16.4 and 11.6 respectively.

10.4.3 Relationship between best performance and child's stronger language

In the section above, it was shown that when each child's best performance on each task was taken into consideration, there was a difference in the performance of the balanced and the dominant bilinguals, albeit fairly small for most of the tasks, with the former group tending to outperform the latter. But did the subjects in our study always perform better in their stronger language? Here, we examine research question 7. To what extent do bilinguals perform metalinguistic tasks better in their stronger language? To investigate this question, we subdivided the group according to the variable *child's stronger language* which was explained in Section 9.4.2. This variable had three possible values which were: *dominant in English* (E), *balanced* (E=F), and *dominant in French* (F). An explanation of how this variable was calculated was given in Section 9.4.2. There are only 34 children in this part of our investigation since the EEb children were not included as they had a set of results only for English. Here, we compare the 34 children's scores on the English and French versions of each of the metalinguistic tasks to see if they performed each task better in English (E) or French (F), or whether they obtained exactly the same scores in the English and French versions of the task (E=F). We then added together the scores in each of the three categories (E; F; E=F) across all the metalinguistic tasks and converted the results to a percentage in order to be able to compare the

performance of the three different groups of children across all the tasks. The results are shown in Table 10.10.

Table 10.10 Best performance for each metalinguistic task according to child's stronger language

Child's stronger language		*Task 1*	*Task 2*	*Task 3*	*Task 4*	*Task 5*	*Task 6*	*Task 7a*	*Task 7b*	*TOTAL*	*TOTAL %*
E (N=9)	*E*	5	6	4	9	3	2	5	2	36	50
	E=F	2	-	1	-	2	2	1	2	10	13.9
	F	2	3	4	-	4	5	3	5	26	36.1
E=F (N=9)	*E*	4	6	4	4	1	-	1	-	20	27.8
	E=F	4	1	1	4	5	3	5	2	25	34.7
	F	1	2	4	1	3	6	3	7	27	37.5
F (N=16)	*E*	5	6	3	13	5	2	3	-	37	28.9
	E=F	3	2	2	1	2	5	1	2	18	14.1
	F	8	8	11	2	9	9	12	14	73	57

We will assess the results according to the variable called *child's stronger language*. In each case we will comment on the overall scores and percentages before looking at the scores on the individual tasks. The performance of the three different groups of children will also be compared.

For the children whose stronger language was English, exactly half of the best performances were on the versions of the tasks in the dominant language, whereas just over a third of the best performances were on the French versions. The remaining 13.9% were performed equally well in English and French. For the children whose competence in English and French was very similar, 34.7% of children performed equally well on the two language versions of tasks while 37.5% gave their best performance in French and 27.8% performed best in English. For the French-dominant children, 57% of children performed best in the tests in their dominant language, just under 30% performed best in English while the remaining 14.1% performed equally well on both versions of the same tasks.

Looking closer at the French-dominant and English-dominant children, we can see in Table 10.11 below that their results were in fact very similar in terms of how their best performances were distributed.

Table 10.11 Best performance overall on metalinguistic tasks for children with a dominant language

Child's stronger language	*Best performance on dominant language (%)*	*Best performance on non-dominant language (%)*	*Dominant=Non-dominant language (%)*
English	50	36.1	13.9
French	57	28.9	14.1

While these results do not show that children systematically performed better in their dominant language, they nevertheless show that the majority of children in the English-dominant and French-dominant groups did. However, it is quite striking that, overall, a fairly high proportion of children performed better in their non-dominant language, with over a third of the English-dominant children performing better in the French versions of the metalinguistic tasks and almost 30% of the French-dominant children who had a superior performance in the English versions of the tasks. This can also be seen in Table 10.10 when we examine the results for each individual task. Certain tasks were performed better by the majority of children in their dominant language, whereas others were performed better by the majority in their non-dominant language. This is particularly true for the results of the English-dominant children. On the other hand, for the French-dominant children, with the exception of task 4, Symbol Substitution (analysis), each task was performed better in French by the majority of children. In contrast, the children whose competence in French and English was very similar have three sets of results which are much closer to each other. What is particularly noteworthy in their overall results is that over a third (34.7%) of the scores were exactly the same in both language versions of the tasks in question. This is more than twice as much as the equivalent readings for the dominant bilinguals, with 13.9% of scores on the two language versions of the same tests being identical for the English-dominant children and 14.1% for the French-dominant children. We will return to these findings in the discussion section below.

10.4.4 Discussion

We will make several comments here on the importance of the findings presented in Sections 10.4.2 and 10.4.3 above for studies investigating the relationship between bilingual proficiency and metalinguistic awareness. What stands out in particular from

these results is the necessity of allowing bilingual children to do the metalinguistic tasks in both their languages, regardless of whether they are balanced or dominant bilinguals. If the children are tested only in their weaker language and their competence in this language is considerably lower than in their dominant language, poor results may be caused by the children's language limitations, rather than any metalinguistic difficulties inherent in the tasks themselves. We believe that this is relevant both for metalinguistic tasks which require high levels of control of linguistic processing and for tasks which demand analysis of linguistic knowledge. In both cases, the children's linguistic shortcomings can lead to problems of performance or misinterpreting the task instructions. For tasks assessing analysis of linguistic knowledge, it is essential to have high levels of competence in the language of the test. In other words, having explicit and analysed knowledge of the language is fundamental to identify or correct grammatically incorrect sentences, as in the metalinguistic tasks Word Order Correction (analysis) and Grammar Judgements (analysis), and to substitute words and create new grammatical sentences, required in Symbol Substitution (analysis). For the more cognitively challenging tasks assessing control of attention, the children have to focus attention on certain elements while inhibiting others which are more salient and, therefore, very distracting. In Word Renaming (control), it is necessary to dissociate words from their conventional meaning and in Symbol Substitution (control) meaning must be overlooked while producing incorrect syntax. It is unreasonable to expect children to perform well on such tasks in a language in which their competence is more limited.

In our study, with the exception of the EEb children whose level of French was substantially lower than their level of English, all the children were able to function well in their two languages, both socially and in a classroom environment, according to the SOLOM evaluation grids completed by their French and English teachers, even if there were sometimes substantial differences in the levels of competence certain children attained in English and French. Our results have shown that for children whose bilingualism is fairly balanced, even if performance measures indicate that they have a dominant language, children do not necessarily perform the metalinguistic tasks better in their stronger language. These interesting and intriguing findings are consistent with those reported by Cromdal (1999) in his study of 38 six to seven year old English-Swedish bilingual children who were given the same set of metalinguistic tasks in both languages. His results show that although most of the children were dominant in English, the majority of them scored higher on the Swedish versions of the metalinguistic tasks. He

argues that since these dominant bilinguals have to monitor their weaker language more closely, in order to avoid making syntactical errors when carrying out their everyday activities, they are more skilled at applying their metalinguistic skills to the weaker language. This is certainly a topic worthy of further investigation in future studies and it gives researchers an additional reason for testing bilinguals in both their languages. Indeed, we have just argued that it is essential to give all the metalinguistic tasks to the children in both their languages in order to gain access to their metalinguistic awareness through their stronger language. But in fact the findings we report here suggest that while some dominant bilinguals may perform better in their stronger language, others do not. Therefore, if our aim in assessing children's metalinguistic awareness is to gain access to their maximal level, it is fundamental to test in both languages, in the knowledge that the best performance may, in fact, emerge through the weaker language. Furthermore, our results have demonstrated that the bilingual children whose language skills in French and English are fairly balanced do not necessarily perform identically on the same metalinguistic task when it is given in two different languages. Although quite a high proportion of the children's scores were identical in the French and English versions, there were almost two thirds of the scores which were either higher in English or higher in French. In other words, even bilinguals who have reached similar levels of competence in both languages should be tested in their two languages in order to gain access to their maximal performance level.

The findings reported in this section lend some support to Bialystok's analysis and control framework and Cummins' threshold hypothesis. Once only the children's best score on each task was taken into consideration, the balanced bilinguals in our study outperformed the dominant bilinguals on the metalinguistic tasks assessing high levels of control of linguistic processing as Bialystok's framework predicts, although only one comparison reached statistical significance. Although the results were less conclusive for the analysis tasks assessing syntactic awareness, they were encouraging nonetheless. Therefore, the results of this part of our study provide some support for Cummins' threshold hypothesis which predicts that bilinguals who have attained high levels of proficiency in both languages will have access to certain cognitive benefits.

As noted above, because of the small number of participants in our study, we can only draw very tentative conclusions from our results. Clearly, the issues discussed here should be explored further in future studies with a much greater number of participants equally divided between balanced and dominant bilingual groups. Nevertheless, despite this

methodological shortcoming, we believe that the results presented in this section, in which we considered only the bilinguals' best scores on each metalinguistic task, offer a more reliable representation of the participants' true metalinguistic awareness than the results put forward in Sections 10.3.3.1 and 10.3.3.2 when the scores in each language version of the metalinguistic tasks were addressed separately.

Grosjean has argued that "the co-existence and constant interaction of the two languages in the bilingual has produced a different but complete language system" (2008:13-14). This holistic view of bilingualism perhaps explains how dual language users are able to draw on resources from each of their languages, which complement each other, in order to respond to their everyday needs. Giving bilingual children the same metalinguistic tests in their two languages and then only using the best score from each test may be one way of gaining access to this "complete language system" (Grosjean, 2008:14).

In Sections 10.3 and 10.4, we assessed whether the balanced and dominant bilinguals performed differently on the metalinguistic tasks. In other words, we compared the performance on the tasks of two groups of children who differed from each other in their degree of bilingual balance. In Section 10.5, we no longer compare the performances of two groups based on their level of bilingualism. Rather we investigate first, the relationship between the children's BPVS scores and the English metalinguistic tasks and, secondly, the relationship between their EVIP scores and the French metalinguistic tasks. So we are interested here in assessing if higher levels of language proficiency in a particular language correlate with heightened metalinguistic awareness in that language. In particular, we wish to examine how language proficiency relates to the two different cognitive processing components of Bialystok's framework, analysis of linguistic knowledge and control of linguistic processing.

10.5 RELATIONSHIP BETWEEN PERFORMANCE MEASURES AND METALINGUISTIC TASKS

10.5.1 Introduction

In this section, we aim to investigate research questions 8 and 9. The same two questions will be examined in relation to English in Section 10.5.2, then to French in Section 10.5.3. Research question 8 investigates what the strength of the relationship is between the performance measure for each language as attested by the Peabody vocabulary test scores

and the scores on the metalinguistic tasks for each language. Thus, we aim to assess whether there are certain metalinguistic tasks which correlate significantly with the language performance measures. We hypothesise that there will be a positive relationship between the Peabody scores in each language and the scores on the analysis of linguistic knowledge metalinguistic tasks in each language. On the other hand, we hypothesise that there will not be a significant relationship between the Peabody scores for each language and the scores on the control of linguistic processing metalinguistic tasks in each language. The Pearson product-moment coefficient of correlation is used to test the null hypothesis of no significant relationship between the performance measures and the scores on the metalinguistic tasks for each language.

The second question that will be addressed here is research question 9. Is there a significant difference in the mean scores on the metalinguistic tasks of children who have scores on the Peabody vocabulary test which fall above the median split and children who have scores which fall below it? Hence, we wish to compare the performance on the metalinguistic tasks of children who score above and below the median on each of the Peabody vocabulary tests, first for English and then for French. We hypothesise that there will be a significant difference in the means of the metalinguistic tasks assessing analysis of linguistic knowledge for children who have scores on the Peabody test which fall above and for children whose scores fall below the median split. On the other hand, we hypothesise that the difference in the means on tasks assessing control of linguistic processing for these two groups of children will not be significant. We employ an independent *t*-test to test the null hypothesis that the mean scores on the metalinguistic tasks of children who have scores on the Peabody vocabulary test which fall above the median split will be equal to those of children who have scores which fall below it.

Bialystok defined analysis of linguistic knowledge as "the process by which implicit mental representations are reorganized so that they contain explicit representations of structure" (1992:654). The cognitive processes necessary to complete analysis tasks successfully require children to assess their knowledge about language and make judgements based on what they know of that language. Therefore, the more competent a child is in a language, the more detailed his/her knowledge of it is likely to be. On the other hand, the cognitive processes underlying tasks which are high in control of linguistic processing require children to focus on certain features while ignoring or inhibiting other misleading information. Clearly, a deep knowledge of the language is a prerequisite for completing control tasks. What will determine how well a child performs,

however, is how he/she is able to deal with the conflict or ambiguity inherent in the tasks. As we discussed in Section 5.3.7.2, and as our results suggested in Section 10.4.2, this has been shown to be related more to degree of bilingualism rather than the level of competence attained in a single language, and children attaining high levels of competence in both their languages have been shown by research findings to perform these tasks at least as well as, if not better than, dominant bilinguals.

We begin by examining research questions 8 and 9 for English in Section 10.5.2, then for French in Section 10.5.3.

10.5.2 English

10.5.2.1 Relationship between BPVS and English metalinguistic tasks

Table 10.12 gives the Pearson product-moment correlation coefficients between the British Picture Vocabulary Scale (BPVS) scores and the different English metalinguistic tasks for the full group of 38 children.

Table 10.12 Pearson correlations between BPVS and English metalinguistic tasks

N=38	*1. Word Order Repetition (control)*	*2. Word Renaming (control)*	*3. Symbol Substitution (control)*	*4. Symbol Substitution (analysis)*	*5. Word Order Correction (analysis)*	*6. Form-Meaning Judgements (analysis and control)*	*7a. Grammar Judgements (analysis)*	*7b. Grammar Judgements (control)*
BPVS	.22	.06	.08	.36*	.45**	.32*	.46**	.21

**$p<.01$
* $p<.05$

The table shows that there were highly significant correlations between the BPVS and Word Order Correction (analysis) and Grammar Judgements (analysis). There was also a strong relationship between the BPVS and Symbol Substitution (analysis) and Form-Meaning Judgements (analysis and control). In other words, the three metalinguistic tasks which aimed at assessing analysis of linguistic knowledge alone related significantly to the BPVS scores, as we hypothesised. We can therefore reject the null hypothesis of no significant relationship between the BPVS and metalinguistic tasks assessing analysis of linguistic knowledge. In contrast, there were no significant relationships between the BPVS and the metalinguistic tasks assessing control of processing alone, as we had

predicted. Indeed, the two control tasks which were the most cognitively challenging for all subjects (see Section 10.4.2) – Word Renaming (control) and Symbol Substitution (control) – produced the lowest readings, indicating very little relationship between the tasks which place a high demand on selective attention and language competence as measured by the BPVS.

10.5.2.2 Difference in means between children scoring above and below BPVS median split

The median score of the 38 children on the BPVS was 96.5. The participants were divided into two equally sized groups, one containing children who scored above the median on the BPVS, and the other containing children who scored below it. The performance of the two groups was compared on each English metalinguistic task in order to see if there was a significant difference in their means. Table 10.13 presents the means and standard deviations, the order of difficulty for the children, the differences in means for the two groups and the predicted order of difficulty given earlier in Table 10.2.

Table 10.13 Descriptive statistics, order of difficulty and differences in means for English metalinguistic tasks for children scoring above and below the BPVS median

	BPVS score above median (N=19)			*BPVS score below median (N=19)*			*Difference in means*	*Predicted order of difficulty*
	Mean	*SD*	*Children's order of difficulty*	*Mean*	*SD*	*Children's order of difficulty*		
1. Word Order Repetition (control)	93	7.5	4	86.9	12.5	1	6.1	2
2. Word Renaming (control)	85.6	15.6	5	74.6	21.1	5	11	7
3. Symbol Substitution (control)	77.5	15	8	73	16	7	4.5	8
4. Symbol Substitution (analysis)	93	6.4	1	86.9	8.9	1	6.1	4
5. Word Order Correction (analysis)	93	8.5	1	78.1	14.5	3	14.9	3
6. Form-Meaning Judgements (analysis and control)	81.6	15.9	7	69.8	18.7	8	11.8	6
7a. Grammar Judgements (analysis)	93	7	1	76.3	23	4	16.7	1
7b. Grammar Judgements (control)	82.5	26.3	6	73.7	25.5	6	8.8	5

The most difficult metalinguistic tasks with the lowest means for the two groups were those which placed high demands on control of processing, tasks 2, 3, 6 and 7b; whereas the analysis of linguistic knowledge tasks generally had the highest means, tasks 4, 5 and 7a. These results generally support the predictions made in Table 10.2 regarding the order of difficulty of the metalinguistic tasks. Task 1, Word Order Repetition (control) was also performed well by both groups. For every task, the mean score for the group with BPVS scores above the median was higher than the mean score for the group with BPVS scores below it.

