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A transition from one language to three:

A case study of vocabulary development and code switching in a 2-year-old Norwegian
exposed to English and Spanish

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Abstract

The longitudinal case study of Mia (pseudonym), a two-year-old, investigates different aspects of language development during a six month transition from being monolingual in Norwegian to becoming an emergent trilingual, with English and Spanish as the new languages. The main focus of the study addresses her passive and active vocabulary development in English and the features of code switching in the child's language.

Even though research on multilingual children has increased, the number of such studies is still limited both in number and variation (Baker, 2011; Edwards and Dewaele, 2007). Previous research in the field of bilingualism and multilingualism in young children has mainly focused on children that have been raised bilingually and multilingually from birth (De Houwer, Bornstein and De Coster, 2006; Hoffmann and Stavans, 2007; Lanza, 2004; Montanari, 2009; Poulin-Dubois et al., 2012) or that have been exposed to one new language after the establishment of one or two first languages (Edwards and Dewaele, 2007; Vihman, 1985; Wei and Hua, 2006). The current study aims to contribute to this field of research by investigating a new language combination (Norwegian, English and Spanish) and a different developmental sequence, that is, simultaneous exposure to two new languages at the age of two.

The current case study lasted for six months, and was initiated at the same time as the exposure to the two new languages started. The data for the investigation was collected at several stages in various contexts that were characterized by differences in both the language (combinations) used and type of social environment. A combination of audio and video recordings made at home and in the preschool, conversations with the child's caregivers, field notes made by the researcher, and questionnaires (Child Development Inventory) completed by several caregivers formed the foundation for exploring Mia's vocabulary development and code switching in the study.

The findings of the study indicate that both Mia's passive and active vocabulary development was largely influenced by the way language was used by her caregivers, and by the need she had for the different aspects of the different languages in the social settings she participated in. As a result, the majority of the words Mia acquired were words that she needed in routines and activities she participated in at home and in the preschool. Most of the acquired vocabulary items in her passive and/or active vocabulary were content words, and the few function words she acquired were mostly those that could convey meaning on their own, such as the quantifier *more*. Besides, in spite of more exposure to English than Spanish,

the findings indicated that her passive Spanish vocabulary had developed more than her passive English vocabulary, while no substantial differences were found in her active vocabulary development.

With regard to the findings concerning Mia's code switching, all of her code switches were intrasentential, and the majority of them were insertion of English nouns into sentences with a Norwegian structure. There were very few trilingual code switches, contrary to the claims that they are very unlikely to appear (Hoffmann, 2001; Widdicombe, 1997), they did occur. As for the functions, the code switches were mostly a result of Mia copying an adult's speech, and a small amount of the code switches were results of adult prompting of specific language use, and Mia's wish to reinforce requests. The features of her code switches may provide evidence for the development of multicompetencies (Cook, 1992; Grosjean, 2008), metalinguistic awareness (Hoffmann and Stavans, 2007) and language system differentiation (Barnes, 2006; Meisel, 1994) even after six months of exposure to the new languages.

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Table of contents

1	Introduction	7
1.1	Structure of the thesis	10
2	Theoretical background.....	11
2.1	Definitions of terminology	11
2.2	Factors influencing the acquisition of new languages in children and Vocabulary development	15
2.3	Language system differentiation	23
2.4	Code switching	25
2.5	The wholistic and multicompetences	28
2.6	A review of methodology used in research on early multilingual vocabulary development and code switching	31
3	Method	36
3.1	Defining the method: A case study of Mia’s language development.....	37
3.2	Data collection: an overview	40
3.2.1	Child Development Inventory	41
3.2.2	Communicative Development Inventories (CDI)	42
3.2.3	Audio recordings from the preschool.....	44
3.2.4	Video and audio recordings from the home	45
3.2.5	Field notes	46
3.2.6	Conversations with preschool teachers	47
3.3	Data analysis procedure.....	48
3.3.1	Communicative Development Inventories (CDI)	48
3.3.2	Recordings.....	49
3.3.3	Field notes	51
3.3.4	Conversations with the preschool teachers	51
3.4	Validity	51
3.5	Ethical issues	52
3.6	Limitations.....	53
4	Results	54
4.1	Passive and active vocabulary development	56

4.2	Main characteristics and functions of code switching occurrences.....	64
5	Discussion	88
5.1	Vocabulary development	88
5.1.1	Differences between her new languages	88
5.1.2	English vocabulary development	90
5.2	Code switching	91
5.2.1	Code switching development	91
5.2.2	Classification and characteristics of code switching occurrences.....	92
5.2.3	Factors influencing code switching and language choice	96
5.2.4	Code switching purposes.....	99
5.3	Limitations and future research	99
6	Conclusion.....	101
7	Bibliography.....	103
8	Appendices	110
8.1	Appendix: Transcription Conventions.....	110

List of Tables and Figures

Table 1:	CDI category description	49
Table 2:	CDI category description	58
Table 3:	CDI results for passive vocabulary in English sorted by score in each category	60
Table 4:	CDI results for active vocabulary in English sorted by score in each category.....	63
Table 5:	Language shifts	73
Table 6:	Word class of code switched elements.....	78
Figure 1:	CDI results in the passive and the active vocabulary for each language	57
Figure 2:	CDI results for passive vocabulary sorted by language and category	59
Figure 3:	CDI results for active vocabulary sorted by language and category	62
Figure 4:	Differences between the scores in passive and active English vocabulary	64
Figure 5:	Duration of recordings in the different language environments	65
Figure 6:	Amount of code switching in relation to language environment.....	67
Figure 7:	Languages involved in code switching occurrences in relation to language environment.....	68
Figure 8:	Development of code switching during the research period	69
Figure 9:	Number of language shifts in the code switching occurrences.....	73
Figure 10:	Code switching directionality (away from language).....	79
Figure 11:	Code switching directionality (into language).....	79
Figure 12:	The functions of Mia's code switches	86

1 Introduction

The present thesis is a longitudinal case study of the researcher's daughter Mia's (pseudonym). She was raised with Norwegian as her only language until she was two years and one month old and moved with her family to Spain, where she started preschool. In the preschool, and to a certain degree in the home, Mia was exposed to English and Spanish. Exposure to Norwegian was exclusively connected to the time Mia spent with her family, who continued to use Norwegian as the main language.

The main aims of the current case study were to investigate Mia's vocabulary development and her code switching during the six-month exposure to two new languages. This was done by addressing the following research questions:

1. How did Mia's English vocabulary develop over a 6-month period?
 - a. How did Mia's passive English vocabulary develop?
 - b. How did Mia's active English vocabulary develop?
2. Was code switching a part of Mia's language?
 - a. If yes, what were the characteristics of Mia's code switches?
 - b. If yes, what were the functions of Mia's code switches?

The theoretical background relevant for the current research includes some general aspects of early bilingual and multilingual language development, and several aspects of vocabulary development and code switching. It is claimed that a child's language development is very much dependent on how languages are used in the child's social environments. For a child to acquire certain aspects of a language, the aspects must be experienced as valuable for the child. Such language experiences are often provided by adults who function as models of language use in interaction with children (Hamers and Blanc, 2000; Vygotsky, 1978).

It is also claimed that direct interaction between an adult and a child is more effective in terms of language development than if the child overhears interaction between others (Oller, 2010). In relation to language development in bilingually and multilingually raised children a certain degree of development in each language is expected. De Houwer, Bornstein and De Coster (2006) claim that in the field of bilingual research, there are no reports of children that have been raised with two languages that have not developed a certain amount of comprehension skills in both languages. In contrast, for children to become active users of both languages is not as certain.

How bilingually and multilingually raised children use their available languages is influenced by the way caregivers use their languages and how they respond to the child's language use. Family language policies (King, Fogle and Logan-Terry, 2008) describe different ways parents expose their children to various languages. For example, if two parents who wish to raise their child bilingually use one language each, they follow a one person-one language (OPOL) approach, which is seen in several studies (e.g. Hoffmann and Stavans, 2007; Lanza, 2004). Besides, the child's language experience from the outside community, such as preschool and recreational activities, also plays an important role (Juan-Garau and Perez-Vidal, 2001).

Moreover, parental discourse strategies are different ways that caregivers respond to a child's language use, especially inappropriate language choices. The different parental discourse strategies provide different language environments. Also, parental attitudes to code switching, which are reflected through parental discourse strategies, is likely to influence the extent to which a child resorts to code switching.