Independent *t*-tests were conducted to compare the means of the children scoring above and below the BPVS median on each English metalinguistic task. Significant differences in favour of the children scoring above the median split were recorded for task 4, Symbol Substitution (analysis) ($t(36)=2.44$, $p<.05$), task 5, Word Order Correction (analysis)

(t(36)=3.87, p<.001), task 6, Form-Meaning Judgements (analysis and control) (t(36)=2.10, p<.05) and task 7a, Grammar Judgements (analysis) (t(36)=3.03, p<.01). By contrast, the difference was not statistically significant for any of the tasks assessing control of attention although the results for task 1, Word Order Repetition (control) (t(36)=1.83, p=.08) and task 2, Word Renaming (control) (t(36)=1.83, p=.08) were approaching statistical significance in favour of the children with scores above the median split. Task 3, Symbol Substitution (control) showed no effect (t(36)=.91, p=.37), nor did task 7b, Grammar Judgements (control) (t(36)=1.04, p=.30).

Therefore, the results reported here support our hypothesis which claimed that there would be a significant difference in the means of the metalinguistic tasks assessing analysis in favour of the children with BPVS scores falling above the median split, but that the difference would not be significant for tasks assessing control of linguistic processing.

10.5.3 French

10.5.3.1 Relationship between EVIP and French metalinguistic tasks

Table 10.14 shows the Pearson product-moment coefficients of correlation between the Echelle de Vocabulaire en Images Peabody (EVIP) and the French metalinguistic tasks for 34 children. There are no scores presented here for the four EEb children who did not do the French metalinguistic tasks.

Table 10.14 Pearson correlations between EVIP and French metalinguistic tasks

N=34	*1. Word Order Repetition (control)*	*2. Word Renaming (control)*	*3. Symbol Substitution (control)*	*4. Symbol Substitution (analysis)*	*5. Word Order Correction (analysis)*	*6. Form-Meaning Judgements (analysis and control)*	*7a. Grammar Judgements (analysis)*	*7b. Grammar Judgements (control)*
EVIP	.26	.06	.3*	.57**	.29*	.41**	.35*	.2

**p<.01
* p<.05

There was a highly significant relationship between the EVIP and Symbol Substitution (analysis) and Form-Meaning Judgements (analysis and control). There was a significant relationship between the EVIP and Symbol Substitution (control), Word Order Correction

(analysis) and Grammar Judgements (analysis). We had hypothesised that the tasks assessing analysis of linguistic knowledge would be closely associated to language performance, so the results for Symbol Substitution (analysis), Word Order Correction (analysis) and Grammar Judgements (analysis) support our predictions. However, we did not expect that there would be an association between the EVIP and Form-Meaning Judgements (analysis and control) in view of the control of processing demands involved in having to switch attention constantly between form and meaning in the task, and between the EVIP and Symbol Substitution (control) which placed high demands on control of linguistic processing alone. Consistent with our findings for English, no significant relationships were found between the EVIP and the other metalinguistic tasks assessing control of attention alone, notably Word Order Repetition (control), Word Renaming (control) and Grammar Judgements (control).

10.5.3.2 Difference in means between children scoring above and below EVIP median split

Here, we again report only on the 34 children who did all the French metalinguistic tasks. The median score of these 34 children on the EVIP was 114. We compare the performance of the children scoring above and below the median on each French metalinguistic task in order to see if there was a significant difference in the means. Table 10.15 gives the means and standard deviations, the children's order of difficulty, the differences in means for the two groups and the predicted order of difficulty for the metalinguistic tasks.

Table 10.15 Descriptive statistics, order of difficulty and differences in means for French metalinguistic tasks for children scoring above and below the EVIP median

	EVIP score above median (N=17)			*EVIP score below median (N=17)*			*Difference in means*	*Predicted order of difficulty*
	Mean	*SD*	*Children's order of difficulty*	*Mean*	*SD*	*Children's order of difficulty*		
1. Word Order Repetition (control)	92.2	12.3	3	88.7	9.8	4	3.5	2
2. Word Renaming (control)	80.7	10.6	8	80.2	11.7	6	0.5	7
3. Symbol Substitution (control)	82.9	12.4	6	75.9	15.5	7	7	8
4. Symbol Substitution (analysis)	81.4	15.2	7	66.2	18.7	8	15.2	4
5. Word Order Correction (analysis)	90.7	8.8	5	89.2	12.8	3	1.5	3
6. Form-Meaning Judgements (analysis and control)	91.7	12.5	4	84.3	16.1	5	7.4	6
7a. Grammar Judgements (analysis)	94.1	7.1	2	91.7	10.2	2	2.4	1
7b. Grammar Judgements (control)	97.1	4.1	1	94.1	7.7	1	3	5

In contrast to the results given above for the BPVS, the highest means for the group who scored above the EVIP median were for Grammar Judgements (control), Grammar Judgements (analysis) and Word Order Repetition (control). The lowest means were for Symbol Substitution (control), Symbol Substitution (analysis) and Word Renaming (control). The highest scores for the group who scored below the EVIP median were for Grammar Judgements (control), Grammar Judgements (analysis) and Word Order Correction (analysis), whereas the lowest means were for Word Renaming (control), Symbol Substitution (control) and Symbol Substitution (analysis). Without exception, the group who scored above the EVIP median had higher means on all the French metalinguistic tasks than the group who scored below it. This is consistent with our findings for English.

Independent *t*-tests were conducted to compare the means of the children scoring above and below the EVIP median on each of the French metalinguistic tasks. A significant difference in favour of the children scoring above the median split was found only for task 4, Symbol Substitution (analysis) ($t(32)=2.60$, $p<.05$). There were no significant differences for the remaining tasks (Task 1: $t(32)=.90$, $p=.38$; Task 2: $t(32)=.14$, $p=.89$; Task 3: $t(32)=1.45$, $p=.16$; Task 5: $t(32)=.39$, $p=.7$; Task 6: $t(32)=1.49$, $p=.15$; Task 7a: $t(32)=.82$, $p=.42$; Task 7b: $t(32)=1.40$, $p=.17$).

Unlike the English metalinguistic tasks, where the results showed significant differences in the means for all the tasks assessing analysis of linguistic knowledge in favour of the children scoring above the BPVS median split, only task 4, Symbol Substitution (analysis), showed a significant difference in favour of the children with EVIP scores falling above the median split. None of the results for tasks assessing control of linguistic knowledge reached statistical significance. So, while our results for French support the hypothesis which claimed that there would be no significant difference for tasks assessing control of linguistic processing for children with EVIP scores falling above and below the median, they do not, on the whole, support the hypothesis that there would be a significant difference in the means of the metalinguistic tasks assessing analysis of linguistic knowledge.

10.5.4 Discussion

On the whole, the results discussed above for English and French provide support for the hypothesis proposed for research question 8, that there is a significant relationship between measures assessing language performance and metalinguistic tasks assessing analysis of linguistic knowledge. In other words, there is a strong or very strong association between the Peabody scores in French and English and the scores obtained by children on task 4, Symbol Substitution (analysis), task 5, Word Order Correction (analysis), task 6, Form-Meaning Judgements (analysis and control) and task 7a, Grammar Judgements (analysis). On the other hand, only one significant relationship was found between the Peabody scores and metalinguistic tasks assessing control of linguistic processing, on the French version of task 3, Symbol Substitution (control). We predicted that the Peabody scores would not be related to the scores on the metalinguistic tasks investigating control.

Several studies examining metalinguistic awareness in monolingual children have investigated the relationship between language performance measures and a range of metalinguistic tasks, some specifically assessing analysis of linguistic knowledge and control of linguistic processing (e.g. Smith and Tager-Flusberg, 1982; Riccardelli *et al*., 1989; Ricciardelli, 1993). These studies report consistently significant correlations between standardised language tests such as the Peabody vocabulary tests and all the metalinguistic tasks. Indeed, this has led researchers to conclude that the development of metalinguistic awareness is closely linked to general intellectual development, and more particularly to language development. To our knowledge, this relationship has not been investigated in bilingual children. So, while the standardised Peabody tests and non-standardised translations have been used by researchers to put bilingual children into groups in order to be able to compare the performance of balanced and dominant bilinguals on a range of metalinguistic tasks (e.g. Bialystok, 1988a; Ricciardelli, 1992a; Cromdal, 1999), the relationship between each of the language performance measures themselves and the scores on the metalinguistic tasks in each language has not been investigated. This relationship has been investigated in our study and what is striking in our findings when compared to those discussed above on monolingual children, is that for bilingual children, it is only the metalinguistic tasks assessing analysis of linguistic knowledge which relate consistently to the Peabody scores. In contrast, there is no overall significant relationship between the Peabody scores and the control of linguistic processing metalinguistic tasks. As we argued in Section 10.5.1, we believe that it is the degree of bilingualism, i.e. the levels attained by children in both their languages, which will determine how well bilinguals perform on tasks assessing control, whereas examining the relationship in each language separately cannot give a complete representation of the bilingual's overall competence. Grosjean has argued repeatedly that:

> The bilingual is *not* the sum of two complete or incomplete monolinguals; rather, he or she has a unique and specific linguistic configuration. (2008:13)

Our findings, therefore, offer further support to his hypothesis that the organisation and structure of the bilingual's language competences and language processing systems are different from those of the matched monolingual. This issue should be explored further in a range of much larger studies in order to confirm our findings.

If there is, indeed, a strong relationship between tests assessing language performance and metalinguistic tasks assessing analysis of linguistic knowledge, it might be useful for the teachers at the International School to use these analysis metalinguistic tasks as additional

language evaluation tools which are quick and easy to administer for the school entrance tests, for example, particularly for English where admission to the school is determined by the children's linguistic level. The FFL teachers could also use the French versions of the tasks to assess the progress of children newly arrived from abroad who are in the process of learning French.

The results presented in Section 10.5.2 and 10.5.3 also offer a certain degree of support for the hypothesis for research question 9 that there is a significant difference in the means of the metalinguistic tasks assessing analysis for children with Peabody vocabulary scores falling above and below the median split but not necessarily for tasks assessing control of linguistic processing. Indeed, the results for the English tests showed an overall superiority of the bilinguals scoring above the median on the BPVS for all four metalinguistic tasks investigating analysis of linguistic knowledge – task 4, Symbol Substitution (analysis), task 5, Word Order Correction (analysis), task 6, Form-Meaning Judgements (analysis and control), and task 7a, Grammar Judgements (analysis) – with the four results reaching statistical significance. Although the bilinguals scoring above the EVIP mean for French consistently scored higher on the analysis tasks than those scoring below it, only the result for task 4, Symbol Substitution (analysis) was significant. With regard to control of linguistic processing, without exception, the group of children who scored above the median on the Peabody tests had higher means on all the metalinguistic tasks, although none of the results attained statistical significance.

Therefore, if we take an overview of the comparisons discussed in this section of all the French and English metalinguistic tasks assessing analysis and control, it is striking that the groups of children scoring above the median on the French or English Peabody tests consistently outperformed those scoring below the median, even if the differences in performance did not always attain statistical significance.

In the literature which addresses the relationship between bilingualism and metalinguistic awareness, experts have often compared the performance of groups of high level balanced bilinguals to monolinguals, or less frequently to dominant bilinguals, on different types of metalinguistic tasks assessing control of linguistic processing and/or analysis of linguistic knowledge, as we discussed in Chapter 5. Research findings provide evidence that all bilinguals, regardless of their degree of bilingualism, tend to outperform monolinguals on metalinguistic tasks assessing control of linguistic processing, while balanced bilinguals may also perform better than dominant bilinguals. Balanced bilinguals may also outperform dominant bilinguals on certain analysis tasks assessing syntactic awareness. In

all these studies, the independent variable is degree of bilingualism, while the dependent variable is the scores on the metalinguistic tasks. What is unusual about the experiment presented in this section of our study is that we have taken the individual language performance measures, i.e. the results on the proficiency tests in each of the bilingual's languages separately, as the independent variable. We have compared the performance of the children in the study on the English metalinguistic tasks with the BPVS as the independent variable, and then their performance on the French metalinguistic tasks with the EVIP as the independent variable. In a larger scale study, it would be interesting to compare the performance of two groups of matched monolingual English and French children to that of groups of balanced and dominant bilingual children on the metalinguistic tasks, with the independent variable being their level of proficiency as measured by the BPVS or the EVIP.

The 34 children we considered in this part of the study were all bilingual. Although there was a range of scores on the Peabody tests, as we reported in Section 8.2.2, none of the children scored in the extremely low band of the BPVS, while just under 80% scored in the low average band or above. For the EVIP, one child scored in the moderately low band which was the lowest score, with over 90% of the remaining children scoring in the high average band or above. So, only eight scores out of a total of 68 fell below the average score band. The BPVS and the EVIP were both normed on monolingual populations and 88% of the bilingual children in our study scored in the average score band or above which is impressive. Is the level of proficiency in each language a reliable indicator of performance on the metalinguistic tasks assessing analysis of linguistic knowledge and control of processing for all children, once they score at least within the average score band on the Peabody tests? Although the groups created in this part of the study were based on the median score on each of the Peabody tests, in what ways did the children's bilingualism affect their performance on the metalinguistic tasks and how would this compare to monolingual children? Further studies would be required to provide answers to these questions.

10.6 CONCLUSION

In this chapter, we have investigated the relationship between the bilingual proficiency and metalinguistic awareness of 38 six to eight year old French-English bilingual children attending the International School in France. Metalinguistic awareness has been

considered in terms of Bialystok's analysis and control framework and in relation to Cummins' threshold hypothesis. Bialystok's framework predicts that the balanced bilinguals should perform at least as well as the dominant bilinguals on metalinguistic tasks assessing control of linguistic processing, while balanced bilinguals may outperform dominant bilinguals on analysis metalinguistic tasks assessing syntactic awareness. Cummins' threshold hypothesis predicts that balanced bilinguals may have certain cognitive advantages over dominant bilinguals. We have compared bilinguals who have attained a high level of competence in both their languages to those who have attained a high level in one of their languages but a much lower level in the other.

In Section 10.2, we recalled how the group of 38 children was divided into the two subgroups. We highlighted the fact that the two subgroups we created, based on the children's scores on the English BPVS and the French EVIP, were very unequal in size, with one group containing 29 members and the other, nine members. We pointed out that this was clearly not ideal from a methodological point of view.

In Section 10.3, we investigated if there was a significant difference in the mean scores of the balanced and dominant bilinguals when their scores on each of the English and French metalinguistic tasks were considered separately. We reported that although the differences were not statistically significant, several of them nevertheless offered a certain amount of support to Bialystok's framework. Little support was found on the whole, however, for Cummins' threshold hypothesis here.