The functions and characteristics of child code switching have been explored in several studies. It has been pointed out that children often use code switching to fill a lexical gap in one of the languages, or because they copy the language use of an adult (Baker, 2011; Meisel, 1994). As for the characteristics of child code switching, several studies suggest that code switching within the sentence boundaries is the most frequent form of code switching (Redlinger and Park, 1980; Wei and Hua, 2006). In terms of code switching directionality in young children, Wei and Hua (2006) report that the children in their study inserted elements from their non-dominant language into sentences with a structure from their dominant language, while Hoffmann and Stavans (2007) report of code switches with the opposite directionality. Another aspect of code switching that has been investigated is the type of code switched sentence elements. According to the findings in a study by Redlinger and Park (1980), the most frequently code switched sentence elements were nouns, and the sentence elements that were least frequently code switched were verbs. As for code switches that did not include whole sentence elements, but occurred within the word boundaries, Hoffmann and Stavans (2007) suggest that these mostly include verbs. They also claim that such code switches reflect metalinguistic awareness in the child because they reveal the child's ability to make morphological adaptations of a verb to make it fit a specific structure. A child's use of the different types of code switches can also be seen in relation to multicompetences (Cook, 1992), which is reflected through the child's use of various communication strategies for different purposes, and will be included in the current research.

The methodology of the current longitudinal case study was characterized by data collection in several stages during Mia's first six months in Spain. Data was collected through the Communicative Development Inventory (CDI) questionnaire, recordings, field notes and conversations with Mia's preschool teachers. The CDI is a questionnaire for assessing vocabulary development in a child, and is designed to be answered by someone who knows the child well. In the present research, several CDI's were completed by teachers in the preschool and by Mia's parents in order to provide a thorough assessment of Mia's vocabulary development in the three involved languages. Video and audio recordings were made in the family environment, and audio recordings were made in the preschool environment to address the different aspects of code switching in Mia's language. Field notes were based on the researcher's observations, and provided data from diverse contexts. The field notes provided various data about Mia's language development in general and specific details, such as examples of code switching and notes about Mia's vocabulary development. The conversations with the preschool teachers provided background information about the language environment at the preschool and observations about Mia's language use in the preschool. Even though each set of data were meant mainly for a specific purpose, all research questions were explored with a basis in all the different types of data relevant.

As for relevance, the current study contributes to the field of trilingual research with several aspects that are relatively uncommon in previous studies. To the best of the researcher's knowledge, there has been no research focusing on the combination of Norwegian, English and Spanish. Also, the author has not yet found a study that deals with a young child experiencing a change from having one established mother tongue, to the acquisition of three languages. Studies exploring children's simultaneous acquisition of more than one language, or the acquisition of one new language acquired subsequent to one or two established languages are more common. Besides, Baker (2011) claims that the amount of case studies involving children who acquire more than two languages are scarce. Even though this claim was made five years ago, and the amount of multilingual case studies has increased during the last five years, the researcher still considers the variation of multilingual studies to be limited. Finally, in relation to vocabulary comprehension, it was claimed by De Houwer et al. (2006) that they performed the first systematic study of children's passive vocabulary development, and the researcher's observations indicates that there is still not a large amount of such studies. Therefore, this longitudinal case study aims to contribute to the field of research with a thorough insight into different aspects of emerging multilingualism in a young child.

1.1 Structure of the thesis

An overview of the current thesis will follow; the most important topics of each chapter will be presented briefly.

Chapter 2 starts with a section that defines the terminology central to the current research. The following sections present previous research and theory relevant to the study. The most important topics are connected to language development and code switching. The final section of chapter 2 is a review of different methodology used in previous studies on bilingualism and trilingualism with a specific focus on the studies which have influenced the design of the present research.

Chapter 3 provides a general description of Mia, and the different language environments she experienced during the case study. In addition, the data collection methods are presented, and the procedure of data analysis is explained. In the final parts, considerations regarding the study's validity and ethical issues are presented.

Chapter 4 is divided into three sections, where the first section provides a general description of Mia's language development. The second section provides data connected to Mia's vocabulary development, and the final section presents data relevant to Mia's use of code switching.

Chapter 5 discusses the data in relation to the research questions. The first section discusses Mia's vocabulary development and connects this to previous research and theory. Section two has a focus on Mia's use of code switching, and discusses this in the light of previous research and theory.

Chapter 6 presents the main findings in the case study, and provides a conclusion with answers to the research questions.

2 Theoretical background

2.1 Definitions of terminology

Even though the current research is on trilingualism, a considerable amount of the study is based on research from the field of bilingualism. This is supported by Hoffmann, who makes it clear that ‘most studies involving trilingualism have been carried out within the theoretical framework of bilingual research’ (2001). While Hoffmann (2001) strongly suggests that trilingualism should be seen as a distinct field of research, and questions the common assumption that trilingualism is simply an extension of bilingualism, she still concludes that the use of bilingual terminology could be used as a basis for discussing trilingualism because they have several aspects in common, and because trilingual research lacks variety. On the other hand, Edwards and Dewaele (2007:221-222) report a change in trilingual studies, from being largely based on bilingual terminology to trilingualism being seen as a distinct field of research, which is a change that the author of the current research has also observed.

Different authors use different definitions when they describe and explain aspects of bilingualism and multilingualism. In order to provide a foundation for comparing various research and theory, a presentation of some terminology central to the current research will follow.

A variety of terms have been used to refer to the concept of knowing more than one language. *Bilingualism*, *trilingualism* and *multilingualism* can be seen as the products of *second language acquisition*, *third language acquisition* and *multilingual acquisition* respectively (Cenoz, 2000:39). It is commonly understood that *multilingualism*, includes trilingualism, but also deals with more than three languages (Cenoz, 2000:39).

Some authors choose not to distinguish between the number of languages involved in their terminology, but apply a broad definition of second language acquisition (Cenoz, 2000:39), such as R. Ellis (2008), who states that in his terminology *second* can refer to any language acquired subsequently to the first. Another characteristic of R. Ellis’ (2008) broad definition is the avoidance of the distinction between acquiring a new language naturally through living in a country where the language is used, and learning it from formal instruction. This avoidance is supported by Baker (2009:94) who claims that the borders between learning a language natural and learning it through instructions are imprecise.

As for the current research, only the last mentioned part of R. Ellis’ (2008) definition will apply, in other words, the amount of involved languages will be accounted for, and no

distinction will be made between languages acquired in formal settings or languages acquired in natural settings.

Baker (2011) states that it is difficult to decide who is bilingual because the different definitions are contradictory, and often ambiguous. He proves his point by presenting two very different definitions of bilingualism. Firstly, Bloomfield defines a bilingual as someone with ‘native-like control of two languages’ (1973:56), which is an explanation that only includes those who Hamers and Blanc (2000:6) refer to as *perfect bilinguals*. In other words, Bloomfield’s (1973) definition requires a high level of language proficiency in both languages, and it is claimed to be ‘too extreme and maximalistic’ (Baker, 2011:8). On the other hand, Diebold’s (1961) concept of *incipient bilingualism* embraces everyone that has even the slightest competence in a second language and makes them fit into the category of bilinguals. Baker (2011:8) refers to this as a minimalist definition that is too inclusive because most people are familiar with at least some vocabulary in another language. In comparison, the term *balanced bilingualism*, which is usually not interpreted as having equal proficiency, but *appropriate* proficiency in the two languages, has proven more valuable for bilingual research (Baker, 2011:9). However, because *appropriate proficiency* is the underlying idea of balanced bilinguals, cases where both languages are of low proficiency have not been considered to fit the categorization (Baker, 2011:9).

Conversely, the term *emergent bilinguals* (Garcia, Kleifgen and Falchi, 2008) can be valuable when discussing young language learners. In contrast to several of the aforementioned definitions of bilingualism, the term emergent bilinguals does not compare the level of language proficiency with monolinguals. The term covers those who are in the beginning stages of acquiring a new language (Baker, 2011:3). Moreover, Garcia (2009), as cited in Baker (2011:3), states that these stages are characterized by emerging receptive and productive skills in the target language. Accordingly, in the current research Mia will be considered an *emergent trilingual*.

Numerous definitions that are often based on different parameters are used by different authors to describe the patterns of language acquisition in bilinguals and multilinguals (Baker, 2011). McLaughlin (1978, 1984), as cited in Barnes (2006:9), uses the term *simultaneous acquisition* if a bilingual is exposed to both languages before the age of three, and *successive acquisition* if exposure to the second language takes place after the age of three. In contrast, Padilla and Lindholm (1984) refer to simultaneous acquisition only in cases of exposure to the involved languages from birth.

De Houwer (2009:5) suggests a model which distinguishes between three language learning contexts for children from 0 to 6 years of age: *monolingual first language acquisition*, where a child is exposed to only one language; *bilingual first language acquisition*, where a child is exposed to two languages from birth; *early second language acquisition*, where a child is monolingual from birth but experiences regular second language input in the preschool years (1;6 to 4;0).

With respect to the current research, which deals with Mia, who was monolingual from birth but experienced regular language input in two new languages at around 2 years of age, the author suggests *early multilingual acquisition* as a term derived from a combination of De Houwer's (2009) term early second language acquisition, and Cenoz' (2000) term multilingual acquisition.

The alternation between several languages in discourse, referred to as *code switching*, is a result of languages in contact, and is often part of the oral language of bilinguals and multilinguals (Bryce and Anderson, 1999). Hamers and Blanc (2000:258) claim that the variety of research that investigates code switching has led to conflicting definitions and explanations. For example, Muysken (2001) uses *code mixing* as a cover term to describe language alternation within and across sentence boundaries. In contrast, the term code mixing is used by Bryce and Anderson (1999) to describe language alternation only if it occurs within the sentence boundaries.

In the current research, a choice has been made to apply the term code switching as a cover term for different features of language contact because, according to Boumans (1998:9) and Clyne (2003:71) this has become the most widely used cover term in research that investigates different features of alternation between several languages in discourse.

Since code switching is used as a cover term, an explanation of the different sub categories of code switching is necessary. Poplack (1980) distinguishes between three categories of code switching: *extra-sentential*, *intersentential* and *intrasentential*. Firstly, extra-sentential code switching is explained as the insertion of a tag (e.g. *you know*, *I mean*) from one language into an utterance entirely in another language. Secondly, intersentential code switching refers to sentences which consist of two or more clauses produced in different languages (Hamers and Blanc, 2000:259). Poplack provides an example of intersentential code switching from an utterance of a Spanish-English bilingual: 'Sometimes I'll start a sentence in English *y termino en español* (Sometimes I'll start a sentence in English and finish it in Spanish)' (1980). Thirdly, intrasentential code switching, also referred to as *code mixing* in some literature (Barnes, 2006:21), is explained as the change of language within the clause

or word boundaries (Hamers and Blanc, 2000:260). As an example of intrasentential code switching within the clause boundaries Hamers and Blanc (2000:260) present a transcript of a Punjabi-English bilingual made by Romaine: '*kio ke six, seven hours te school de vic spend karde ne, they are speaking English all the time (Because they spend six or seven hours a day at school, they are speaking English all the time)*' (1995).

In addition to the three aforementioned categories, Muysken (1995:180) distinguishes between *alternational* and *insertional* code switching. From an alternational perspective the switches occur between utterances and sentences, and are explained as complete switches of grammar and lexicon between languages (Bail, Morini and Newman, 2015:1077). In comparison, an insertional code switching view supports the idea that there will be an asymmetrical relationship between one person's different languages, and that one language is inserted into the other. Moreover, according to Myers-Scotton's (1997) *Matrix Language Frame* model, a distinction is made between the matrix language, which provides a syntactic frame, and the embedded language, which plays a more secondary role (Boumans, 1998; Bail, Morini and Newman, 2015). Furthermore, Boumans claims that there are three indispensable components that will characterize insertional code switching:

- a) Insertion presupposes a frame (matrix) in one language in which to insert elements from the other;
- b) this frame is basically a grammatical structure marked by word order, inflections and function words;
- c) for an embedded language to fit into a slot in a matrix language frame it must somehow be perceived by the speaker as congruent to the matrix language element that would otherwise fill this slot.

(1998:7-8)

The previous section elucidated the importance of being aware that different authors often define the same concepts differently. In the light of this, all terminology from previous studies and theory that will be presented in the following sections have been considered thoroughly in order to avoid the use of conflicting definitions and terminology.

Following the definitions of terminology, the thesis will deal with factors that influence the acquisition of new languages in children, and then elaborate on considerations that are important in research on vocabulary development. Succeeding this, a presentation of different ideas regarding language system differentiation will take place, and a description of different aspects of code switching will occur. Following, a discussion evolving around the topic of multicompetences will take place, and finally, a review of different research methods

that have been used in research on vocabulary development and code switching will be presented.

2.2 Factors influencing the acquisition of new languages in children and Vocabulary development

There are many factors that influence how children acquire new languages, how children make use of the different languages, and how their vocabulary develops. Some factors, such as political context, language status, and attitudes towards bilingualism and multilingualism¹ are not discussed in this paper because they are not directly relevant to the current case study. However, aspects of vocabulary development and factors like language transfer, family language policies and parental discourse strategies, which are particularly relevant for multilingual acquisition at a young age, are discussed in the following section.

First and foremost, language acquisition in a child is largely influenced by how the child experiences language in socialization. For a child to acquire any language competence at all, in one or several languages, the child must experience language as a valuable and functional tool (Hamers and Blanc, 2000:121). This experience is gained through language socialization, which is an important motivational factor, and an arena for acquisition and language use. A child is socialized both in the use of language and through language (Hamers and Blanc, 2000:111).

Moreover, Vygotsky states that ‘human learning presupposes a specific social nature and a process by which children grow into the intellectual life of those around them’ (1978). In other words, it is through a child’s social environment that the child is exposed to models of language and language behavior, which will have great impact on how, and for what functions the child will use the linguistic knowledge. If a child interacts with adults who signal value and functionality to certain features of a language, the child will also be influenced to develop these features (Hamers and Blanc, 2000:112). As a consequence, a child’s language development is very much dependent on how the adults surrounding the child use language both when communicating directly with the child, and to a certain degree when communicating with others in the child’s present (Oller, 2010:213).

¹ For more information, see Appel and Muysken, (2005).

Oller (2010) points at another important factor that influences language acquisition in children, namely, the amount of direct adult-child interaction. He suggests that a child will produce more words in languages that are experienced through child directed speech than languages that are experienced through overhearing. On the other hand, Akhtar, Jipson and Callanan (2001:425-426) provide evidence that children as young as two years and six months are able to learn words by overhearing the language used by others. However, Oller (2010:214) points out that the evidence found by Akhtar, Jipson and Callanan (2001) as support for word-learning by overhearing is provided in a laboratory setting where children overhear an adult speaking to another adult as if the receiving adult was two years old, which Oller (2010) points out is an uncommon experience for a child.

Another factor that can influence language acquisition is language transfer, which can be negative interference from one language to the other or positive if the child acquiring a new language already has experience from another language to draw on (R. Ellis, 2008). The positive aspects of language transfer can be connected to general ideas, such as a child's awareness of the importance of syntax, and to more specific knowledge, such as words referring to specific concepts. More precisely, if a child knows a word and the concept it refers to in one language, it can transfer this knowledge to another language. In connection, Paradis (2007) claims that children learn *translation equivalents* (TE's), which are two words from different languages that refer to the same concept, in a new language for a concept that is already lexicalized in another language more easily than if the concept is new to the child.

The language transfer that is connected to children's acquisition of TE's can be exploited by caregivers who wish to facilitate bilingualism or multilingualism. This is illustrated in a study by Bail, Morini and Newman (2014), who investigate 24 bilingual caregivers, and looks at the amount and characteristics of code switching when they speak to their 18 – 24 months old children. It is the relationship between the caregivers' code switching and the children's vocabulary development that is explored. A substantial amount of the code switching by the parents in the study involves the use of TE's, and the authors identify the use of translational equivalents as part of the parents' strategy to teach the children new words. For example, 'Look, it's a kitty! *El gatito!*' (Look, it's a kitty! A kitty!) (Bail, Morini and Newman, 2014:1075). Moreover, no evidence in the study suggests that any of the code switching had a negative effect on the children's vocabulary development.