In Section 10.4, we investigated if there was a significant difference in the mean scores of the balanced and dominant bilinguals for each metalinguistic task when only their best score on each task was considered. We argued that by taking only the children's best scores into account, we should have a more reliable indicator of the highest level the children had reached in the metalinguistic skill component under investigation. We stressed that it is essential to give the metalinguistic tasks in both languages, even to children who appear to be relatively balanced bilinguals. It was satisfying to note that when we considered only the children's best score on each of the metalinguistic tasks, our results seemed to offer more support to the predications made by Bialystok's and Cummins' hypotheses than when the scores on the English and French tasks were considered separately, even if most of the differences failed to reach statistical significance. In the next part of this section, we investigated to what extent the children's best performance on the metalinguistic tasks was given in the language in which they had the highest proficiency. Our results demonstrated that while some dominant bilinguals

may perform better in their stronger language, others do not. Indeed, we believe this is a key finding in our study which is consistent with earlier findings reported by Cromdal (1999). This provides an additional convincing argument for testing bilingual children systematically in both their languages, in order to gain access to their maximal level of metalinguistic awareness which may, in fact, be manifested through the weaker language. Furthermore, even children who are considered to be balanced bilinguals may perform quite differently on the same task given in two languages. Thus, we believe that these findings offer support to what Grosjean has referred to as bilinguals' "complete language system" (2008:14) which allows bilinguals to draw on resources from both their languages, regardless of the level of performance attained in each, to respond to their linguistic needs.

Although we did not aim to examine the reasons for this fascinating set of results, we feel that a further study on a much larger population could investigate this question in much greater depth. If our results were replicated, we might be able to gain new insights into how bilingual competence affects metalinguistic awareness and, in particular, how the two languages complement one another, leading perhaps to enhanced metalinguistic awareness even in a child's weaker language.

In Section 10.5, the strength of the relationship between the BPVS and English metalinguistic tasks, and then between the EVIP and the French metalinguistic tasks, was examined. Our results for both languages were consistent with our hypothesis which predicted that the performance measures in each language would be significantly related to the scores on the metalinguistic tasks assessing analysis of linguistic knowledge but not for those assessing control of processing. We suggested that if, indeed, there is such a strong relationship between language competence and performance on metalinguistic measures assessing analysis, teachers at the IS could use certain of these tasks as additional evaluation instruments for the school entrance tests or to monitor children's progress once in the school. What was particularly noteworthy in the results for this part of the study was that, unlike monolinguals whose scores on analysis and control metalinguistic tasks have been found to be closely related to language performance measures, it was only the analysis scores which correlated with the language performance measures for the bilinguals. This offers further support to the hypothesis that the cognitive organisation and structure of the bilingual are in some ways quite different from those of the monolingual, an issue which deserves further research.

In Section 10.5, we also investigated if there was a significant difference in the mean scores on the metalinguistic tasks of children who had BPVS or EVIP scores above the median split, and those who had scores below it. For English, our results showed that there was a significant difference favouring children with BPVS scores above the median split for tasks assessing analysis but not for those assessing control, although the descriptive statistics of the children scoring above the median were systematically higher than those scoring below. While the scores for French only reached statistical significance for one of the analysis metalinguistic tasks, they nevertheless showed that the children scoring above the median on the BPVS consistently scored higher on all the tasks than those scoring below it. We are particularly encouraged by these results since to our knowledge no other studies on bilingual children have taken the approach we employed here. By examining each language separately, we have investigated the difference in performance of a group of children scoring above the median mark on the performance measure and a group scoring below the median mark, on a range of metalinguistic tasks. We believe that our findings offer important insights into the bilingual's language modes which should be investigated in much greater depth and on a much larger sample of bilingual children. The aim of such investigations would be to compare how the organisation and structure of the language competences of the bilingual child differ from those of the monolingual.

CONCLUSION

The two general objectives of this research were put forward at the start of this thesis. We explained that we aimed, first, to determine whether certain linguistic and sociolinguistic factors can predict language proficiency in the bilingual child's two languages and, secondly, to identify how differing levels of bilingualism can influence children's metalinguistic awareness. So, this thesis has provided insights *simultaneously* into two domains of research in the field of child bilingualism. We will begin in this final chapter by highlighting the main findings and implications of this study. Methodological issues will be addressed in the following section, in which we consider the limitations of the study and make a number of suggestions as to how future studies might remedy these shortcomings. We will then consider possible directions for future research following on from this study. Finally, a general conclusion for the present study will be given.

Our data have shown that the 38 six to eight year old French-English bilingual children in our study come from middle to high SES families where bilingualism, biliteracy and biculturalism are clearly encouraged and valued by the parents. Since the children all attend an international school in France, where they are exposed to French and English both inside and outside the classroom, their education should help them to become literate in both languages. Furthermore, since the children have two prestigious languages, their bilingualism is also looked upon very favourably in their broader social networks helping the children to develop positive attitudes towards it. We can, therefore, describe the children in this study as additive and elite bilinguals.

While the elements discussed above certainly contribute to some extent to successful dual language acquisition, they do not guarantee that the children will become balanced bilinguals who succeed in attaining high levels of competence in both their languages. Indeed, we hypothesised that the amount of exposure the children have to each of their languages will be closely related to the levels of competence attained in each. Research question 1 investigated the strength of the relationship between overall language exposure estimates and the language proficiency measures in each language. Like other studies in the literature (e.g. Döpke, 1992; Gathercole, 2002a and 2002b; Oller and Eilers, 2002a), ours showed that if children's overall exposure to one language is substantially lower than it is to the other, their level of proficiency in each will reflect these exposure differences. In other words, the more exposure a child has to a language, the better he/she will perform in it. This finding was supported further when we explored the question of the children's input and output in more depth in research questions 2 and 3. There, we investigated the strength of the relationship between the children's current language input

and output in each language with their parents, siblings and school friends, and their scores on the language proficiency measures for French and English. Our results showed that there were particularly strong associations for the English variables. We believe this is because the English readings were more representative of the children's overall daily English exposure which, apart from the six hours per week spent in English classes at school (compared to 20 hours per week in French classes), is more likely to be limited to contact with the immediate family and, to a lesser degree, with their friends. Although the results generally reached statistical significance for French, they were not as strong. We argued that this is because French, the majority language, is much more widely available in other contexts beyond the family circle and school friends and, therefore, the readings for French did not represent the children's total contact with this language. In addition, our results showed a particularly strong relationship between the quantity of output in English and English proficiency, highlighting how important it is for children to use the minority language productively with a range of interlocutors for it to be maintained and developed. The present results support previous findings (e.g. Arnberg, 1981; Döpke, 1992; Pearson *et al*., 1997).

Research question 4 investigated the strength of the relationship between the child's stronger language and a number of variables related to language use. We chose a range of different variables in order to have a broad picture of the child's everyday language use and language preferences. To our knowledge, this has not been done in other studies. Our results showed that there was a strong association between the child's stronger language and all the variables we investigated – that is to say the language the child found easier to speak and preferred speaking; the language the child found easier to read in and preferred reading in; the child's cultural allegiance; the language the child used with friends in the playground; the language the child used with his/her toys and the language that the child would choose to use in his/her perfect school. We consider that these results are particularly important because, although they do not enable us to indicate causality, they emphasise that there is a clear link between the child's stronger language and other variables related to the child's everyday life. So, once a child clearly has a weaker language, our findings suggest that he/she will be less likely to seek out opportunities to use it. As a result, if language exposure is, indeed, closely associated to language proficiency as we have argued, if a child chooses, consciously or not, to use his/her dominant language rather than weaker one, proficiency in the latter will inevitably regress. Once again, these findings underline how important it is to find ways of creating

opportunities to stimulate the use of the child's weaker language which, certainly for children of this age, tends to be the language which is not spoken in the home. This tendency is likely to be reversed once the child is older and the influence of the wider environment overtakes that of the family home.

What are the implications of these results for the children in our study? While those children from the FE, EEa and EEb should have access to substantial amounts of English outside school, because at least one of their parents is an Anglophone and, therefore, probably moves in English-speaking social networks, the children from the FF families who have two Francophone parents are more likely to lack opportunities to use English productively. However, since the International School does not provide any EFL support for children who could benefit periodically from additional English contact and tuition, it is particularly difficult for certain FF children to maintain their English competence once their contact with it is limited, for the most part, to the classroom. Likewise, certain children who are in the process of acquiring French may require additional FFL support, yet this is rarely offered once children have attended FFL classes in school for two years. Thus, although the IS's linguistic objectives are clearly very ambitious, the school does not provide the necessary support to those children who do not have sufficient exposure to one of their languages to enable them to develop and maintain high levels of proficiency in both languages. The onus, therefore, falls on the parents, who have to try to find ways of increasing the children's exposure to the language outside school, particularly when the children are young and less able to organise their own social life. However, the parents' efforts, although enormous in some cases, are not always sufficient. We believe that if the school and the staff were better informed about bilingualism and SLA research, they would be more sensitive to the problems facing certain bilingual children who have more limited contact with one of their languages. In this case, they could respond better to the linguistic and learning needs of certain pupils by offering them additional support in order to facilitate their dual language acquisition, development and maintenance. Clearly, although this cannot be the sole responsibility of the school, we believe that its contribution could be greater.

We will now turn to the second strand of our research which relates to metalinguistic awareness. Working within Bialystok's (1986a) analysis and control framework and Cummins' threshold hypothesis (1976), which have both received considerable support from research findings (e.g. Bialystok, 1986b, 1987 and 1988a; Galambos and Hakuta, 1988; Bialystok and Majumder, 1998; Cromdal, 1999), research questions 5 to 9 explored

how bilingualism impacted on metalinguistic awareness. Bialystok's framework predicts that balanced bilinguals should perform at least as well as dominant bilinguals on metalinguistic tasks assessing control of linguistic processing, while balanced bilinguals may outperform dominant bilinguals on analysis metalinguistic tasks syntactic awareness. Cummins' threshold hypothesis predicts that balanced bilinguals may have certain cognitive advantages over dominant bilinguals because both their languages are developed to a high level.

Research questions 5 and 6 investigated if there was a significant difference in the mean scores of the balanced and dominant bilinguals on the metalinguistic tasks. In research question 5, where the mean scores of the two groups were compared, first on the English metalinguistic tasks, then on the French versions, although the differences did not reach statistical significance, a number of scores offered a certain degree of support to Bialystok's analysis and control framework. However, we believe that the results on research question 6, which investigated the same question, but taking into consideration only the children's best score on each task, are particularly revealing. Indeed, while most of the results did not reach statistical significance, they offered much greater support to Bialystok's and Cummins' theoretical frameworks. The results for research question 7, examining the extent to which bilinguals' best scores came from their stronger language, are equally striking. In fact they demonstrated that although certain dominant bilinguals perform better in their stronger language, others do not. Furthermore, they showed that even children who are considered to be balanced bilinguals may perform quite differently on the two language versions of the same metalinguistic task.

We believe that these results have important implications with regard to the assessment of bilingual children in a broader sense. Since bilingual children do not necessarily perform the same test better in their stronger language, we argue that they should be tested systematically in both languages – not just when metalinguistic awareness is being examined, but also on certain other types of assessment, in order to gain access to their highest levels of the skill component under investigation. Clearly, while this is not always feasible from an institutional point of view, teachers and researchers should be aware that if bilingual children are tested only in one language, the results may not necessarily be representative of the children's highest level of performance and could well, therefore, do them a disservice. Testing bilingual children as if they were monolingual fails, therefore, to take into account what Grosjean (2008:14) has referred to as the bilingual's "complete

language system" in which the two languages complement one another to respond to his/her everyday needs.

Research questions 8 and 9 considered the French and English language proficiency measures and the scores on the metalinguistic tasks in each language separately. Research question 8 investigated the strength of the relationship between the performance measures for each language as attested by the Peabody Picture Vocabulary English and French test scores, and the scores on the metalinguistic tasks in each language. As we had predicted, our results showed that while there was a strong association for each language between the metalinguistic tasks assessing analysis and the corresponding proficiency measures, the scores for the metalinguistic tasks assessing control of linguistic processing were not, on the whole, closely related to the proficiency measures. Research question 9 investigated if there was a significant difference in the mean scores on the metalinguistic tasks of children who had scores on the Peabody tests above the median split and children who had scores falling below it. A significant difference was found for English for the analysis tasks only, as we had predicted. For French, although just one result reached statistical significance for analysis, the children with scores on the BPVS above the median nevertheless consistently scored higher on the analysis tasks than those who scored below it. There were no significant results for any of the French tasks assessing control of linguistic processing.

The implications of these results are important for two main reasons. First, from a practical point of view, we believe that since the scores on the metalinguistic tasks assessing analysis of linguistic knowledge correlate significantly with the scores on the language proficiency measures, the analysis tasks could be a useful testing tool for the IS staff. Indeed, since these tasks are quick and easy to administer, they could be used alongside the existing interviews as an additional assessment of the language proficiency of the children wishing to join the school. Secondly, the results emphasise again that the organisation and structure of the bilingual's language competence are different in certain ways from those of the monolingual because, whereas the scores on analysis and control tasks are closely related to language proficiency measures for the monolingual (e.g. Ricciardelli *et al*. 1989; Ricciardelli, 1993), only analysis tasks relate significantly to language proficiency for the bilingual. Therefore, for the bilingual, it is the degree of bilingualism which will determine the level of performance on metalinguistic tasks assessing control of linguistic processing. Thus, assessing performance levels in each language separately, as if the bilingual were two monolinguals within the same person,

fails to take into consideration the cognitive and linguistic specificities of the bilingual individual, as Grosjean (1982, 1998 and 2008) has emphasised repeatedly.

Having reviewed the main findings and implications of this research project, we will now address its limitations and suggest how these might be overcome in future studies.

The main methodological shortcoming of this research, which we noted on several occasions when we explored the data, results from the size of our sample. Although the full sample contained 38 French-English bilingual children, once we divided it into subgroups, to compare performance on a particular variable, or to look more closely at one particular group of children, we found ourselves with subgroups which were either unequally sized and/or contained too few members to conduct meaningful statistical analyses.

This was the case for all the questions in Section 9.5 where we would have liked to investigate if certain input and output variables in FE families made a significant difference to the children's language performance in one or both of their languages. The number of participants was also problematic when we compared the performance of balanced and dominant bilinguals on the different metalinguistic tasks in Sections 10.3 and 10.4, to see whether our results supported Bialystok's (1986a) analysis and control framework and Cummins' (1976) threshold hypothesis. Although it was particularly encouraging that a number of comparisons showed a difference in performance between the groups which reached statistical significance, others did not, even though they went in the direction of our hypotheses. In Section 7.4 our investigations into the possible explanations for changes in language strategies within the different bilingual families were limited because of the number of participants. This was also the case when we wished to investigate the factors that led to the maintenance of the minority language in the home. Although we identified a number of environmental factors which we suspect had an important role to play, we were not able to analyse the data statistically. Having a larger sample of children would clearly lead to greater validity and would provide more definitive answers to the questions we wished to investigate.

The methodological shortcomings related to the metalinguistic tasks will now be addressed. These concern tasks 3 and 4, tasks 7a and 7b, the order of testing, and the equivalence, or not, of the French and English sets of metalinguistic tasks.

The first problem concerns the similarity of task 3, Symbol Substitution (control) which was given before task 4, Symbol Substitution (analysis). As we observed earlier, both required the children to substitute a given word for another word in a sentence. However,

while in task 3 they were not expected to correct the resulting sentence which was syntactically incorrect, in task 4 they were expected to do so. We believe that the complex instructions for task 3 interfered with the children's performance in the easier analysis version, task 4, even though the two were not given in the same testing session. For this reason, we would omit the analysis version in future, particularly as a number of the other tasks we used appear to assess this cognitive skill component reliably.

The second methodological problem concerns task 7a, Grammar Judgements (analysis) and task 7b, Grammar Judgements (control) which were both part of task 7. We believe there are two main drawbacks with this task which relate to one another. The first concerns its length – the 30 item task was considerably longer than any of the others and was, therefore, perhaps too long for the children in this study. The second relates to the mixture of three types of sentence within the same task which may have confused the children. We suggest that this long task should be divided into two separate, ten item tasks each with the same instructions as the current task 7. These two tasks would be given in separate testing sessions, several weeks apart to avoid interference – an analysis task with grammatically correct and meaningful sentences, and grammatically incorrect and meaningful sentences; and a control task with grammatically correct and meaningful sentences, and grammatically correct and anomalous sentences.