Whether or not a child has an established language to draw on is dependent on the social circumstances that have led to the acquisition of new languages. There are many different social circumstances that can lead to bilingualism and multilingualism. Since the

current study investigates trilingualism, a list of five different settings that promote trilingualism, suggested by Hoffmann (2001), is presented:

1. A setting where there are two home languages, and a third language is spoken by the wider community.
2. A setting where the community is bilingual and an additional language is acquired at home.
3. A situation where a bilingual child learns a third language in the school context.
4. A bilingual who becomes trilingual through immigration.
5. A child who is part of a trilingual community.

The different social circumstances result in different orders of acquisition of the involved languages. Accordingly, the three languages can be acquired at the same time (Lx /Ly/ Lz), consecutively (L1 → L2 → L3), or two of the languages can be acquired simultaneously before the third (Lx/Ly → L3) or after the first (L1 → Lx/Ly)² language (Cenoz 2000:40).

In families where bilingualism or multilingualism is promoted, the patterns of language use within the family play an important role. These patterns can be referred to as *family language policies* (King, Fogle and Logan-Terry, 2008). Family language policies in bilingual families can be seen as both the frame for the interactions between the child and the child's caregivers, and as an important factor in relation to child language development (De Houwer, 1999, as cited in King, Fogle and Logan-Terry 2008:907).

King, Fogle and Logan-Terry (2008:914) describe different family language policies that facilitate bilingualism and multilingualism. They suggest three main categories, namely, a *one person-one language* (OPOL) approach, several *non-OPOL* approaches, and different *supplemental strategies*, which *all* have many varieties.

The essence of the OPOL approach is that the child experiences different languages, but always the same language from the same person. For example, parents with different native languages, who stick to their own native language when they address their child. Non-OPOL approaches can be characterized by caregivers using more than one language when addressing the child. In such cases code switching often occurs in the parents' language. As for the supplemental strategies, these can be in line with both OPOL and non-OPOL

² The convention used in the examples are in line with Cenoz (2000), languages that are acquired consecutively are marked with numbers (e.g. L1→L2) while languages acquired simultaneously are marked with letters (e.g. Lx→Ly). This is because the numbers signal the order of acquisition, while the letters are meant to make it clear that none of the languages are acquired before the other.

approaches. For example, parents who facilitate exposure to new languages by employing a caregiver who speaks the target language, or sending children to international schools. The outcomes of the different family language policies vary widely. A less than optimal outcome can, regardless of the choice of policy, often be explained by inconsistency in the implementation of the family language policy (King, Fogle and Logan-Terry, 2008:915).

Research in the field of family bilingualism and multilingualism claims that simple exposure to more than one language, even if the exposure is consistent, does not necessarily result in active bilingualism or trilingualism (Juan-Garau and Pèrez-Vidal 2001:60). In other words, the quality of the language input, and the response that caregivers provide to children are factors that are more important than just the amount of exposure to each language (Lanza, 1998:77). For this reason, *parental discourse strategies* (Lanza, 1998) influence the child's language development to a large extent (Chevalier, 2013:2). Parental discourse strategies toward code switching in a child's language influence the amount and characteristics of code switching in the child's language (Chevalier, 2013; Lanza, 1998).

Accordingly, as a result of the investigation of two children's bilingual development, Lanza (1998:77) suggests a list of five different ways to react to a child's code switching that is partially based on a study by Ochs (1988):

1. "Minimal-grasp strategy" (Ochs, 1988:134-135).

E.g. Siri (2;2) (years;months) and her mother are in the kitchen. Siri is drawing and has just asked for more paper (Lanza, 1998:78)³.

SIRI	MOTHER
	Siri run and find it.
yeah/	
//Mama lɔpe]/	Mama's standing right here.
Mama lɔpe/ Mama lɔpe/	Mama's got go look//after the food].
Mama lɔpe/	
'run'	
	What do you want mama to do?
Run	
	Run.
Mama run/	
	Mama run. OK.
(Siri's mother goes off to get paper.)	

³ The current paper will apply the transcription conventions from the original source when examples are presented.

By acting as if she does not understand the Norwegian word, Siri's mother provides a monolingual context. By asking what Siri wants her to do, the mother leaves it up to the child to rephrase.

2. "Expressed-guess strategy" (Ochs, 1988: 134-135).

E.g. Siri (2;0) and her mother are looking at a book (Lanza, 1998:79).

<p>SIRI <i>tiss?/</i> 'pee' → Yeah/</p>	<p>MOTHER Aw, is he peeing?</p>
---	---

Siri is speaking in Norwegian, but as this is not the mother's preferred language the mother requests clarification. This is similar to the minimal grasp strategy, but this only requires the child to confirm or disconfirm, not rephrase the utterance.

3. "Adult repetition of the content of the child's utterance, using the other language" (Lanza 1998:77).

E.g. Siri (2;3) and her father are changing her doll (Lanza, 1998:80).

<p>SIRI <i>sånn/ og ny diaper /</i> 'like that / and new diaper' → <i>Clothes?/</i></p>	<p>FATHER Og så en ny bleie. 'And then a new diaper.'</p>
---	---

This is an example of the father's repetition of the same meaning in the other language, but not in a question form. This means that the child does not have to answer or confirm the language change, but the conversation continues after the father's repetition in Norwegian.

4. "Move on strategy" (Lanza, 1998:77).

E.g. Siri (2;4) and her father are reading a book (Lanza, 1998:79).

<p>SIRI <i>Name?/</i> → Ja/ 'yes'</p>	<p>FATHER Hva er det for noe? 'What's that?' En flodhest. 'A hippopotamus.'</p>
---	---

In this case Siri's father asks in Norwegian, and Siri answers with a question in English. Siri's father does nothing to remark on this language change, but merely continues the conversation in Norwegian.

5. "Adult code-switches" (Lanza 1998:77).

E.g. Tomas and his mother have just finished reading a book (Lanza, 1998:80).

TOMAS	MOTHER
	O.K. Are we finished? You wanna [<i>sic</i>] go downstairs and have dinner? Are you hungry?
<i>Ikke nå/ 'not now'</i>	
→	<i>Ikke nå? Du, skal vi ned og spise mat?</i> 'Not now? Hey, shall we go downstairs and eat?'

In this case the mother starts speaking in English, but when Tomas answers in Norwegian, the mother changes to Norwegian as well.

By using these different strategies the parents signal the appropriateness of code switching to the child (Lanza, 1998:77). Also, the parents provide a contextual frame which is somewhere on a continuum between monolingual (if the parents apply the minimal grasp strategy), and bilingual (if the parents allow code switching in both their own and the child's language) (Lanza, 1998:78).

In a longitudinal case study, Lanza (2004)⁴ follows two families that intend to raise their children bilingually. Both mothers are from the U.S., and both fathers are from Norway. The two children from the two different families are Siri and Tomas. The period of investigation of Siri's language development starts at the age of 1;11, and ends at the age of 2;7. For Tomas, the period starts at the age of 2;0 and ends at 2;3. Both families live in Norway, and they have both raised their children bilingually from birth.

There are differences between the two families in terms of their choice of family language policy: Siri's parents claim to maintain the one person-one language strategy, and they focus on reducing Siri's code switching, and making her choose the appropriate language with each parent. Tomas' parents code-switch with their son and with each other, and are more tolerant of inappropriate language choices. In this study Lanza (2004) investigates how the parents deal with code switching and inappropriate language choices, and how this affects the child's language development in terms of spontaneous speech.

⁴ In order to clarify: Lanza (1998) is based on the case study Lanza (1997), while Lanza (2004) is a revised version of Lanza (1997).

In her conclusion, Lanza (2004) points out that Siri maintains active use of both languages during the whole study. In contrast, Tomas stops speaking English at the age of 2;4, but remains a passive bilingual throughout the study. It is concluded in the study, that the differences between Siri's and Tomas' use of the minority language was connected to the family language policies, and parental discourse strategies, which also influenced the use of code switching.

Moreover, Lanza (2004) suggests that based on the findings in her study, bilingual children as young as two years of age are able to use their languages in contextually sensitive ways, meaning that young children are able to make appropriate language choices based on the interlocutor and context. She also points out that it is necessary to differentiate between code switching as a result of language dominance, and code switching because of 'sensitivity to contextual parameters of interaction' (2004:319).

Another aspect of language acquisition that is influenced by the abovementioned factors is how a child's vocabulary develops. In research on vocabulary development, a distinction is made between the part of vocabulary that a child can understand, and the part of vocabulary that a child can understand and use, which can be referred to as passive and active vocabulary respectively. The development of the passive and active vocabulary is connected, but these two do not develop at the same rate.