The third limitation relating to the metalinguistic tasks pertains to the order of testing, since in this study we completed all the English testing sessions before embarking on the French. As we explained, having been introduced initially to the researcher in English, we felt it would be more natural and reassuring for the children to maintain English as the medium of communication, before switching to French. While we do not know if our results would have been different had we tested half the children in English and the other half in French first, we believe it would have been methodologically sounder to have done so. It is possible that the children may have been 'test-wise' to some extent by the time they did the French metalinguistic tasks which may have inflated certain French scores on certain tasks. On the other hand, having already done the tests in English first may have hindered their performance in French because the novelty and excitement of the tasks may have worn off, resulting in reduced levels of concentration and interest. It would, of course, be preferable to have different researchers conducting the testing sessions in each language, to avoid the children having to break the person-language bond once it was established. However, this would not have been feasible for our project.

The final methodological shortcoming concerns the equivalence, or not, of the English and French metalinguistic tasks. While every effort was made to create French tasks equivalent to Ricciardelli's (1993) English versions, in terms of the sentence structure, length of test items, tenses and type of vocabulary, it is possible that the two sets of tasks did not make exactly the same cognitive demands on the children. We observed above that the mean scores for the French metalinguistic tasks were generally higher than those for English. One explanation was that the children might have been 'test-wise', having received the French tasks after the English versions. Having alternate test orders, as we have just suggested, would enable us to identify whether or not the order of testing was a feasible explanation for these results. However, if the French mean scores continued to exceed those for English, even in a set of children whose bilingual proficiency was considered to be very balanced, there could be a linguistic explanation. Perhaps the same problem is more straightforward to solve in French because of the different degrees of complexity in the syntactic and semantic structures of the two languages. Although this is a fascinating question, it is beyond the scope of this research to propose how it might be investigated further.

Having addressed the methodological issues related to this study, we can now make some suggestions for further research drawn from research conducted in the present study. These suggestions concern the improvements to the current study in view of the methodological shortcomings discussed above, the type of study, and finally, the populations being studied and the settings of the research.

Clearly, given the methodological shortcomings of the present study, it would be important for any future studies investigating similar research questions to have a larger number of participants. However, if research were to be conducted at the IS, a setting which certainly offers wide and varied possibilities for research on bilingual children, several years of data collection would be required to constitute a sample of sufficient size with children of the same age, to conduct more meaningful statistical analyses. If this were possible, we believe it would be very satisfying to investigate further the same research questions addressed in the current study, in order to have more conclusive results.

For the research questions comparing the performance on a range of metalinguistic tasks of groups of children with differing degrees of bilingualism, it would be preferable to have a sufficiently large number of participants to make four equally sized bilingual groups based on the median scores on the BPVS and EVIP, following Ricciardelli

(1992a). These would be: high English proficiency and high French proficiency; high English proficiency and low French proficiency; low English proficiency and high French proficiency and low English proficiency and low French proficiency. It would also be interesting to compare the performances of the four bilingual groups to two groups of matched monolinguals – one for French and one for English. Having the six different groups of children would enable us to test Bialystok's (1986a) and Cummins' (1976) hypotheses with greater precision to assess if their predictions are valid for this particular sample of children. In addition, by comparing the performances of the six distinct groups, we could explore further Grosjean's (2008) hypothesis that claims that the organisation and structure of the bilingual's language competences and cognitive processing systems differ from those of matched monolinguals. Our study has already offered some empirical support for this but a broader study could provide additional evidence.

The second suggestion for further research relates to the type of study. The empirical part of the present study was cross-sectional, although we did have data on family language strategies and background from the participants' birth. It would be fascinating to carry out a longitudinal study, which would provide large amounts of qualitative and quantitative data, to investigate the same research questions. The study could begin when children joined the IS at the beginning of primary school and could follow them through primary and secondary school. We know that when children are very young, parents are more able to control and manipulate their children's language strategies, contact and use. However, this evolves as the children get older, as they create and organise their own social networks. We could explore how differing language contact and exposure patterns impact on language proficiency in each language, and how changes in language proficiency impact on metalinguistic awareness. Since longitudinal studies of this kind with large numbers of participants have, to our knowledge, not been undertaken in the field of child bilingualism, we believe that the proposed study could add to our knowledge and understanding of how two languages are acquired, developed and maintained, but also of how shifts in language dominance might impact on the two cognitive processing components of metalinguistic awareness investigated in this study.

The final suggestion for further research pertains to the populations being studied and the settings of the research. The present study has focused on French-English six to eight year old bilingual children attending an international school. We have defined the children as elite and additive bilinguals. Further research could investigate the same types of bilinguals with different language pairs attending other international schools. So our aim

in this suggested project would be to explore how the bilingual experience may be altered by modifying two key variables – the two languages the child is acquiring and the type of language contact and exposure the child has in school. This study could include a range of language pairs, including those which are more typologically different than English is from French. By conducting research in other international schools, where the distribution of languages across the curriculum may be quite different, we could examine the impact of diverse language contact and exposure patterns in school on language proficiency and metalinguistic awareness.

To conclude, then, this innovative study was conducted in order to investigate the input factors that may cause variation in bilingual language proficiency, and the effects of differing levels of bilingualism on metalinguistic awareness in 38 French-English bilingual children. The study has reached four principal conclusions.

- Overall language exposure is closely related to language proficiency in each language, and there is a strong association between the quantity of the child's input and output in each language with close family members and school friends, and their corresponding language proficiency, particularly for English, the minority language in our study.
- The child's stronger language is a reliable predictor of the language the child finds easier to speak and prefers speaking; the language the child finds easier to read in and prefers reading in; the child's cultural allegiance; the language the child uses with friends in the playground; the language the child uses with his/her toys and the language which the child would choose to use in his/her perfect school.
- Consistent with Bialystok's and Cummins' predictions, balanced bilinguals tend to outperform dominant bilinguals on metalinguistic tasks assessing control of linguistic processing and on analysis tasks assessing syntactic awareness, but importantly in our study, only when the child's best score, which sometimes comes from the weaker language, is taken into consideration.
- There is a strong association between the language performance measures in each language and the metalinguistic tasks in each language which assess analysis of linguistic knowledge, but not on those assessing control of linguistic processing. Similarly, children scoring above the median split on each of the language proficiency measures tend to outperform those scoring below it on the

metalinguistic tasks in each language assessing analysis, but not on those assessing control. These results provide important insights into the organisation and structure of the bilingual's language competence which, as Grosjean has frequently argued, differ in certain respects from those of the monolingual. Indeed, while language proficiency scores relate closely to metalinguistic measures assessing both analysis and control for the monolingual, only analysis measures correlate significantly for the bilingual.

The findings of this thesis as a whole contribute to our knowledge and understanding of the complexities of bilingual language acquisition and cognitive development. In particular, they highlight the importance of understanding children's language experiences when assessing their linguistic skills, they provide additional evidence that degree of bilingualism influences cognitive development and functioning and, finally, they emphasise that the bilingual child should not be treated as two monolinguals since he/she has a specific linguistic and cognitive profile.

APPENDICES

APPENDIX I – LETTERS SENT DURING RESEARCH

The name of the school and any other references which could help identify it have been removed from all the letters in order to maintain its anonymity.

Letter to local authority primary school inspector requesting permission to conduct research at the International School

Monsieur l'Inspecteur de l'Académie

Monsieur,

Je vous écris pour vous exposer un projet de recherche que j'espère mener à l'école élémentaire de XXXX. Je suis britannique et je vis en France depuis 1988 (mon mari est français). Je suis professeur d'anglais et de linguistique dans le supérieur à XXXX. A l'issue de mon Masters en Linguistique (mention très bien) de l'université de Surrey (Royaume-Uni) en 2000, j'ai pu valider mon troisième cycle en France. Ensuite, j'ai été nommé Maître de Langues en anglais à l'Université XXXX de 2000 à 2002. J'enseigne la linguistique à XXXX depuis septembre 2000. Je donne également des cours de préparation aux colloques en anglais aux chercheurs en linguistique ainsi qu'aux doctorants à XXXX depuis 2000.

Au mois d'octobre 2002, j'ai commencé un doctorat sur le bilinguisme à l'université de Salford (Royaume-Uni) avec comme directrice, Charlotte Hoffmann, de réputation internationale. Vous trouverez ci-joint le plan de recherche de mon doctorat. A l'issue de mon doctorat et ayant l'intention de publier mes recherches au fur et à mesure dans les périodiques français et anglais, j'espère pouvoir obtenir un poste de Maître de Conférences en France.

Les recherches qui ont été effectuées à ce jour visant à démontrer une corrélation entre la compétence bilingue et la compétence métalinguistique et cognitive ont omis de considérer les rôles primordiaux joués par :

a) le degré de bilinguisme, c'est-à-dire les éléments différents de la compétence, et
b) les contextes d'acquisition des deux langues.

Je pense que la compétence est une construction multidimensionnelle extrêmement complexe, et que c'est uniquement en la décomposant dans des unités plus mesurables qu'on pourra évaluer son véritable rôle dans le bilinguisme. De plus, bien que les recherches sur les enfants dans les programmes bilingues soient nombreux (surtout en Amérique du nord), aucune à ma connaissance n'a examiné une population ayant acquis le bilinguisme dans des circonstances aussi variées que celles de la XXXX (par exemple : enfants français ayant passé plusieurs années dans un pays anglophone ; enfants anglophones venus en France pour plusieurs années ; enfants franco-anglais issus de familles bilingues).

L'école primaire de XXXX présente une opportunité méthodologique unique pour étudier une population bilingue très spécifique, ce qui permettrait d'établir des liens plus précis et mieux fondés entre les différents contextes linguistiques qui ont amené l'enfant au bilinguisme, ses différents éléments de compétence dans ses deux langues et par conséquent, ses compétences métalinguistiques et cognitives.

Mon projet intéresse Monsieur XXXX, Directeur de l'école élémentaire de XXXX, avec qui je me suis entretenue et qui m'a proposé de vous écrire pour obtenir votre accord.

Ayant moi-même mes deux enfants scolarisés à XXXX depuis 1995, j'entretiens d'excellents rapports avec d'autres parents d'élèves qui sont très intéressés par les résultats d'une telle recherche.

Comme tout travail de recherche, le temps passé sur le terrain est minime et non impliquant pour les élèves, par rapport au temps de préparation, d'analyses des résultats et de rédaction des travaux.

Les procédures classiques vis-à-vis des parents d'élèves seront scrupuleusement respectées (accord écrit des parents pour que leur enfant puisse être intégré à l'étude, anonymat des participants...).

Je souhaite que cette proposition de recherche vous intéresse, obtienne votre accord de principe, et je reste à votre disposition pour toute information complémentaire.

Je vous prie d'agréer, Monsieur, l'expression de mon plus profond respect.

Introductory letter to parents of the Anglophone children in CE1 at the International School – first year of study

Dear .....,

My name is Cathy Benson-Cohen. I teach English and Linguistics at XXXX University. I have two children at the International School (IS), one in sixième and one in CM1.

I'm currently working on a doctoral research project with the University of Salford (UK), having previously done some work on bilingual children for a master's degree which I completed in 2000. The principal aim of my research is to examine the relationship between bilingual competence and metalinguistic awareness in French-English bilingual primary school-aged children. Metalinguistic awareness refers to a consciousness of and sensitivity to language forms and properties. You will find a copy of a typical metalinguistic activity attached at the end of this letter.

Several studies have suggested that bilingual children outperform their monolingual counterparts on a variety of metalinguistic tasks. However, these studies have been criticised for having insufficiently investigated the participants' degree of bilingualism and the contexts of acquisition of their two languages, considered to be key factors affecting metalinguistic awareness.

The IS provides a unique opportunity to study a very specific bilingual population and to gain a deeper understanding of the roles played by degree of bilingualism and language background in the development of metalinguistic awareness. To my knowledge, no single study carried out to date has focused on a sample of children with such a rich variety of language contact and exposure patterns as children at the IS (for example, children of two French parents who have spent several years in an English-speaking country; children of two English-speaking parents who are spending several years in France; children with one English-speaking and one French-speaking parent who have always lived in France; trilingual children; etc.).

The school inspector (l'Inspecteur de l'Académie) and IS headmaster have agreed to my carrying out research at the IS provided that I obtain prior written consent from the parents of the children participating and respect the anonymity of all participants at all times. I would like to stress that all information that I receive will be treated with the strictest confidentiality.

I will shortly begin with a pilot study on a small group of about ten children in CE1 and would very much like ..... to participate. I will ask the children to carry out several short activities, designed in the form of language games, which are fun and stress-free. (I have already tried them out on my own children who were very enthusiastic and kept asking for more!!) I will arrange to see the children for about five short periods (10 to 15 minutes each) during lunch time activities so that they will not be taken out of any of their classes.

If you agree to ..... participation in the pilot study, I will ask you to complete a questionnaire giving details of your child's family background and how his/her languages have been acquired. Having completed the pilot study, I hope to conduct a larger scale study at the IS over the next couple of years, involving more children.

The prospect of conducting research at the IS is extremely exciting. I hope that my work will be of benefit not only to the research community but also to all those people who mix with bilinguals on a day to day basis, particularly the parents and teachers of bilingual children who wish to have a better understanding of the children's linguistic

characteristics. At the end of my research, a summary of my findings will be made available to all those who have been involved in any way.
I would be most grateful if you would fill in and sign the attached slip permitting your child to participate in my pilot study and send it back to me in the stamped addressed envelope provided, by 18 November. If you agree to ..... participation, I will contact you again very shortly to inform you of the coding symbols that I will be using for your family and your child to ensure complete anonymity. These symbols will be the only form of identification on all the documents I use during the research.
If you have any questions or comments concerning my research at any time, please do feel free to get in touch with me. My email address is cathy@cohen-michel.com and my telephone number is 04.72.37.25.38. I hope you will agree to your child's participation. You may of course terminate his/her involvement at any time.
Many thanks for your cooperation,

Encs.
Letter from PhD supervisor
Copy of metalinguistic task
Stamped addressed envelope

.....

Please complete and return to me in the stamped addressed envelope provided, by 18 November.

I/We ..... (please write your name(s) here), allow my/our child, ... (please write your child's name here), to participate in Cathy Benson-Cohen's doctorate pilot study provided that his/her anonymity is respected and on the understanding that such participation may be terminated by me/us at any time.

Parent's/Parents' Signature(s): .....

Email address: .....

Telephone number: .....

Introductory letter to parents of the Anglophone children in CE1 at the International School – second year of study

Dear

My name is Cathy Benson-Cohen. I teach English and Linguistics at XXXX. I have two children at the International School (IS), one in cinquième and one in CM2. I am currently working on a doctoral research project with the University of Salford (UK), having previously done some work on bilingual children for a master's degree which I completed in 2000. The principal aim of my research is to examine the relationship between bilingual competence and metalinguistic awareness in French-English bilingual primary school-aged children. Metalinguistic awareness refers to a consciousness of and sensitivity to language forms and properties. You will find a copy of a typical metalinguistic activity attached at the end of this letter.

Several studies have suggested that bilingual children outperform their monolingual counterparts on a variety of metalinguistic tasks. However, these studies have been criticised for having investigated insufficiently the participants' degree of bilingualism and the contexts of acquisition of their two languages, considered to be key factors affecting metalinguistic awareness.

The IS provides a unique opportunity to study a very specific bilingual population and to gain a deeper understanding of the roles played by degree of bilingualism and language background in the development of metalinguistic awareness. To my knowledge, no single study carried out to date has focused on a sample of children with such a rich variety of language contact and exposure patterns as children at the IS (for example, children of two French parents who have spent several years in an English-speaking country; children of two English-speaking parents who are spending several years in France; children with one English-speaking and one French-speaking parent who have always lived in France; trilingual children; etc.).

The school inspector (l'Inspecteur de l'Académie) and IS headmaster have agreed to my carrying out research at the IS provided that I obtain prior written consent from the parents of the children participating and respect the anonymity of all participants at all times. I would like to stress that all information that I receive will be treated with the strictest confidentiality.