A silent period often characterizes the initial stages of a child's exposure to new languages (R. Ellis, 2008). R. Ellis suggests that the silent period 'provides learners with opportunities to prepare themselves for social use of the L2 by means of private speech, which they engage in while they are «silent»' (2008:74). As a result, before children start speaking, they know what words mean, and a child's passive vocabulary can be large even though the child does not produce speech in that language. In terms of bilingualism, De Houwer, Bornstein & De Coster (2006) claim that there are no reports of children growing up with two languages who do not learn to understand both languages, however, they might not become active speakers in both languages.

Another consideration in research on vocabulary development is children's use of formulaic sequences, which are often acquired early when children learn a new language (N. Ellis, 1997 as cited in R. Ellis, 2008). Formulaic sequences can be explained as 'unanalyzed, multimorphemic chunks which go well beyond the expected grammatical competence of the speaker' (Wei and Hua, 2006:69). At the beginning stages of language acquisition, the formulaic sequences do not appear to be subject to any processing or analysis by the speaker, but they seem to be retrieved from memory as a whole (Wray, 2002:2). For example, if a

child produces the phrase *I don't know*, it does not mean that the child knows the meaning of the three words. However, even if the child does not have knowledge about each item of the phrase, the acquisition of a formulaic sequence must be seen as an increase in the vocabulary size. Further development in the child provides the understanding that the phrase is made up of separate words, which results in further increase of the vocabulary (N. Ellis, 1997, as cited in R. Ellis, 2008).

There are some differences in the vocabulary development of monolingual children as compared to bilingual and multilingual children. Research addressing this issue is based mostly on the assessment of children's active vocabulary, and not the passive vocabulary (Poulin-Dubois et al., 2012). In a study where the vocabulary development of two-year-old monolinguals is compared to two-year-old bilinguals, Poulin-Dubois et al. (2012) find that the bilingual children have a smaller active vocabulary in each language than the monolingual children have in their only language. This is supported by Junker and Stockman (2002), who also suggest that the difference is only noteworthy before the children reach three years of age. They also point out that the active vocabulary size of monolingual and bilingual children is comparable if both of the bilingual's languages are combined. In the same study, they compare bilingual and monolingual children's lexical access, which is explained as the accuracy and speed of word retrieval. The comparison is conducted to provide a basis to make claims about the passive vocabulary size in each group. The bilingual children do not have an equal amount of exposure to both languages, so the lexical access is measured in the language that is defined as the dominant one. The findings suggest that there is no significant difference in the passive vocabulary development between monolingual children and bilingual children with a similar total vocabulary size.

2.3 Language system differentiation

A frequent question in research on young children that acquire more than one language is whether or not they can differentiate between the linguistic systems that they experience (Meisel, 2000:344). This is a big area of research, and will only briefly be discussed in this section to provide an insight in the main issues. Following is a summary of the four main theoretical options that deal with language differentiation in young children.

1. *Fusion Hypothesis*: the child creates a new system that combines elements of the two or more systems.
2. *Differentiation Hypothesis*: the children differentiate the two systems as soon as they have access to grammatical knowledge.
3. *Interdependent Development Hypothesis*: one of the languages serves as a developmental guide for the other.
4. *Autonomous Development Hypothesis*: the acquisition of each of the two languages by the bilingual individuals follows the same developmental logic that guides the acquisition of the respective languages by monolingual children. (De Houwer and Meisel, 1996; Meisel, 2001).

(Barnes, 2006:16)

Meisel (2001:24) looks at the specifics of grammatical development in the light of the Differentiation Hypothesis, and claims that this hypothesis is most appropriate. As noted by Montanari (2009:599), the Differentiation Hypothesis also applies to other aspects of language development than the grammatical aspect. She presents several studies which claim that as soon as bilingually raised children start speaking, they show signs of language differentiation in several aspects of language, such as phonology and vocabulary. Similarly, as soon as competence in syntax is visible in a child, there is a differentiation between the different syntactic systems (Deuchar and Quay, 2000; Meisel, 2001; Paradis and Genesee, 1996; Paradis, 2001; Pearson, Fernández and Oller, 1995, as cited in Montanari, 2009:599).

Moreover, Werker and Byers-Heinlein (2008:149) claim that early perceptual sensitivities make it possible for bilingually raised infants to distinguish between their two languages before they start speaking. On the other hand, Meisel (2001:28) points out that there is possibility for a unitary system preceding the developmental phase where signs of differentiation are clear. However, this issue is unclear and not widely explored (Meisel, 2001:28).

Barnes (2006:16) highlights that the Autonomous Development Hypothesis is also supported by recent research. The Autonomous Development Hypothesis suggests that different aspects of language develop in separate systems that are not different in quality from those developed in monolinguals in the respective languages (Meisel, 2001:29). Furthermore, the hypothesis suggests that the two (or more) language systems do not influence one another (Hinzelin, 2003:1). Hinzelin (2003) investigates the language of two German-Portuguese bilingual children, who were at age 1;7 and 2;1, at the start of the study, and 3;3 and 3;5 at the end of the study. The study reveals that the children show a systematic use of subjects when speaking German, which is a non-null subject language, and not when speaking Portuguese, which is a null subject language (making the children's use of subjects correct) (Hinzelin, 2003:19). Based on this evidence, it is claimed that the languages in the two bilingual children develop separately, and that this confirms the Autonomous Development Hypothesis.

In earlier research, code switching was seen as evidence for the lack of language differentiation in children (Barnes, 2006:23-24; Meisel, 2001:15). Meisel (1994:415) points out that based on the difference between how children and adults code switch, it is not unreasonable to hypothesize children's lack of grammatical differentiation. On the other hand, Barnes (2006: 21) claims that a child's ability to make appropriate language choices based on the interlocutor's language use can be seen as evidence for the differentiation of linguistic systems in the child. Also, Redlinger and Park (1980:344) suggests that if a child is not exposed to code switching by caregivers, the degree of code switching in the child's language could be an indicator of the child's ability to differentiate the languages.

Another aspect of child language that has been investigated in relation to language system differentiation is the acquisition of TE's (De Houwer, Bornstein and De Coster, 2006; Poulin-Dubois et al., 2012). It is claimed that if children acquire TE's, they do not follow the Principle of Contrast (Clark, 1993), which suggests that young children only acquire one word for each concept, and rejects apparent synonyms (De Houwer, Bornstein and De Coster, 2006; Poulin-Dubois et al., 2012). The Principle of Contrast has been used to explain the language vocabulary development of young monolingual children. As for bilinguals, it is suggested that if a child experiences a need to acquire words for one concept in different languages, the child most likely understands that it has more than one language system (Genesee and Nicoladis 2007; Patterson and Pearson, 2004, as cited in Poulin-Dubois et al., 2012).

In summary, several features of child language have been interpreted in relation to language system differentiation, and even though there are differences in how different

authors view the language development of bilinguals and trilinguals, most recent research claims that young children develop their languages in separate systems (Barnes, 2006:16).

2.4 Code switching

Code switching, which is the alternation between languages, is seen as both normal and important in the language of bilinguals (Grosjean, 1982:149-155). Bryce and Anderson claim that ‘code switching or code mixing⁵ appear along the entire continuum of proficiency’ (1999:18). In other words, code switching occurs at any stage of language development. However, the types and purposes for code switching are often different at the various developmental stages (Baker, 2011; Meisel, 1994). Baker (2011:108) suggests a list of thirteen over-lapping purposes of code switching, which will be presented below. The points especially relevant for young children will be elaborated on after the list.

Code switching is sometimes used:

1. to emphasize a particular point in a conversation or in an utterance.
2. to fill a lexical gap in the speaker’s language by using a substitute word from another language.
3. to communicate a concept in one language that has no equivalent in the other language.
4. to reinforce a request.
5. to clarify a point by, for example, repeating a phrase or utterance in a different language.
6. to express identity.
7. to refer to an utterance from a previous conversation that was made in another language.
8. to interject into a conversation by using a different language to create momentum.
9. to ease tension or to bring humor into a conversation.
10. to respond to a change of attitude or relationship between the interlocutors during a conversation.
11. to exclude someone from a conversation.
12. to respond to a change of topic.
13. to copy the way that peers and adults speak (especially by children).

⁵Bryce and Anderson’s (1999) two terms *code switching and code mixing* cover what the current paper refers to as code switching.