Last year, I completed the first stage of my study on all the Anglophone children in CE1. I thoroughly enjoyed the time I spent with them and was delighted with their constant enthusiasm! I am now ready to begin the second stage in which I will once again be working with CE1 children in the Anglophone section, and I would very much like ..... to participate. I will ask the children to carry out several short activities, designed in the form of language games, which are fun and stress-free. I will arrange to see the children for about five short periods (10 to 15 minutes each) during lunch time activities so that they will not be taken out of any of their classes. I am hoping to begin the second stage of my research after the Christmas holidays.

If you agree to ..... participation in the study, I will ask you to complete a questionnaire giving details of your child's family background and how his/her languages have been acquired.

Conducting research at the IS is extremely exciting. I hope that my work will be of benefit not only to the research community but also to all those people who mix with bilinguals on a day to day basis, particularly the parents and teachers of bilingual children who wish to have a better understanding of the children's linguistic characteristics. At the

end of my research this year, a summary of my general findings will be made available to all those who have been involved in any way. Once my PhD is finished (I still have some years to go.....), the parents of all the children who have taken part will be sent a summary of the overall findings.
I would be most grateful if you would fill in and sign the attached slip permitting your child to participate in my study and send it back to me in the stamped addressed envelope provided, by 3 December. If you agree to ..... participation, I will contact you again very shortly to inform you of the coding symbols that I will be using for your child to ensure complete anonymity. These symbols will be the only form of identification on all the documents I use during the research.
If you have any questions or comments concerning my research at any time, please do feel free to get in touch with me. My email address is cathy@cohen-michel.com and my telephone number is 04.72.37.25.38. I hope you will agree to your child's participation. You may of course terminate his/her involvement at any time.
Many thanks for your cooperation,

Encs.
Copy of metalinguistic task
Stamped addressed envelope

.....

Please complete and return to me in the stamped addressed envelope provided, by 3 December.

I/We ..... (please write your name(s) here), allow my/our child, ... (please write your child's name here), to participate in Cathy Benson-Cohen's doctoral study provided that his/her anonymity is respected and on the understanding that such participation may be terminated by me/us at any time.

Parent's/Parents' Signature(s): .....

Email address: .....

Telephone number: .....

Email to parents asking their permission for the researcher to ask the children's French and English teachers to complete the SOLOM grid

Dear

I have almost finished working with ..... for my study. I have certainly enjoyed myself immensely and hope that ..... has too. All the children have been extremely cooperative and enthusiastic. With the help of the information that you so kindly provided in the (long!) questionnaire, combined with the data that I have collected through the various activities I have done with ..... , I have a wealth of information to help me to answer my research questions.
In the initial letter that I sent you in November, I said that I one of my interests was investigating the children's degree of bilingualism in each of their languages. The various activities I have done with ..... have enabled me to do this. It would be very useful for me, however, to have an additional point of view on his/her proficiency from his/her French and English teachers, who have spent considerably more time in .....'s company than I have, to see to what extent my evaluations correlate with theirs. If you open the attachment to this email, you will find a rating scale that I have prepared. With your consent, ...'s teachers will simply mark five crosses on the scale. When teachers return them to me, X's name, which will be in pencil, will be erased and replaced with his/her usual coding symbols, in order that his/her anonymity is respected.
I would be very grateful if you would reply by email to my request. Of course if you have any questions, do not hesitate to get in touch with me.

Thank you once again for all your help,

Cathy

APPENDIX II – QUESTIONNAIRES

Questionnaire to parents

This questionnaire is strictly confidential. Please return it in your child's correspondence book in the envelope provided. Thank you.

Child's research code: _____

Part 1 - Family Background

1. Your relationship to child enrolled at this school: Mother ☐ Father ☐

2. Mother's occupation: _____

3. Father's occupation: _____

4. Please tick how long have you lived in France.

	Less than a year	1-3 years	4-9 years	10 or more years
Mother				
Father				

5. Please tick how long your family intends to stay in France.

1-2 years	3-5 years	6-9 years	10 or more years

6. Please list the ages of any other children in the family and circle whether or not they attend this school.

Age	This school
_____	YES NO
_____	YES NO
_____	YES NO
_____	YES NO

7. Please tick the highest level of education that you have completed?

	Mother	Father		Mother	Father
Primary school			College diploma		
Middle school			University Bachelor's degree		
High school (or equivalent)			Postgraduate degree		

Other (please state) Mother _____
Father _____

8. Did you study modern languages at university? Please circle the appropriate answers.

Mother: Yes No Father: Yes No

9. Do you teach a language? Please circle the appropriate answers.

Mother: Yes No Father: Yes No

10. Which language(s) did you first learn as a child before entering school?

Mother: _____
Father: _____

11. Do you have a dominant language today? Please circle the appropriate answer.

Mother: Yes No
Father: Yes No

If you answered 'Yes' to the above, can you say what your dominant language is?

Mother: _____
Father: _____

12. Please rate your competence in English and French on a scale from 1 (LOW COMPETENCE) to 5 (NATIVE):

Mother: French
Speaking: _____ Writing: ____ Listening: ____ Reading: ____

Mother: English
Speaking: _____ Writing: ____ Listening: ____ Reading: ____

Father: French
Speaking: _____ Writing: ____ Listening: ____ Reading: ____

Father: English
Speaking: ____ Writing: ____ Listening: ____ Reading: ____

13. Please rate your competence in any other languages of which you have knowledge:

Mother: ..... (please state language)
Speaking: _____ Writing: _____ Listening: _____ Reading: _____

Mother: ..... (please state language)
Speaking: _____ Writing: _____ Listening: _____ Reading: _____

Mother: ..... (please state language)
Speaking: _____ Writing: _____ Listening: _____ Reading: _____

Father: ..... (please state language)
Speaking: _____ Writing: _____ Listening: _____ Reading: _____

Father: ..... (please state language)
Speaking: _____ Writing: _____ Listening: _____ Reading: _____

Father: ..... (please state language)
Speaking: _____ Writing: _____ Listening: _____ Reading: _____

14. Do you feel equally comfortable in French and English (American, Australian, Canadian, South African, etc.) social and cultural situations? Please circle the most appropriate answers.

Mother: Yes No Father: Yes No

In questions 15-19 below, 'English' refers to British, American, Australian, Canadian, South African, etc., depending on your family background.

15. If you answered 'No' to question 14 above, in which of the following situations do you feel more nervous about making social and/or cultural errors? Please tick the appropriate boxes.

	Mother	Father
In French social/cultural environments		
In English social/cultural environments		

16. To what extent do you consider yourself to be bicultural (French and English)? Please circle on a scale from 1 (totally bicultural) to 5 (monocultural) where you stand.

Mother: 1 2 3 4 5

Father: 1 2 3 4 5

17. If you answered 2, 3, 4 or 5 to the above question, please circle which culture is dominant.

Mother: French English Other (please state which) .....

Father: French English Other (please state which) .....

18. To what extent do you consider your child to be bicultural? Please circle using the same scale as above.

1 2 3 4 5

19. If you circled 2, 3, 4 or 5 to the above question, now please circle which culture is dominant.

French English Other (please state which) .....

Part 2 – Your family and this school

1. What are the *three* most important reasons for choosing this school for your child? (Put a 1 next to the MOST IMPORTANT, a 2 next to the SECOND MOST IMPORTANT, a 3 next to the THIRD MOST IMPORTANT)

___ it offers a high quality education
___ my child will be able to communicate both with English and French-speaking family
___ it will enable my child to acquire literacy skills in both English and French
___ my child will have an academic or career advantage
___ it will enable my child to have a strong identity as a bilingual-bicultural individual

2. Please list here any additional reasons for the choosing this school for your child:

_____
_____
_____
_____
_____
_____

3. Please tick all of the following activities in which you participate at this school:

	Mother	Father
School library		
School outings		
Anglophone parents' association		
Conseil d'Ecole		

Other(s) (please state) _____
_____

Part 3 – Child's language contact

1. Please complete the following tables by filling in the approximate number of hours of contact that your child has with each of his/her languages.

1.1 Daily contact with languages during term-time

	Hours in contact with English in school	Hours in contact with English outside school	Hours in contact with French in school	Hours in contact with French outside school	Hours in contact with another language in school (Please state language)	Hours in contact with another language outside school (Please state language)	TOTAL
Mon							
Tues							
Wed							
Thurs							
Fri							
Sat							
Sun							
TOTAL							

1.2 Daily contact with languages during school holidays

	Hours in contact with English	Hours in contact with French	Hours in contact with another language (Please state language)	TOTAL
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				
TOTAL				

2. Please circle the frequency of the following:

	Never	A few times per year	1-2 times per month	1-2 times per week	4-5 times per week	Usually daily
Parent(s) read(s)with child in French	1	2	3	4	5	6
Parent(s) read(s) with child in English	1	2	3	4	5	6
Parent(s) read(s) with child in another lang. (please state language _____)	1	2	3	4	5	6
Child reads in English			1	2	3	4
Child reads in French			1	2	3	4
Child reads in another language (please state language _____)			1	2	3	4
Parent(s) borrow(s)/buy(s) books in French	1	2	3	4		
Parent(s) borrow(s)/buy(s) books in English	1	2	3	4		
Parent(s) borrow(s)/buy(s) books in another language (please state language _____)	1	2	3	4		
Parent(s) borrow(s)/buy(s) films in French	1	2	3	4		
Parent(s) borrow(s)/buy(s) films in English	1	2	3	4		
Parent(s) borrow(s)/buy(s) films in another language (please state language _____)	1	2	3	4		
French-speaking children come to play	1	2	3	4	5	6
English-speaking children come to play	1	2	3	4	5	6
Child watches TV in English	1	2	3	4	5	6
Child watches TV in French	1	2	3	4	5	6
Child watches TV in another language (please state language _____)	1	2	3	4	5	6

3. Please circle the frequency of the following:

	Never	Less than once a year	1-2 times per year	3-4 times per year	5 or more times per year
My child visits an English-sepaking country	1	2	3	4	5
We receive English-speaking family/friends from abroad	1	2	3	4	5

4. How do you maintain (and develop) your child's languages? Please tick as appropriate.

Books		Songs	
CDroms		Summer/holiday camps in an Anglophone country	
Conscious efforts to mix with French speakers		Summer/holiday camps in a Francophone country	
Conscious efforts to mix with English speakers		Exchanges	
Extra English lessons		Films	
Extra French lessons			

Other(s) (please state)

_____
_____
_____

Part 4 – Child's language use from birth to present

4.1 Countries of residence

4.1.1 In which country was your child born?

_____

4.1.2 In which country(ies) did he/she live for his/her:

First year: _____
Second year: _____
Third year: _____
Fourth year: _____
Fifth year: _____
Sixth year: _____
Seventh year: _____
Eighth year: _____

4.2 Language use with parents and immediate family. Please circle the most appropriate answer in each case.

4.2.1 Languages used by you to your child.

	Mother	Father
First year:	French English Both Other _____	French English Both Other _____
Second year:	French English Both Other _____	French English Both Other _____
Third year:	French English Both Other _____	French English Both Other _____
Fourth year:	French English Both Other _____	French English Both Other _____
Fifth year:	French English Both Other _____	French English Both Other _____
Sixth year:	French English Both Other _____	French English Both Other _____
Seventh year:	French English Both Other _____	French English Both Other _____
Eighth year:	French English Both Other _____	French English Both Other _____

4.2.2 Languages used by your child to you.

	To Mother	To Father
First year:	French English Both Other _____	French English Both Other _____
Second year:	French English Both Other _____	French English Both Other _____
Third year:	French English Both Other _____	French English Both Other _____
Fourth year:	French English Both Other _____	French English Both Other _____
Fifth year:	French English Both Other _____	French English Both Other _____
Sixth year:	French English Both Other _____	French English Both Other _____
Seventh year:	French English Both Other _____	French English Both Other _____
Eighth year:	French English Both Other _____	French English Both Other _____

4.2.3 Languages used by your child with siblings.

First year:	French	English	Both	Other _____
Second year:	French	English	Both	Other _____
Third year:	French	English	Both	Other _____
Fourth year:	French	English	Both	Other _____
Fifth year:	French	English	Both	Other _____
Sixth year:	French	English	Both	Other _____
Seventh year:	French	English	Both	Other _____

Eighth year: French English Both Other _____

4.3 Parents' language use

What language(s) do you use with each other? (Please circle)

Mother to Father: French English Both Other _____

Father to Mother: French English Both Other _____

4.4 Language use in Crèche/Day Care

Did your child regularly attend a crèche/day care centre?
Yes No

If you answered 'Yes' to the above question, which language(s) was/were used to your child there?
_____

4.5 Child care

Has your child had regular child-minders/au pairs?
Yes No

If you answered 'Yes' to the above question, please circle which language(s) they spoke to your child.

First year: French English Both Other _____

Second year: French English Both Other _____

Third year: French English Both Other _____

Fourth year: French English Both Other _____

Fifth year: French English Both Other _____

Sixth year: French English Both Other _____

Seventh year: French English Both Other _____

Eighth year: French English Both Other _____

4.6 Schools attended Please circle as appropriate.

4.6.1 Which language(s) was/were used to your child at his/her nursery/kindergarten?

First year: French English Both Other _____

Second year: French English Both Other _____

Third year French English Both Other _____

(Fourth year French English Both Other _____)

4.6.2 In which language(s) was your child taught in primary school?

First year:	French	English	Both	Other _____
Second year:	French	English	Both	Other _____
Third year:	French	English	Both	Other _____
Fourth year:	French	English	Both	Other _____

4.7 *Child's everyday language use* Please circle the most appropriate answer to each question.

4.7.1 Does your child *mix languages* when speaking?

Frequently Rarely Never

If so:
do you remark on this to your child?

Always Rarely Never

do you discourage it? Yes No

4.7.2 When your child *makes a linguistic error* when speaking, do you point this out?

Always Sometimes Never

If you do, which of the following best corresponds to your reaction?:

I/We

correct the error.

encourage my/our child to correct the error

model the correct version, without overtly telling my/our child he/she has made an error

Other (please state)

_____
_____
_____

4.7.3 Does your child ever ask you how to say a word/expression in his/her other language?

Frequently Rarely Never

4.7.4 Does your child ever spontaneously translate songs/poems/rhymes from one language to the other?

Frequently Rarely Never

4.7.5 Does your child ever translate jokes from one language to the other?

Frequently Rarely Never

4.7.6 If your child hears/reads a word that is unfamiliar to him/her, does he/she ask you for an explanation?

Frequently Rarely Never

4.7.7 Does your child ever have to act as an interpreter?

Frequently Rarely Never

If so, does he/she do this willingly?

Yes No

4.7.8 Do you feel that your child has a stronger language?

Yes No

If so, which language is it?

French English Other (please state)

4.7.9 Has your child ever demonstrated negative attitudes towards his/her bilingualism?

Yes No

If so, what alerted you to this?

_____
_____
_____
_____

4.7.10 Has your child ever been on the receiving end of negative attitudes to his/her bilingualism (or trilingualism)?

Yes No

If so, how did he/she react to this?

_____
_____
_____

4.7.11 How supportive is your child's wider family to his/her bilingualism (or trilingualism)? Please circle on a scale from 1-5 (1 is TOTALLY UNSUPPORTIVE):

Mother's family	1	2	3	4	5
Father's family	1	2	3	4	5

Part 5 – Attitudes to bilingualism

1. Which of the following factors are important in your opinion when one is bilingual? Please rate each statement from 1-5 (1 is the LEAST IMPORTANT). You may use each number as often as you wish:

	1	2	3	4	5
Using both languages on a regular basis					
Being fluent in both languages					
Belonging to two cultures					
Passing as a monolingual in two languages					
Having both oral and written fluency in both languages					
Other (please state)					
Other (please state)					
Other (please state)					

2. Do you think bilingualism might have a positive or negative effect on the bilingual child, i.e. contribute to an increased/lower degree to any of the following? Please tick as appropriate.