As the list suggest, the reasons for code switching range from being a result of lacking the appropriate lexicon in one language to being part of sophisticated language use for a special purpose (Bryce and Anderson, 1999:18; Meisel, 1994). However, Meisel (1994:415) claims that code switching in children is not based on the full range of purposes that we can see in adult code switching.

Children often use code switching as a *relief strategy* (Meisel, 1994:415). In essence, this means that if a child cannot retrieve a word from one language, the child uses an equivalent from another language. This is similar to Baker's (2011) idea of word-substitution because of a lexical gap. Lexical gaps often occur because the different languages are used in different contexts, resulting in some concepts in one language without an equivalent in the other (Baker, 2011:108), which is often the case with culturally bound expressions (Meisel, 1994:415). Code switching as a result of lexical gaps often disappears when equivalents become available in both languages (Deuchar and Quay, 2000). Furthermore, Meisel (1994:415) mentions the conversation topic as a factor that can lead to code switching in children, which is in agreement with Baker's (2011:110) 12th point on the list. Also, children can use code switching to reinforce a request. Finally, as the 13th point on the list suggests, children also code switch as a result of a wish to copy the language use of an adult or a peer.

As for the differences between adult code switching and child code switching, Meisel (1994) investigates the differences and the age when child code switching starts being more adult-like. His view is that adult code switching is rule-governed linguistic behavior, which requires a high degree of grammatical knowledge in all of the involved languages. It is not random, but reveals a specific skill of the speaker's pragmatic competence, which refers to a person's ability to make appropriate use of a language in various social settings. This skill allows the speaker to code switch in accordance with the interlocutor's language, the context, topic, and without violating sociolinguistic or grammatical constraints. Since young language learners lack this necessary pragmatic competence they cannot perform appropriate adult-like code switching (Meisel 1994; Lanza 1992).

Furthermore, Meisel (1994) claims that a child with similar amount of language exposure in the different languages will as early as three years of age show signs of developing the pragmatic competence necessary to code switch in accordance with the aforementioned constraints. This is supported by Vihman (1985), who reports an Estonian-English bilingual who initially code switched between his languages at what seemed to be random, without being concerned about situational context or the interlocutor's language (1985:316). During the second year of life, the bilingual child starts code switching at a

relatively high level (1985:316-317), with signs of following the rule-governed patterns Meisel (1994) describes in adult-like code switching.

Now that some of the purposes for children's use of code switching have been discussed, the focus will move to the types of code switching that are most frequent in the language of young children.

Wei and Hua (2006) investigate the language development of two children who were initially raised as monolinguals in Chinese Mandarin, but then moved to Britain at the age of two. Both children, who are from different families, are studied over a period of 18 months, and the method for the research is a combination of participant observation, parental diaries, audio recordings, and formal assessments. One part of the research looks into the development of code switching in the language of these two children.

Wei and Hua's study reports that as the English language develops, both children start code switching more frequently (2006:79). Also, the study reveals that intrasentential code switching, which occurs within the clause or word boundary, is the most common type (Wei and Hua, 2006:79). This is supported by the findings in Redlinger and Park's (1980) study. Both children in Wei and Hua's (2006) study tend to switch whole phrases, often formulaic sequences, more frequently than they switch single lexical items, but still within the limits of intrasentential code switching. Moreover, the study has found that the two children code switch in one direction only: Both children insert English items into sentences based on Chinese Mandarin language structures. In summary, the children in Wei and Hua's (2006) study show a tendency towards intrasentential code switching in line with an insertional view.

As for the syntactic elements in code switching, several studies have investigated which sentence constituents are most frequently code switched. Redlinger and Park (1980) study characteristics of code switching in the language of four bilingual children. The children's age ranges from one to three years when the study starts, and the duration of the research is from five to eight months. The results indicate that nouns are the sentence constituent most frequently subject to code switching, and verbs are the least frequent (Redlinger and Park, 1980:345). Moreover, Hoffmann and Stavans (2007) claim that the verb is the sentence constituent that is most often involved in code switches that occur within the word boundaries.

2.5 The wholistic and multicompetences

Grosjean (2008) suggests a *wholistic*⁶ view on bilingualism. He claims that the focus in bilingual research should neither be limited to the proficiency that a bilingual shows in each of the involved languages, nor a comparison of a bilingual's competence in each of the languages to a monolingual's competence in the respective languages. A bilingual should not be seen as two complete or incomplete monolinguals in one individual (Grosjean, 2008:10). Instead, as the wholistic view of bilingualism proposes, the bilingual person should be seen as 'an integrated whole which cannot easily be decomposed into two separate parts' (Grosjean, 2008:14).

In the wholistic view, the linguistic systems co-exist in the bilingual as a complete language system that differs from that of a monolingual, and the bilingual is viewed as 'a fully competent speaker-hearer' (Grosjean, 2008:14), who has developed linguistic competence in not only the two languages, but also in a third system that is a combination of the two involved languages. The bilingual is seen as someone 'with a unique and specific linguistic configuration' (Grosjean, 2008:13), or in other words, as someone with *multicompetences* (Baker, 2011:11; Cook, 1992; Grosjean: 2008: 13-15).

Multicompetences are reflected in the strategies bilinguals use when they use different languages, separately or together, for different purposes. They consist of linguistic aspects, such as, vocabulary and grammar from the different languages, and pragmatic aspects, such as, sociolinguistic, discourse and strategic competences from the different languages (Grosjean, 2008; Hoffmann, 2001). This means that bilinguals and multilinguals, who are multicompetent, have a deeper knowledge *about* their own languages than monolinguals (Cook, 1992).

⁶As the thesis rely on Grosjean's (2008) explanation of the wholistic view on bilingualism, his terminology is used to refer to the concept in the current thesis. More specifically, the concept will be referred to as *wholistic*, and not the more common way of spelling it: *holistic*.

In relation to the development of multicompetences, Hoffmann and Stavans (2007) present an example that reveals covert metalinguistic awareness, which they interpret as a sign of multicompetences in a three year and four month old child:

M (3;4) during a conversation about olive pit /*garin*/ in *Hebrew* with the trilingual mother:

Mother: *tizahari im hagarinin* ‘(you be) careful with the pits’

M: Ima, take out the *garinims*. ‘mom, take out the pits’

[*pits* in *Hebrew*+ /-s/ pl. in English]

Mother: *At roa hozeti et kulam* ‘You see, I took them all out’

M: You see, there is only one more *gar* to take out.

[*gar** oversimplified form of sg. noun /*garin*/]

Mother: *Ine ein od garinim*. ‘There are no more pits’

M: All the *gars* are out now.

[*gar** oversimplified form of sg. noun instead of /*garin*/ + /-s/ English plural morpheme]

(Hoffmann and Stavans, 2007:67)

In the example, the child, M, adds an -s, which is an English plural morpheme, at the end of the Hebrew word to pluralize it. Even though this is not correct in Hebrew, M understands that the noun requires a plural marker, which reveals metalinguistic awareness in M. This is interpreted as evidence for multicompetences in the child (Hoffmann and Stavans, 2007:67).

The notion of *language modes* (Grosjean, 2001) is the idea that both languages of a bilingual are not always fully activated. This is one of the pillars of Grosjean’s (2008) wholistic view of bilingualism (Hoffmann, 2007:58), and is seen as evidence for multicompetences in bilinguals and multilinguals (Edwards and Dewaele, 2007). Grosjean (2001) suggests that the degree of activation of a bilingual’s languages depends on factors like the interlocutor, the topic and the context.

The degree of language activation and deactivation at a given point in time places an individual on a language mode continuum, which ranges from a monolingual mode on one end, to a bilingual mode on the other end. For example, if a bilingual speaks with a monolingual, the bilingual will be in a *monolingual mode*, leaving the second language temporarily deactivated. A bilingual will go into an intermediate position on the language mode continuum when the interlocutor knows both languages but is either less proficient in one of them or if code switching is not desired. When two bilinguals share the same

languages, and are comfortable with code switching, the speakers will be in a *bilingual mode* (2001:4). The same applies to bilingual listeners, who also move along a continuum of activating or deactivating the languages that are processed when listening to monolingual or bilingual speech (2001:4).