	Positively	Negatively	No effect	Don't know
mental flexibility / intellectual functioning				
creativity				
language awareness				
mathematical ability				
problem-solving				
ability to learn additional languages				
musical ability				
quantity of vocabulary in each language (compared to monolinguals)				
powers of expression in each language				
abstract thinking				
open-mindedness				
self-image				
performance at school				
sociability				
social sensitivity				
reading skills				
writing skills				
Other(s) (please state):				

Thank you very much for taking the time to complete this questionnaire. Please return it to me in the envelope provided in your child's correspondence book by 28th January

Cathy Benson-Cohen
cathy@cohen-michel.com

Children's questionnaire

Research code: _____

Part 1 – Language Use

1. You can speak, understand, read and write in French and English. Do you know any other languages? If you do, can you write them in the table below?

Language	Speak	Understand	Read	Write

2. Here are some questions about the language you use when you talk to different people, animals or even toys, and the language in which certain people speak to you. Please answer as honestly as possible. There are no right and wrong answers.

a) In which language do YOU speak to the following? Choose one of these answers.

	Always in French	In French more often than English	In French and English equally	In English more often than French	Always in English	Other
Father						
Mother						
Brothers/Sisters						
Friends in the French classroom						
Friends in CLIN classroom						
Friends in the English classroom						
Friends in the playground						
English teachers						
French teachers						
Neighbours						
Grandparents (mum's side)						
Grandparents (dad's side)						
Cousins (mum's side)						
Cousins (dad's side)						
Other relatives (mum's side)						
Other relatives (dad's side)						
Friends outside school						
Babysitters/Childminders						
Your pets						
Your toys						

b) In which language do the following people speak TO YOU?

	Always in French	In French more often than English	In French and English equally	In English more often than French	Always in English	Other
Father						
Mother						
Brothers/Sisters						
Friends in the French classroom						
Friends in CLIN classroom						
Friends in the English classroom						
Friends in the playground						
English teachers						
French teachers						
Neighbours						
Grandparents (mum's side)						
Grandparents (dad's side)						
Cousins (mum's side)						
Cousins (dad's side)						
Other relatives (mum's side)						
Other relatives (dad's side)						
Friends outside school						
Babysitters/Childminders						

c) Which language do YOU use with the following?

	Always in French	In French more often than in English	In French and English equally	In English more often than French	Always in English	Other
Watching TV						
Cdroms						
Internet						
Videos						
DVDs						
Newspaper/comics/magazines						
Listening to the radio						
Talking on the telephone						
Playing sport						
Reading						
Listening to cassettes						
Writing letters, cards						
Clubs/Associations						

Part 2 – My feelings about French, English and other languages

In this section, you have to say which of the possible answers is true for YOU. Circle the letter of the best answer.

1.
a. I find it easier to speak English than French.
b. I find it just as easy to speak French and English.
c. I find it easier to speak French than English.
d. I find it easier to speak another language which isn't French or English.
Please say which language if you answered d .....

2.
a. I prefer speaking English.
b. I prefer speaking French.
c. I have no preference. I like speaking in English and French.
d. I prefer speaking another language which isn't French or English.
Please say which language if you answered d .....

3.
a. I find it easier to read in French than in English.
b. I find it just as easy to read in French than in English.
c. I find it easier to read in English than in French
d. I find it easier to read in another language which isn't French or English.
Please say which language if you answered d .....

4.
a. I prefer reading in French.
b. I prefer reading in English.
c. I have no preference. I like reading in French and in English.
d. I prefer reading in another language which isn't English or French.
Please say which language if you answered d .....

5.
When I watch TV programmes or videos or DVDs,
a. I prefer watching in English.
b. I like watching in French and English.
c. I prefer watching in French.
d. I prefer watching in another language.
Please say which language if you answered d .....

6.
How often have you translated from English to French or French to English for your family or friends?
a. Never
b. Hardly ever
c. A few times
d. Lots of times

7.
If you could choose the perfect school, which would you choose?
a. a school where I speak and learn only in English
b. a school where I speak and learn in English and French like this one
c. a school where I speak and learn only in French

8.
Would you like to speak even more languages than you speak already?
a. no
b. I'm not sure
c. yes
If you answered c, can you say which language(s) you would like to speak?
.....

9.
Can you remember your dreams? When you dream,
a. do you dream in French?
b. do you dream in English?
c. do you sometimes dream in French and sometimes in English?
d. do you not normally remember your dreams in the morning?

10.
Imagine that someone who ALWAYS speaks to you in French suddenly starts to talk to you in English. How would you feel?
a. It wouldn't bother me.
b. I would be surprised.
c. I would be sad, upset.
d. I would be happy.
e. I would be angry.

11.
Imagine that someone who ALWAYS speaks to you in English suddenly starts to talk to you in French. How would you feel?
a. I would be surprised.
b. I would be happy.
c. It wouldn't bother me.
d. I would be angry.
e. I would be sad, upset.

12.
When you do calculations outside the classroom, do you calculate:
a. in French?
b. in English?
c. sometimes in French and sometimes in English?
d. always in another language? Please say which .....
e. sometimes in another language? Please say which .....

Part 3 – What do you feel?

In this section, please circle the letter of the best answer. Sometimes more than one answer is possible.

The questions where an additional answer is added in italics are for those children with an additional language and cultural identity. For those children who only have French and English, this answer is NOT a possibility.

1. Imagine a relation of yours asks you if you feel more French or more English (British, American, Australian, Canadian, etc.), what do you reply?
a. I feel more English.
b. It's the same. I feel French and English.
c. I feel more French.
d. *I feel more* .....

2. When you play with children in France who only speak French, how do you feel?
a. I feel the same as them.
b. I feel a bit different because I can also speak another language.
c. I feel a bit different because I have lived/come from another country.

3. When you play with children in France who only speak French, do you think that:
a. they think you're a bit different because you speak another language?
b. they think you're the same as them?
c. they think I'm a bit odd as I have not always lived here.

4. When you play with children in the United States or England (or Australia, etc.), how do you feel?
a. I feel the same as them.
b. I feel a bit different because I can speak another language.
c. I feel a bit different because I don't normally live there.

5. When you play with children in the United States or England (or Australia, etc.), do you think that:
a. they think you're a bit different because you speak another language?
b. they think you're the same as them?
c. they think you're a bit different because you don't normally live there?

6. Imagine it's the football (or cricket/baseball etc.). World Cup. France and England (or Scotland/Ireland/Wales/The United States/Australia etc.) are participating. Who will you support?
a. France
b. England (Scotland/Ireland/Wales/The United States/Australia, etc.)
c. I don't mind who wins as I like both teams the same.
d. I don't like football (or cricket/baseball etc.)
e. *Another team (please state which)* .....

7. What about pop music? Which of the statements below best describes your taste?
a. I prefer songs sung in English.
b. I prefer songs sung in French.
c. I like songs sung in French the same as songs sung in English.
d. I don't like pop music.
e. *I prefer songs sung in another language (please state which)* .....

8. What about sweets (candy) and biscuits (cookies)?
a. I prefer American (British/Australian, etc.) sweets and biscuits.
b. I don't like candy and cookies.
c. I prefer French sweets and biscuits.
d. I have no preference. I like both French and American (British/Australian etc.) candy and cookies.
e. *I prefer candy and cookies from another country (please state which).....*

9. Do you ever write a diary?
a. No, never.
b. Yes, I write it in English.
c. Yes, I write it in French.
d. Yes, sometimes I write it in English and sometimes I write it in French.
e. *Yes, I write it in ..... (please state the language)*

10. When you're at home, do you ever write stories, poems and/or songs?
a. No, never.
b. Yes, I write them in French.
c. Yes, I write them in English.
d. Yes, sometimes I write them in English and sometimes in French.

11. When people around you, like relations, friends, new people you meet, realise you speak more than one language, do they think this is:
a. strange?
b. funny?
c. great?
d. bad?

12. If you could choose to live in either France or Australia/The UK/The US etc., which would you choose?
a. France
b. Australia/The UK/The US etc.
c. *I would choose another country (please state which)* .....

APPENDIX III – STUDENT ORAL LANGUAGE OBSERVATION MATRIX

Student Oral Language Observation Matrix completed by the children's teachers and the researcher

ENGLISH

Based on your obsevation of the child, indicate with an "X" across the category which best describes his/her abilities.

	1	2	3	4	
A. Comprehension	Cannot be said to understand even simple conversation	Has great difficulty following what is said. Can comprehend only social conversation spoken slowly and with frequent repetitions.	Understands most of what is said at slower than normal speed with repetitions.	Understands nearly everything at normal speed, although occasional repetitions may be necessary.	Understands everyday conversation and normal classroom discussions.
B. Fluency	Speech so halting and fragmentary as to make conversation virtually impossible.	Usually hesitant: often forced into silence by language limitations.	Speech in everyday conversation and classroom discussions frequently disrupted by the child's search for the correct manner of expression.	Speech in everyday conversation and classroom discussions generally fluent, with occasional lapses while the child searches for the correct manner of expression.	Speech in everyday conversation and classroom discussions fluent and effortless; approximating that of a native speaker.
C. Vocabulary	Vocabulary limitations so extreme as to make conversation virtually impossible.	Misuse of words and very limited; comprehension quite difficult.	Child frequently uses wrong words: conversation somewhat limited because of inadequate vocabulary.	Child occasionally uses inappropriate terms and/or must rephrase ideas because of lexical inadequacies.	Use of vocabulary and idioms approximate that of a native speaker.
D. Pronunciation	Pronunciation problems so severe as to make speech virtually unintelligible.	Very hard to understand because of pronunciation problems. Must frequently repeat in order to make him/herself understood.	Pronunciation problems necessitate concentration on the part of the listener and occasionally lead to misunderstanding.	Always intelligible, although the listener is conscious of a definite accent and occasional inappropriate intonation patterns.	Pronunciation and intonation approximate that of a native speaker.
E. Grammar	Errors in grammar and word order so severe as to make speech virtually unintelligible.	Grammar and word order errors make comprehension difficult. Must often rephrase and/or restrict him/herself to basic patterns.	Makes frequent errors of grammar and word order that occasionally obscure meaning.	Occasionally makes grammatical and/or word order errors that do not obscure meaning.	Grammar and word order approximate that of a native speaker.

FRENCH

D'après vos observations de l'élève, mettez une "X" dans la case de chaque domaine dont la description correspond au mieux à ses compétences.

	1	2	3	4	5
A. Comprehension	Ne comprend rien, même les conversations simples.	A beaucoup de difficultés à suivre ce qu'on dit. Comprend uniquement la conversation sociale, parlée lentement et avec beaucoup de répétitions.	Comprend la plupart de ce qu'on dit à une vitesse moins rapide que normale et avec des répétitions.	Comprend presque tout à une vitesse normale, même si des répétitions s'avèrent nécessaires occasionnellement.	Comprend la conversation courante ainsi que les discussions habituelles en classe.
B. Aisance à s'exprimer	Discours tellement hésitant et fragmentaire que la conversation est quasiment impossible.	Habituellement hésitant: souvent obligé à rester muet en raison de limitations langagières.	Discours dans la conversation courante, ainsi que dans la discussion en classe, souvent interrompu, en raison de la recherche par l'élève de la bonne formulation d''expression.	Aisance globale du discours dans la conversation courante, ainsi que dans la discussion en classe, avec des défaillances occasionnelles quand l'élève recherche la bonne formulation d'expression.	Discours fluide et sans effort dans la conversation courante, ainsi que dans la discussion en classe, qui se rapproche de celui d'un 'natif'.
C. Vocabulaire	Conversation quasiment impossible à cause des limitations de vocabulaire trop extrêmes.	Usage impropre des mots et vocabulaire très limité; compréhension assez difficile.	L'élève emploie souvent des mots impropres; conversation assez limitée en raison d'un vocabulaire insuffisant.	L'élève emploie occasionnellement des termes impropres et/ou doit reformuler ses idées en raison d'insuffisances lexicales.	Emploi de vocabulaire et d'expressions idiomatiques qui se rapproche de celui d'un 'natif'.
D. Prononciation	Discours quasiment incompréhensible en raison des problèmes de prononciation trop sévères	Très difficile à comprendre à cause de problèmes de prononciation. Doit se répéter fréquemmement pour se faire comprendre.	Problèmes de prononciation qui nécessitent une concentration de la part de l'interlocuteur et qui mènent occasionnellement au malentendu.	Toujours intelligible, bien que l'interlocuteur soit conscient d'un accent étranger et d'intonation parfois inappropriée.	Prononciation et intonation qui se rapprochent de celles d'un 'natif'.
E. Grammaire	Discours quasiment incompréhensible en raison d'erreurs de grammaire et d'ordre des mots.	Erreurs de grammaire et d'ordre des mots qui rendent la compréhension difficile. Doit souvent reformuler et/ou se limiter aux constructions de base.	Fait souvent des erreurs de grammaire et d'ordre des mots qui cachent occasionnellement le sens.	Fait occasionnellement des erreurs de grammaire et/ou d'ordre des mots qui ne gênent pas le sens.	Grammaire et l'ordre des mots qui se rapprochent de ceux d'un 'natif'.

Instructions accompanying the SOLOM scale given to English teachers

Student Oral Language Observation Matrix (SOLOM)

The SOLOM is not a standardised testing instrument. It is a rating scale that is quick to score that can be used by teachers to assess their students' command of oral language, by reflecting on the student's language ability after extensive observation of the student in a number of situations – class discussions, playground interactions, encounters between classes, etc. The teacher matches a student's language performance in five areas – comprehension, fluency, vocabulary, pronunciation and grammar – to descriptions on a five-point scale (see attached table). The scores for individual domains can be considered, or they can be combined into a total score with a range of five to 25. A score of 19 or higher places a child in the fluent (or proficient) range. A student obtaining this score should be able to participate in oral language tasks typically expected in the classroom at his or her grade level. A score lower than 19 designates non-fluent.

To complete the SOLOM, teachers simply need to know the criteria for various ratings and observe their students' language practices with those criteria in mind.

The SOLOM is not commercially published. It was originally developed by the San Jose Area Bilingual Consortium and has undergone revisions with leadership from the Bilingual Education Office of the California State Department of Education. It is within the public domain and can be copied, modified or adapted to meet local needs.

The SOLOM is used extensively in the United States to assess the oral language competence of minority language students and especially to determine broad placement levels for new students. It clearly identifies areas of weakness and when used longitudinally, it will indicate student progress and development.

Teachers and researchers who have used the SOLOM to assess students' oral language proficiency report that there is considerable correspondence between SOLOM scores and scores from individually administered tests of language proficiency.

Directions for administering the SOLOM

Based on your observation of the student, indicate with an "X" across the box in each category that best describes the student's abilities.

Instructions accompanying the SOLOM scale given to French teachers

Student Oral Language Observation Matrix (SOLOM)

Le SOLOM n'est pas un instrument d'évaluation standardisé. C'est une échelle que les professeurs peuvent utiliser pour évaluer la maîtrise de langue orale de leurs élèves, d'après leurs observations quotidiennes, dans une variété de situations – discussions en classe, interactions dans la cour de récréation, etc. Le professeur lie la performance langagière dans cinq domaines – compréhension orale, aisance à s'exprimer, vocabulaire, prononciation et grammaire – aux descriptions sur une échelle de cinq points pour chaque domaine (voir table ci-joint). Les scores attribués à chaque domaine peuvent être considérés individuellement ou bien ils peuvent être combinés pour donner un score total, qui va de cinq à 25. Les scores SOLOM permettent d'évaluer rapidement si un élève peut participer aux activités orales en classe appropriées à son age.

Pour remplir le SOLOM, il suffit que les professeurs connaissent les critères pour chaque domaine et qu'ils observent leurs élèves en interaction orale, avec ces critères en tête.

Le SOLOM n'est pas publié commercialement. Il était développé à l'origine par le San Jose Area Bilingual Consortium et il a subi des révisions par le Bilingual Education Office of the California Department of Education. Il peut être copié, modifié ou adapté selon les besoins locaux.

Administration du SOLOM

D'après vos observations de l'élève, mettez une « X » dans la boîte de chaque domaine dont la description correspond au mieux à ses compétences.

APPENDIX IV – METALINGUISTIC TASKS

English

1. WORD ORDER REPETITION (CONTROL)

Introduction
In this game, everything that I say will be wrong. It will have a mistake in it, so it will sound wrong. But I want you to leave the mistake in it and say it back to me exactly the same way as I say it. Don't change it. If you don't hear me properly, just ask me to say it again. Here are some practice ones, to make sure that you know what to do. Just say them back to me the same way that you hear them, with the mistake left in.

Practice
I hungry am.
The girl a cat has.

Test
1. Dad at home is.
2. I like games funny.
3. The cat fur black has.
4. The teacher not is reading books.
5. Apples not are purple.
6. The dog under the tree is.
7. There are birds five.
8. He a drink has.
9. Sometimes children not do go outside.
10. They not are talking.
11. She has a dress long.
12. Mum to the shop goes.

2. WORD RENAMING (CONTROL)

Introduction
The game we are going to play now is about changing names. Suppose you were making up the names of things; could you call the sun "the moon" and the moon "the sun"?

(Persuade the child that this is possible by explaining that names are in effect made up, and if everyone agreed, then it would be possible to change the names of things.)

Test
Now suppose this happened, and everyone decided to call the sun "the moon" and the moon "the sun".

1. What would you call the thing in the sky when you go to bed at night?
2. What would the sky look like when you're going to bed?

Now imagine that the names of cats and dogs were changed around. Let's call cats "dogs" and "dogs" cats.

3. [Child is shown a picture of a cat.]. What would you call this animal?
4. What noise would it make?

How about if we changed the names of people and fish, and we decided that we would call fish "people" and people "fish".

5. [Child is shown a picture of fish.] What would you call these?
6. Would people have arms of fins?
7. Would people live in houses or water?

Also, let's imagine that we would call trucks "tables" and tables "trucks".

8. [The child is shown a picture of a table.] What would you call this?
9. Does a truck have wheels or legs?
10. Where would you find a truck?

And what if we changed the names for books to pillows.

11. [Child is shown a book.] What would you call this?
12. Is a pillow hard or soft?

3. SYMBOL SUBSTITUTION (CONTROL)

Introduction
This is a naming game, and each time we are going to swap words without changing anything else. Sometimes this may sound wrong or funny, but that's alright. Listen carefully so you'll find out how to play the game.

Practice
In this part the way we will say "apple" is to say "birds". So the way we say "The apple is under the tree" is to say "The birds is under the tree." OK. Now you try it. If the way we say "apple" is "birds", how do we say "The apple is under the tree?"
Let's have another practice. For this part, the way we say "dog" is to say "cat". So how do we say "The dog is barking"?

Test
(For each item the child is asked to substitute the second word for the first word in a given sentence, as in the practice items.)

1. I/ice	I am cold.
2. she/fish	She likes swimming.
3. they/he	They were running.
4. summer/I	Summer is hot.
5. birds/plane	The birds are flying.
6. cats/he	Cats play with wool.
7. people/she	People drive to work.
8. they/he	They are drinking water.
9. frogs/she	Frogs are in the water.
10. he/we	He is walking to school
11. kittens/they	The kittens are under the tree.
12. they/he	During the holidays they go fishing.

4. SYMBOL SUBSTITUTION (ANALYSIS)

Introduction
This is another naming game a bit like the one we did before, but this time when I ask you to swap words, I also want you to change the things so that is does not sound wrong. Let's have some practice first.

Practice
In this part, the way we say "mum" is to say "they". So how do we say "Mum is home"?
For this part the way we say "she" is to say "they". So how do we say "She is laughing"?

Test
Now we'll play the real game. Remember to change the word I say and also change things so that the whole thing sounds right.

(For each item, the child is asked to substitute the second word for the first word, as in the practice items.)

1. they/water	They are cold.
2. she/I	She is running.
3. he/we	He likes walking.
4. winter/they	Winter is cold.
5. dog/sheep	The dog is resting.
6. she/mice	She likes eating cheese.
7. they/he	They are having lunch.
8. Anne/they	Anne is waiting outside.
9. children/she	The children are playing with water.
10. she/we	She is driving to work.
11. lake/boats	The lake is full of tiny fish.
12. they/Paul	They go camping at weekends.

5. WORD ORDER CORRECTION (ANALYSIS)

Introduction
This next game is different. This time I want you to correct what I say. I'll keep saying everything with a mistake in it. Then I want you to say them the way I should have said them. I'll say them the wrong way, and you say them the right way. If you don't hear me, ask me to say it again. I'll give you some practice ones to make sure you know what to do. Correct this.

Practice
I chocolate like.
Mum late is.

Test
1. Dad the car washes.
2. I like days hot.
3. The grass not is wet.
4. The teacher has a coat long.
5. Bananas not are blue.
6. The bird in the tree is.
7. There are dogs three.
8. He an apple ate.
9. Sometimes children not do eat dinner.
10. She the story wrote.

11. They not did go shopping.
12. Mum has a dress new.

6. FORM-MEANING JUDGEMENTS (ANALYSIS AND CONTROL)

Introduction
In this game, you have to listen very carefully and tell me whether the words sound alike or whether they mean similar things. Let's have some practice first.

Practice
What word sounds something like dog? cat or log? (rhyme)
What means something like bake? cook or take?

Test
1. What word sounds something like cat? hat or kitten?
2. What word means something like mat? rug or cat?
3. What word sounds something like bread? roll or head?
4. What word means something like pen? then or biro?
5. What word sounds something like cold? cool or bold?
6. What word sounds something like fast? last or quick?
7. What word means something like house? flat or mouse?
8. What word sounds something like run? race or sun?
9. What word means something like fool? trick or pool?
10. What word sounds something like tree? bush or free?
11. What word means something like care? bare or love?
12. What word means something like thin? fine or grin?

7. GRAMMAR JUDGEMENTS (CONTROL AND ANALYSIS)

Introduction
In this game, I am going to say something, and then I want you to tell me if it's the right or wrong way round. I might say something that sounds silly for fun, but you have to tell me each time if it's the right way or the wrong way round, not if it's funny. Let's have some practice first.

Practice
I have pencils three.
Apples grow on noses. (This is okay – you could say it in a story.)

Test
1. The teacher a book reads.
2. The boy has hair curly.
3. The dogs are flying.
4. Winter is not hot.
5. Cows ride in buses.
6. The people are driving books.
7. Linda has long brown hair.
8. She not is reading.
9. It is a tall day.
10. They is sitting down.
11. The sky is not blue.
12. Rabbits not can sing songs.
13. Teachers on the blackboard write.
14. Summer not is cold.

15. They are drinking apples.
16. He likes to draw.
17. The fish are walking.
18. People like books funny.
19. She is driving a chair.
20. The sky not is green.
21. Simon is eating bike.
22. The birds is flying.
23. There are three purple oranges.
24. The children are playing cards.
25. It are a hot day.
26. Paul drives a tree.
27. Rebecca to school ran.
28. People live in large fridges.
29. He is eating grass.
30. She has a green car.

French

1. WORD ORDER REPETITION (CONTROL)

Introduction
Dans ce jeu, tout ce que je vais dire est faux. Il y aura une erreur, donc cela sonnera faux. Mais je veux que tu laisse l'erreur et que tu répètes exactement ce que j'ai dit. Ne change rien ! Si tu ne m'entends pas bien, demande-moi de répéter. On va s'entraîner d'abord pour vérifier que tu sais ce que tu dois faire. Répète tout simplement ce que je dis, avec l'erreur.

Entraînement
Je faim ai.
La fille le chat a.

Test
1. Maman au travail est.
2. J'aime peluches douces les.
3. Le chien des blancs poils a.
4. La maîtresse écrit ne pas sur le tableau.
5. Les oranges ne pas roses sont.
6. L'oiseau sous la voiture est.
7. Il y a chats cinq.
8. Elle une glace a.
9. Quelquefois les enfants ne pas écoutent.
10. Elles ne pas parlent.
11. Elle a chapeau un drôle.
12. Papa aux magasins va.

2. WORD RENAMING (CONTROL)

Introduction
Dans le jeu qu'on va jouer maintenant, on va changer les noms. Imagine qu'on inventait des noms pour les choses autour de nous. Est-ce qu'on peut appeler une fleur «un parapluie» et un parapluie «une fleur» ?

(Persuade the child that this is possible by explaining that names are in effect made up, and if everyone agreed, then it would be possible to change the names of things.)

Test
On va imaginer que c'est possible et que tout le monde a décidé d'appeler une fleur « un parapluie » et un caillou « un parapluie ».

1. Comment tu appellerais les choses qui poussent dans les jardins?
2. Comment serait le jardin en plein été?

Maintenant, imagine qu'on inverse les noms des vaches et de cochons. Appelons les vaches « cochons » et les cochons « vaches ».

3. [Child is shown a picture of a pig.]. Comment tu appellerais cet animal?
4. Quel bruit ferait-il?

Et si on changeait les noms des lapins et des livres et qu'on décidait qu'on appellerait les lapins "les livres" et les livres "les lapins".

5. [Child is shown some books] Comment tu appellerais ceux-ci?
6. Les lapins auraient-ils des pages ou des poils?
7. Les livres se trouveraient-ils dans une bibliothèque ou dans un clapier/une cage ?

Imaginons qu'on appelle les voitures "les chaises" et les chaises "les voitures".

8. [Child is shown a picture of a chair.] Comment tu appellerais celle-ci?
9. Une chaise, a-t-elle des roues ou des pieds?
10. Où trouverais-tu une chaise?

Et si on changeait les noms de la neige et du feu.

11. [Child is shown fire] Qu'est-ce que c'est?
12. La neige est-elle chaude ou froide ?

3. SYMBOL SUBSTITUTION (CONTROL)

Introduction
Dans ce jeu, nous allons échanger des mots sans rien changer d'autre. Quelquefois, cela sonnera faux ou drôle, mais ce n'est pas grave. Ecoute bien pour comprendre les règles de ce jeu.

Entraînement
Ici, pour dire "orange" on va dire "chat". Donc pour dire "L'orange est sur la table", on dit "Le chat est sur la table". D'accord ? Essaie maintenant. Si on dit "orange" pour "chat", comment dit-on "L'orange est sur la table"?
Voilà un autre exemple. Cette fois-ci, pour dire « maman », on dit « papa ». Comment dit-on « Maman travaille » ?

Test

1. je/il	Je suis fatigué.
2. nous/le poisson	Nous aimons nager.
3. les garçons/la fille	Les garçons ont écrit.
4. l'été/les frites	L'été est chaud.
5. les chanteurs/le mouton	Les chanteurs ont bu de l'eau.
6. les chats/le chien	Les chats ont froid.
7. les gens/la dame	Les gens conduiront au travail.
8. les vaches/le chat	Les vaches dorment au soleil.
9. les grenouilles/l'oiseau	Les grenouilles sont dans l'eau.
10. la fille/nous	La fille va à l'école à pied.
11. les enfants/les feuilles	Les enfants sont sous l'arbre.
12. les amis/la fille	Les amis lisent une histoire drôle.

4. SYMBOL SUBSTITUTION (ANALYSIS)

Introduction
Ce jeu est un peu comme celui que nous avons fait avant, mais cette fois-ci, quand je te demande d'échanger les mots, je veux que tu changes les autres choses pour que cela ne sonne pas faux. On va s'entraîner d'abord.

Entraînement
Ici, pour dire "maman", on dit "les garçons". Donc comment dit-on « Maman est à la maison"?
Dans cette partie, pour dire "la fille", on dit "les clowns". Donc comment dit-on « La fille a ri » ?

Test
Maintenant on joue pour de bon. N'oublies pas de changer le mot et AUSSI de changer d'autres choses pour que cela sonne juste.

1. les boissons/la glace	Les boissons sont froides.
2. la fille/je	La fille a mangé.
3. Papy/nous	Papy aime lire.
4. l'été/les pieds	L'été est chaud.
5. le chat/les cochons	Le chat boit.
6. la tante/les souris	La tante a aimé le fromage.
7. les professeurs/le directeur	Les professeurs sont en train de manger.
8. Nathalie/les enfants.	Nathalie lit une affiche.
9. les enfants/la fille	Les enfants ont sommeil.
10. La maîtresse/nous	La maîtresse va écrire sur le tableau.
11. Papa/les oiseaux	Papa finit de manger.
12. les copains/David	Les copains vont partir au ski.

5. WORD ORDER CORRECTION (ANALYSIS)

Introduction
Ce jeu est différent. Cette fois-ci, je veux que tu corriges ce que je dis. Chaque fois que je dis quelque chose, il y aura une faute. Je veux que tu dises la phrase correctement, sans fautes. Moi, je parle avec des fautes, et toi, tu corriges ma phrase. Si tu ne m'entends pas bien, demande-moi de répéter. D'abord, on va s'entraîner pour voir si tu as bien compris. D'accord ? Corrige ce que je vais dire.

Entraînement
Je le chocolat aime.
La maîtresse en retard est.

Test
1. Papa les frites mange.
2. La maîtresse une histoire lit.
3. Le chien ne pas faim a.
4. Le directeur ne pas est gros.
5. Les citrons ne pas sont roses.
6. Le poisson dans l'eau est.
7. Il y a souris blanches cinq.
8. Il un bonbon a mangé.
9. Quelquefois, les enfants sont ne pas sages.
10. Il les pâtes a mangé.
11. Ils ne pas sont allés au match.
12. Maman un pantalon a rouge.

6. FORM-MEANING JUDGEMENTS (ANALYSIS AND CONTROL)

Introduction
Dans ce jeu, il faut écouter attentivement et me dire si les mots sonnent pareils ou s'ils veulent dire à peu près la même chose. On va s'entraîner d'abord.

Entraînement
Quel mot sonne comme chat? plat ou chien? (ça rime.)
Quel mot veut dire quelque chose comme rat ? souris ou drap ?

Test
1. Quel mot sonne comme pull? sweat ou bulle ?
2. Quel mot veut dire quelque chose comme bain? pain ou douche ?
3. Quel mot sonne comme barre? planche ou marre ?
4. Quel mot veut dire quelque chose comme bille? fille ou balle ?
5. Quel mot sonne comme chaud? brûlant ou pot ?
6. Quel mot sonne comme vite? mite ou rapide ?
7. Quel mot veut dire quelque chose comme tarte? gâteau ou carte ?
8. Quel mot sonne comme botte? chaussure ou sotte ?
9. Quel mot veut dire quelque chose comme voir? Regarder ou poire ?
10. Quel mot sonne comme fleur? feuille ou pleurt ?
11. Quel mot veut dire quelque chose comme glace? classe ou sorbet ?
12. Quel mot veut dire quelque chose comme mince? maigre ou pince ?

7. GRAMMAR JUDGEMENTS (ANALYSIS AND CONTROL)

Introduction

Dans ce jeu, je vais dire quelque chose et après, je veux que tu me dises si c'est bien dit ou pas. Quelque fois, je ferai exprès de dire quelque chose de drôle, mais tu dois me dire tout simplement si c'est bien dit ou pas, et non pas si c'est drôle. D'abord, on va s'entraîner.

Entraînement

J'ai crayons trois.
Les voitures roulent sur l'eau.

Test
1. Maman une pomme mange.
2. La fille a un rouge stylo.
3. Les poissons marchent dans la rue.
4. L'été n'est pas chaud.
5. Les chats se parlent au téléphone.
6. Mon papa conduit une tablette de chocolat.
7. Charlotte a des longs cheveux noirs.
8. Ils ne pas chantent.
9. Aujourd'hui, il fait sucré.
10. Les filles est partie.
11. La mer est bleue.
12. Les chevaux ne pas lisent les livres.
13. La maîtresse dans la classe sourit.
14. L'hiver n'est froid pas.
15. Ils mangent du Coca Cola.
16. Elle aime dessiner.
17. Les voitures nagent dans la piscine.
18. Mes copains les dessins animés aiment.
19. Les joueurs de foot conduisent un lapin.
20. Les étoiles ne pas sont dorées.
21. Lucie boit un vélo.
22. Les avions a volé.
23. Il y a cinq oranges roses.
24. Les enfants jouent aux billes.
25. Hier, il ont fait chaud.