The notion of language modes can also be transferred to trilingualism and multilingualism (Grosjean, 2001:17). To elucidate the increasing complexity when there are three, and not two, languages involved a comparison will be made between the language modes available to a trilingual and a bilingual. As already mentioned, a bilingual has two available language modes, the monolingual and the bilingual language mode. These two can be divided into three different constellations, namely, one monolingual mode per language, and one bilingual mode for both languages. With respect to trilinguals, there are three available language modes, which can be divided into a total of seven different constellations. Firstly, the three monolingual modes can be in each of the three languages (L_x, L_y, or L_z). Secondly, the bilingual modes are combinations of two languages, which makes three possible combinations (L_x+L_y, L_x+L_z, or L_y+L_z). Lastly, the trilingual mode is a combination of all three languages (L_x+L_y+L_z) (Grosjean, 2001:18; Hoffmann, 2001).

Hoffmann (2001) claims that trilingual children do not seem to use all three languages simultaneously, and therefore they do not make use of all of the three available language modes. She points out that none of her case studies on trilingual children provide examples that can be seen as evidence for the use of a trilingual language mode. They either use one of their languages, or they use their dominant language plus one of the other two languages. This is also the case when the children are interacting with others who share the same three languages (Hoffmann, 2001). Moreover, Widdicombe (1997), as cited in Hoffmann (2001), claims that even an equal amount of language input in all three languages does not necessarily result in the use of a trilingual language mode.

By way of contrast, Edwards and Dewaele (2007) report that the child (8;5) in their study and the child's mother are in a trilingual language mode, with the languages Arabic, English and French, during their conversations. Also, Hoffmann and Stavans (2007) present evidence showing that both children in their study are able to move in and out of the monolingual, bilingual and trilingual language modes. Even though most code switching occurrences in their study involve only two languages, they also report code switching with three languages involved, which is seen as evidence that the children are in a trilingual language mode. This is illustrated in the following example.

“... *ki the moscos dvorim...*”

Hebrew ‘because’ + English ‘the’ + **Spanish** ‘flies’ + Hebrew ‘bees’....

‘Because the flies...bees’...

(Hoffmann and Stavans, 2007:65)

The previous sections have presented examples of previous studies and theory that have addressed aspects of bilingualism and multilingualism that are relevant for the current research. Now the focus will shift to how previous studies have approached some of the abovementioned issues.

2.6 A review of methodology used in research on early multilingual vocabulary development and code switching

This section will explore some of the methodology used in previous research on similar aspects of language development as the current research. The three studies that are dealt with in this section are seen as relevant for the current research because of how the data was collected, how the data was analyzed, and what they investigated. How each study has influenced the current research will be elaborated on at the end of this section.

In a study by De Houwer, Bornstein and Leach (2005) they investigated the differences between the Communication Development Inventory (CDI) scores from different raters on the same child. The data they used was from a study that investigated early communicative development in 30 firstborn children who grew up in the Dutch speaking part of Belgium. At an average, the children were close to one year and two months old at the time of data collection. The different raters, who filled out the Dutch adaption of the *CDI Words and Gestures (infant form)* were the children’s parents plus a third person who was a caregiver who knew the child well. As a result, they ended up with 25 CDI’s that had been rated by three persons, and 5 CDI’s that had been rated by two persons.

The score was counted for both passive and active vocabulary. However, as pointed out by the authors, they deviated from the CDI guidelines by not including the words that the children had produced as part of the passive vocabulary but only as part of the active vocabulary. The reason for this was that the main focus of the study was to investigate the scoring differences, and not the vocabulary development of these children. The CDI scores on

each child's two or three CDI forms were compared to explore the differences in the scoring by each rater.

Based on their findings, De Houwer, Bornstein and Leach (2005) claimed that using only one rater to assess a child's language with the CDI would most likely result in an underestimation of that child's communicative capabilities. As a result, they recommended the use of multiple raters, and a cumulative score to provide a result as accurate as possible.

As discussed in section 2.2.1, Lanza (2004) conducted a longitudinal case study of two English-Norwegian bilinguals, Siri, who was at the age of 2;7, and Tomas, who was at the age of 2;3 at the end of the research. For Siri, the period of investigation lasted for seven months, and for Tomas it lasted for three months. The data in the study consisted of audio recordings of the children's spontaneous speech, diaries written by the mothers, and what Lanza (2004) refers to as conversations with the parents.

The recordings were made approximately once every month in two stages. First, the researcher visited the mother and the child, and recorded 30-45 minutes of spontaneous speech. The mother and the child were not given any instructions on what to do, and the researcher's role varied from being an observer to being a participant in the interaction (the language of the researcher was English). These recordings were not part of the main data for analysis, but made it possible for the researcher to observe the parent child interaction. After the recording session the researcher and the mother had conversations where the child's development was discussed. The second step of the monthly data collection was the main source of data for the analysis, and consisted of audio recordings without the researcher present. The mother was given the audio recorder, and was asked to record 30 minutes of mother-child interaction, 30 minutes of father-child interaction, and 30 minutes of interaction with both parents and the child. The set of data for analysis (the recordings without the researcher present) consisted of 12.5 hours of recordings, 8.75 hours from Siri's family, and 3.75 from Tomas' family.

Because of the difficulty in interpreting child language recordings, Lanza (2004) provided three criteria that were used to identify vocabulary items produced by the children:

1. Phonetic similarity with forms in the adult lexicon;
2. recurrent usage of a particular form with a given meaning in cases where the first criterion is not a clear-cut. For example, Siri's use of [hɔgɔn] for yoghurt, a form which also met the third criterion;
3. confirmation by the parent that a given form had a given meaning, either through a diary entry, verbally to the investigator, or in recorded discourse. This criterion was particularly invoked for idiosyncratic forms.

(Lanza, 2004:103-104)

If words produced by the children did not fit any of the criteria, they were marked as unintelligible (<?>), or as tentative readings (e.g. <car>) and were not considered in the analysis of the language samples.

Another aspect mentioned by Lanza as challenging when working with the child language samples was the language assignment. For example, single-word utterances with the words *pen* or *sit* could be difficult because they both have the same form and meaning in English and Norwegian. As a response to this challenge, Lanza chose to exclude all forms that were impossible to assign to either of the languages in the same way that she excluded unintelligible and tentative readings (2004:105-106).

In addition to the difficulties with interpretation and language assignment, Lanza discussed items that were borrowed from one language and used in a setting where the parent was using the other language. For example, Siri's mother, who was an English speaker, borrowed the Norwegian baby talk word for dog, namely, the onomatopoeic *vov-vov*. The reason this was considered a borrowing, and not a code switched element, was because it was used consistently to refer to dog, and because the mother pluralized the word by adding an English plural marker (s). The two criteria used by Lanza to distinguish between borrowing and code switching were consistency in use and morphological integration (Lanza, 2004:107).

Lanza (2004:97-101) evaluated her data and pointed to some limitations in her methodology. Firstly, the fact that no distinction is made between free play and book reading in the analysis of the recordings can be seen as a weakness. On the other hand, she pointed out that children's activities are intertwined, and therefore, a distinction between language use in free play and book reading would be based on imprecise borders, and would not reflect the

children's environment. Secondly, to have video recordings instead of audio recordings would be a great benefit because body language and gestures play an important role in communication, and because it was sometimes difficult to understand which of the parents was addressed by the child. Thirdly, the role of the researcher could have influenced both the attitudes towards bilingualism and the language use in the family⁷.

A study by Hoffmann and Stavans (2007) investigated how two siblings, who were raised trilingually from birth, used the different languages when they code switched. Among other features of their research, such as their findings and the data collection method, their categorization of the code switching occurrences has influenced the methodology of the current research. The study looked at the amount of code switching, the languages used in the code switching, and the types of sentence elements most often subject to code switching.

The research was based on recordings from two periods with a time span of three years between them. The first set of data was collected over a period of 18 months when the siblings were three and six years of age. At the time of the first set of data collection, the siblings and their family lived in the U.S., where they experienced English as the community language, Spanish from the father and Hebrew from the mother. The data was collected from a naturalistic home environment, and consisted of recorded interaction of the children in one of the three following language modes: 'monolingual—when playing with a friend; bilingual—with relatives or family and friends; trilingual—with parents' (2007:59).

The second set of data was collected when the siblings were six and nine years old. At the time the family had moved to Israel where Hebrew became the community language, and the mother started to use English in the home to provide the children with a trilingual environment. This data consisted of recordings from what the authors called a 'semistructured experimental task of narration' (Hoffmann and Stavans, 2007:59). The children were presented with a story in a picture book, and then, two weeks later, retold the story themselves by following the pictures. This was conducted in all three languages, and recorded for transcription and analysis (Hoffmann and Stavans, 2007:59-60).