26. Ma soeur conduit une montre.
27. Marine à la danse est allée.
28. Mes cousins habitent dans une grande fraise.
29. Mon oncle mange de la paille.
30. Ils ont un chien blanc.

Examples of incorrect answers to English metalinguistic tasks

[Incorrect answers in italics throughout this section.]

1. Word Order Repetition (control)

In this game, everything that I say will be wrong. It will have a mistake in it, so it will sound wrong. But I want you to leave the mistake in it and say it back to me exactly the same way as I say it. Don't change it. If you don't hear me properly, just ask me to say it again. Here are some practice ones, to make sure that you know what to do. Just say them back to me the same way that you hear them, with the mistake left in.

1.	Dad at home is.
2.	I like games funny.
3.	The cat fur black has.
	The cat have black fur.
4.	The teacher not is reading books.
	The teacher not reading books *The teacher is not reading books.*
5.	Apples not are purple.
	Apples not purple. *Apples are not purple.*
6.	The dog under the tree is.
7.	There are birds five.
8.	He a drink has.
9.	Sometimes children not do go outside.
	Sometimes children do not go outside. *Sometimes children not go outside.* *Sometimes children outside do not go.* *Sometimes children not do not go outside.*
10.	They not are talking.
	They not talking. *They are not talking.* *They are not are talking.*
11.	She has a dress long.
12.	Mum to the shop goes.
	Mum goes to the shop goes.

2. Word Renaming (control)

The game we are going to play now is about changing names. Suppose you were making up the names of things; could you call the sun "the moon" and the moon "the sun"?

1.	Now imagine that the names of cats and dogs were changed around. Let's call cats "dogs" and "dogs" cats. [Child is shown a picture of a cat.]. What would you call this animal?
	A cat.
2.	What noise would it make?
	Woof, woof. *It barks.*
3.	How about if we changed the names of people and fish, and we decided that we would call fish "people" and people "fish". [Child is shown a picture of fish.] What would you call these?
	Fish.
4.	Would people have arms of fins?
	Arms. *Legs.*
5.	Would people live in houses or water?
	In houses. *On earth, on the ground.* *Where it's dry.*
6.	Also, let's imagine that we would call trucks "tables" and tables "trucks". [Child is shown a picture of a table.] What would you call this?
	Table.
7.	Does a truck have wheels or legs?
	Wheels.
8.	Where would you find a truck?
	Outside. *In the gas station.* *In a dump.* *On the road.*
9.	And what if we changed the names for books to pillows. [Child is shown a book.] What would you call this?
10.	Is a pillow hard or soft?
	Soft.

3. Symbol Substitution (control)

This is a naming game, and each time we are going to swap words without changing anything else. Sometimes this may sound wrong or funny, but that's alright. Listen carefully so you'll find out how to play the game.

1.	she/fish	She likes swimming.
	Fishes like swimming.	
2.	they/he	They were running.
	He was running.	
3.	summer/I	Summer is hot.
	I am hot. *Summer I hot.* *I summer is hot.*	
4.	birds/plane	The birds are flying.
	The planes are flying. *Planes are flying.* *The plane is flying.*	
5.	cats/he	Cats play with wool.
	He plays with wool. *He played with wool.* *He cats with wool.* *I play with wool.*	
6.	people/she	People drive to work.
	She drives to work.	
7.	they/he	They are drinking water.
	He is drinking water. *He drinking water.* *They drink water.*	
8.	frogs/she	Frogs are in the water.
	She in the water. *She is in the water.*	
9.	he/we	He is walking to school
	We are walking to school. *We walking to school.* *We walk to school.*	
10.	kittens/they	The kittens are under the tree.
	They under the table. *They are under the tree.*	
11.	they/he	During the holidays they go fishing.
	He going fishing. *He goes fishing.* *He is going fishing.* *He is going shopping.*	

4. Symbol Substitution (analysis)

This is another naming game a bit like the one we did before, but this time when I ask you to swap words, I also want you to change the things so that is does not sound wrong. Let's have some practice first.

1.	they/water	They are cold
2.	she/I	She is running.
3.	he/we	He likes walking
	We are walking.	
4.	winter/they	Winter is cold.
	The winter is very cold. *They is cold.*	
5.	dog/sheep	The dog is resting.
6.	she/mice	She likes eating cheese.
	Mice likes eating cheese. *The mouse likes eating cheese.* *The mouse like eating cheese.*	
7.	they/he	They are having lunch.
8.	Anne/they	Anne is waiting outside.
9.	children/she	The children are playing with water.
10.	she/we	She is driving to work.
	He is driving to work.	
11.	lake/boats	The lake is full of tiny fish.
	The boat is full of tiny fish. *The boat is fill of fish.* *We are full of fish.*	
12.	they/Paul	They go camping at weekends.
	Paul go camping at weekends. *Paul is going camping at weekends.*	

5. Word Order Correction (analysis)

This next game is different. This time I want you to correct what I say. I'll keep saying everything with a mistake in it. Then I want you to say them the way I should have said them. I'll say them the wrong way, and you say them the right way. If you don't hear me, ask me to say it again. I'll give you some practice ones to make sure you know what to do. Correct this.

1.	Dad the car washes.
	Dad is washing the car. *Dad wash the car.*
2.	I like days hot.
	I like some hot days. *I like days hot.* *I like a cuppa hot tea.* *I like days that are hot.*
3.	The grass not is wet.
	The grass is wet.
4.	The teacher has a coat long.
	The teacher a long vest. *The teacher has a coat long.* *The teacher have a long coat.* *The teacher has a coat very long.*
5.	Bananas not are blue.
	Banana are not blue. *Banana is not blue.* *Bananas not are blue.*
6.	The bird in the tree is.
	The bird in the tree is singing. *The bird in the tree is.* *The bird is flying.* *The bird in the tree is hot.* *The bird in the tree is nice.*
7.	There are dogs three.
	They are three dogs.
8.	He an apple ate.
	He ate a apple. *He ate three apples.*
9.	Sometimes children not do eat dinner.
	Sometimes children eat dinner. *Sometimes children not eat dinner.* *Sometimes children do eat dinner.*
10.	She the story wrote.
11.	They not did go shopping.
	They not go shopping. *They did go shopping.* *They do not their shopping.*
12.	Mum has a dress new.
	Mum has a new address. *Mum have a dressed new.* *Mum has a dress new.*

6. Form-Meaning Judgements (analysis and control)

Incorrect answers in this task involved only choosing the wrong word from the two words offered.

For example:
Which word sounds something like cat? hat or kitten?
CORRECT ANSWER: hat
INCORRECT ANSWER: kitten

7. Grammar Judgements (analysis and control)

Incorrect answers in this task involved only saying a sentence was wrong if it was right.

For example:
There are three purple oranges.
CORRECT ANSWER: Right
INCORRECT ANSWER: Wrong

Teachers on the blackboard write.
CORRECT ANSWER: Wrong
INCORRECT ANSWER: Right

Examples of incorrect answers to French metalinguistic tasks

[Incorrect answers in italics throughout this section.]

1. Word Order Repetition (control)

Dans ce jeu, tout ce que je vais dire est faux. Il y aura une erreur, donc cela sonnera faux. Mais je veux que tu laisse l'erreur et que tu répètes exactement ce que j'ai dit. Ne change rien ! Si tu ne m'entends pas bien, demande-moi de répéter. On va s'entraîner d'abord pour vérifier que tu sais ce que tu dois faire. Répète tout simplement ce que je dis, avec l'erreur.

1.	Maman au travail est.
2.	J'aime peluches douces les.
	J'aime peluches douces et.
3.	Le chien des blancs poils a.
	Le chien a des blancs poils a. *Le chien a blancs poils.* *Les chiens des poils a.*
4.	La maîtresse écrit ne pas sur le tableau.
	La maîtresse n'écrit pas sur le tableau. *La maîtresse ne pas écrit sur le tableau.*
5.	Les oranges ne pas roses sont.
	Les oranges ne pas roses. *Les oranges ne sont pas roses sont.* *Les oranges sont roses.* *Les oranges ne rose pas sont.*
6.	L'oiseau sous la voiture est.
	L'oiseau est sous la voiture est.
7.	Il y a chats cinq.
8.	Elle une glace a.
9.	Quelquefois les enfants ne pas écoutent.
	Quelquefois les enfants n'écoutent pas. *Quelquefois les n'écoutent.*
10.	Elles ne pas parlent.
	Elles ne parlent pas.
11.	Elle a chapeau un drôle.
12.	Papa aux magasins va.

2. Word Renaming (control)

Dans le jeu qu'on va jouer maintenant, on va changer les noms. Imagine qu'on inventait des noms pour les choses autour de nous. Est-ce qu'on peut appeler une fleur «un parapluie» et un parapluie «une fleur» ?

1.	Maintenant, imagine qu'on inverse les noms des vaches et de cochons. Appelons les vaches « cochons » et les cochons « vaches ». [Child is shown a picture of a pig.]. Comment tu appellerais cet animal?
	Un cochon
2.	Quel bruit ferait-il?
	Meu, meu.
3.	Et si on changeait les noms des lapins et des livres et qu'on décidait qu'on appellerait les lapins "les livres" et les livres "les lapins". [Child is shown some books] Comment tu appellerais ceux-ci?
	Les livres.
4.	Les lapins auraient-ils des pages ou des poils?
	Des poils.
5.	Les livres se trouveraient-ils dans une bibliothèque ou dans un clapier/une cage ?
	Une bibliothèque.
6.	Imaginons qu'on appelle les voitures "les chaises" et les chaises "les voitures". [Child is shown the picture of a chair.] Comment tu appellerais celle-ci?
7.	Une chaise, a-t-elle des roues ou des pieds?
	Des pieds.
8.	Où trouverais-tu une chaise?
	Dans un magasin. *Dans une classe ou une salle à manger.* *Pas dehors.* *Dans une maison.* *Là où ils vendent des chaises.* *Dans une pièce.* *Dans une salle.*
9.	Et si on changeait les noms de la neige et du feu. [Child is shown fire] Qu'est-ce que c'est?
	Le feu.
10.	La neige est-elle chaude ou froide ?
	Froide.

3. Symbol Substitution (control)

Dans ce jeu, nous allons échanger des mots sans rien changer d'autre. Quelquefois, cela sonnera faux ou drôle, mais ce n'est pas grave. Ecoute bien pour comprendre les règles de ce jeu.

1.	nous/le poisson	Nous aimons nager.
	Les poissons nager. *Le poisson nager.* *Le poisson aime bien nager.* *Le poisson aime nager.* *Les poissons aimons nager.* *Nous poissons nager.* *Les poissons aiment nager.*	
2.	les garçons/la fille	Les garçons ont écrit.
	Les filles ont écrit. *La fille a écrit.* *La fille écrit.*	
3.	l'été/les frites	L'été est chaud.
	Les frites pour l'été. *Les frites chaud.* *Le frite est chaud.* *Les frites sont chauds.*	
4.	les chanteurs/le mouton	Les chanteurs ont bu de l'eau
	Les moutons ont bu de l'eau. *Le mouton a bu de l'eau.*	
5.	les chats/le chien	Les chats ont froid.
	Les chiens ont froid. *Le chien a froid.*	
6.	les gens/la dame	Les gens conduiront au travail.
	La dame conduit au travail. *La dame conduira au travail.* *Les dames conduiront au travail.* *La dame conduisait au travail.*	
7.	les vaches/le chat	Les vaches dorment au soleil.
	Les chats dorment au soleil. *Le chat dort au soleil.*	
8.	les grenouilles/l'oiseau	Les grenouilles sont dans l'eau.
	Les oiseaux dans l'eau. *Les oiseaux sont dans l'eau.* *L'oiseau est dans l'eau.*	
9.	la fille/nous	La fille va à l'école à pied
	Nous marchons à l'école à pied. *Nous vont à l'école à pied.* *La nous va à l'école à pied.* *Nous allait à l'école à pied.* *Nous allons à l'école à pied.* *La nous allons à l'école à pied.* *Nous à l'école à pied.*	
10.	les enfants/les feuilles	Les enfants sont sous l'arbre
	La fille est sous l'arbre.	
11.	les amis/la fille	Les amis lisent une histoire drôle
	Les filles lisent une histoire drôle. *La fille lit une histoire drôle.*	

4. Symbol Substitution (analysis)

Ce jeu est un peu comme celui que nous avons fait avant, mais cette fois-ci, quand je te demande d'échanger les mots, je veux que tu changes les autres choses pour que cela ne sonne pas faux. On va s'entraîner d'abord.

1.	les boissons/la glace	Les boissons sont froides.
	Les glaces sont froides.	
2.	la fille/je	La fille a mangé.
	Je suis allé manger. *Je la mangeais.* *Le je a mangé.* *Je ont mangé.*	
3.	Papy/nous	Papy aime lire.
	Nous aimer lire. *Nous aime lire.*	
4.	l'été/les pieds	L'été est chaud.
	Les pieds est chauds.	
5.	le chat/les cochons	Le chat boit.
	Les cochons boit.	
6.	la tante/les souris	La tante a aimé le fromage
	Les souris aiment le fromage. *La souris aime le fromage.* *Les souris a aimé le fromage.* *Le souris a aimé le fromage.*	
7.	les professeurs/le directeur	Les professeurs sont en train de manger.
	Les directeurs sont en train de manger.	
8.	Nathalie/les enfants.	Nathalie lit une affiche.
	Les enfants lit une affiche.	
9.	les enfants/la fille	Les enfants ont sommeil.
	Les filles ont sommeil.	
10.	La maîtresse/nous	La maîtresse va écrire sur le tableau.
	Nous va écrire sur le tableau. *Nous vont écrire sur le tableau.*	
11.	Papa/les oiseaux	Papa finit de manger
	Les oiseaux a fini de manger. *Les oiseaux finit de manger.*	
12.	les copains/David	Les copains vont partir au ski

5. Word Order Correction (analysis)

Ce jeu est différent. Cette fois-ci, je veux que tu corriges ce que je dis. Chaque fois que je dis quelque chose, il y aura une faute. Je veux que tu dises la phrase correctement, sans fautes. Moi, je parle avec des fautes, et toi, tu corriges ma phrase. Si tu ne m'entends pas bien, demande-moi de répéter. D'abord, on va s'entraîner pour voir si tu as bien compris. D'accord ? Corrige ce que je vais dire.

1.	Papa les frites mange.
2.	La maîtresse une histoire lit.
3.	Le chien ne pas faim a.
4.	Le directeur ne pas est gros.
	Le directeur n'est pas est gros.
5.	Les citrons ne pas sont roses.
	Les citrons ne pas roses. *Les roses sont pas jaunes.*
6.	Le poisson dans l'eau est.
	Le poisson n'est pas dans l'eau. *Le poisson dans l'eau est.*
7.	Il y a souris blanches cinq.
	La souris blanche a cinq ans.
8.	Il un bonbon a mangé.
	Il a un bonbon à manger. *Il un bonbon à manger.* *Il y a un bonbon à manger.*
9.	Quelquefois, les enfants sont ne pas sages.
10.	Il les pâtes a mangé
	Il a des pâtes à manger. *Il mange des pâtes à manger.*
11.	Ils ne pas sont allés au match.
	Il est allé au match. *Il n'est pas allé au match.* *Ils n'ont pas y allé au match.*
12.	Maman un pantalon a rouge.

6. Form-Meaning Judgements (analysis and control)

Incorrect answers in this task involved only choosing the wrong word from the two words offered.

For example:
Quel mot veut dire quelque chose comme tarte? gâteau ou carte ?
CORRECT ANSWER: gâteau
INCORRECT ANSWER: carte

7. Grammar Judgements (analysis and control)

Incorrect answers in this task involved only saying a sentence was wrong if it was right.

For example:
Ma soeur conduit une montre.
CORRECT ANSWER: Right
INCORRECT ANSWER: Wrong

Marine à la danse est allée.
CORRECT ANSWER: Wrong
INCORRECT ANSWER: Right

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