To assess the frequency of code switching occurrences, all code switches were counted, and then compared to the total number of opportunities for code switching. Hoffmann and Stavans defined an opportunity as 'a morphosyntactic, a sentential, or an utterance boundary' (2007:60). The results from this quantitative assessment illustrated the frequency of code switching in relation to code switching opportunities. Also, since data was

⁷ *Observer's Paradox* refers to a situation where the presence of an observer influence the subjects if they are aware that they are observed. (see Labov, 1972)

collected in two stages, with three years between them, each child's development in relation to age became clear.

To approach the investigation of languages and types of sentence elements most susceptible to code switching, a distinction was made between the languages it was code switched away from and to, and the word class of the code switched element (Hoffmann and Stavans, 2007).

The three different studies above influenced the methodology of the current research in the following ways. Firstly, in line with De Houwer, Bornstein and Leach's (2005) study, the CDI's used in the current research were completed by multiple caregivers, and the score was counted cumulative. Secondly, the protocol for interpreting and transcribing child language was based on the guidelines provided in Lanza's (2004) research. In addition, the distinction between the different contexts was mainly based on language, and not type of activity, and video recordings were included as a method of data collection. Finally, Hoffmann and Stavans' (2007) study provided ways of categorizing code switching occurrences to explore language directionality, and the different types of code switched elements.

The present chapter has provided theory and examples from various studies that are viewed as the background theory to the current case study. Now, to make a thick description of the way data was collected and analyzed in the current research, a change of focus to the methodology will take place.

3 Method

The current research is a longitudinal case study that has investigated the language development of a two-year old Norwegian over a period of six months as she experienced a transition from being a monolingual Norwegian speaker to becoming an emergent Norwegian-English-Spanish trilingual.

The main focus of the research has been the development of English, and the language contact between Norwegian and English, but Mia's language development in Spanish has been considered to a certain extent because it has, doubtlessly, influenced her language development as well.

The main aim of this research has been to investigate Mia's language development in the light of the following research questions:

1. How did Mia's English vocabulary develop over a 6-month period?
 - a. How did Mia's passive English vocabulary develop?
 - b. How did Mia's active English vocabulary develop?

2. Was code switching a part of Mia's language?
 - a. If yes, what were the characteristics of Mia's code switches?
 - b. If yes, what were the functions of Mia's code switches?

The following sections of the present chapter start with a presentation of some viewpoints on case study as a method, and a presentation of Mia with a main focus on her language environments. The next section provides an overview of how different types of data was collected, and later a description of the different tools and approaches applied in the data collection process. Finally, the last section explains how the different sets of data were analyzed.

3.1 Defining the method: A case study of Mia's language development

The current research is based on a longitudinal case study of the author's daughter, Mia. In applied linguistics, case studies of young children's language development are not unusual (Duff, 2008:35-36). A case study can be defined as a holistic analysis and description of, for example one individual, in definable boundaries to find answers to specific research questions (Duff, 2008; Bill, 2010). It has been argued that case studies are limited in their value because generalizations cannot be based on them (Deuchar and Quay, 2000:2). Conversely, Platt (1988:18), as cited in Deuchar and Quay (2000), claims that general assumptions can be based on the findings in a case study as long as the findings are not contradictory to other studies or theory.

Dromi (1987) suggests that case studies are particularly appropriate when studying early language development because the development is rapid, and especially because production is dependent on the setting. One advantage of case studies conducted by parents on their own is that because the parent is present in a wide range of situations, the parent can provide a comprehensive investigation of the child's development (Deuchar and Quay, 2000). Also, the background of the child is very well known for the researcher, and the researcher is already a natural part of the child's environment.

Mia was raised in Stavanger, Norway, and had not experienced other languages than her mother tongue, Norwegian, before the family moved to Spain, when Mia was 2 years and 1 month old. Mia had one younger sister, who was 19 months younger than her.

Before Mia moved to Spain, her development was assessed in terms of language, and general development. Mia's proficiency in her mother tongue was assessed when she was at the age of 1;11, two months before she moved from Norway. This was done by a health care professional⁸ at *Tasta Helsestasjon* (Tasta Health Center) as part of a routine control for two year olds. The name of the test was *screening av to-åringers språk* (screening of two-year olds' language), usually referred to as SATS (Horn and Hagtvedt, 1997)⁹. In addition, for the purpose of this research Mia's mother completed a Child Development Inventory assessment of Mia's general development. The results from both the SATS and the Child Development Inventory indicated that Mia was developing as expected for a child of her age (details about the Child Development Inventory are provided in section 3.2.2).

⁸ The health care professional granted the use of the results from the assessment in the current study.

⁹ For more information about the SATS, see Horn and Hagtvet (1997) and Kunnskapsdepartementet (2011:96-105).

Mia's parents were both fluent in English, and the father's Spanish proficiency was sufficient to make considerations regarding Mia's Spanish language. According to the CEFR self-assessment-grid (Department of Comparative Science of Culture, 2009:26-27) the parents' level of language proficiency in English was, for the father C2, and the mother between B2 and C1. In Spanish the father was at a level between A1 and A2, while the mother was below level A1, but still able to respond to Mia's Spanish use.

To prepare Mia for preschool in Spain the parents introduced Mia to around 10 English words that were connected to basic needs, such as: *Thirsty*, *mummy* and *sleep*. The method that was used for the purpose can be referred to as *teaching translation equivalents* (Bail, Morini and Newman, 2015). This means that a sentence was first produced in Norwegian followed by the English translation equivalent (TE) for the target word. For example: "*Er du sulten?* Hungry?" (Are you hungry? Hungry?). Other than the TE's, Mia's experience with languages other than Norwegian was limited to what she had been exposed to through television, which was not much.

When the family moved to Spain, Mia's language environment changed. She started preschool two weeks after arriving in Spain, and had already witnessed both parents speaking both English and Spanish in the surrounding community. In the preschool, Mia experienced the use of English and Spanish, and the language environment at home changed gradually from being Norwegian only, to becoming an English-Norwegian-Spanish trilingual environment.

The family language policy was comparable to a combination of two of King, Fogle and Logan-Terry's (2008:914) non-OPOL approaches: a situation where both parents use more than one language in a code switching manner, and secondly, a situation where parents rely on a third party, in Mia's case preschool, for exposure to new languages.

In the family environment the language was far from balanced in the use of the three languages, and there was clearly a dominance of Norwegian use in the home by the parents and by Mia. By estimation, the proportion of English use in the family was somewhere between 5 and 10%. Most of the English use in the family environment was during sessions where Mia's parents used English only for the purpose of providing Mia with English experience. Such sessions could be during meals, book reading, daily routines or other activities. Besides, because Mia's parents encouraged English use, whenever Mia code switched into English the parents would continue in English. As for the Spanish language, this was only used by the parents to respond to words or phrases that Mia produced in Spanish on her own initiative. For example, if Mia named a color in Spanish, the parent would repeat the

Spanish word and give Mia credit for knowing it, but the conversation would not continue in Spanish.

In the preschool, there were three teachers, one Spanish speaking teacher and two English speaking teachers. Based on the researcher's conversations with the teachers, a description of the preschool language environment was provided. Their language policy was in accordance with King, Fogle and Logan-Terry's (2008) one person-one language (OPOL) approach. Even though there were more English speaking teachers than Spanish speaking teachers, the teachers themselves estimated that Mia had roughly 50% exposure to English, and 50% exposure to Spanish. In the preschool there were around 20 children with various mother tongues, however, Mia was the only child with a Scandinavian language. Despite the variation in mother tongues in the preschool, the teachers reported that they very seldom heard words that were not identified as English or Spanish, except from communication between children and their parents.

The children's play in the preschool was characterized mostly by parallel play, which is defined as children playing adjacent to each other, often doing similar activities, and where interaction between the children is very limited (Brigano, 2011). As pointed out by the teachers, it was difficult to make any claims about the language use between the children. However, based on the children's language choices when they interacted with the teachers and observations, the language environment between the children was estimated to be more or less balanced between English and Spanish.

In summary, the preschool environment was estimated to provide an equal amount of exposure to English and Spanish, whereas the family environment provided far more exposure to Norwegian, some exposure to English and a limited exposure to Spanish. During one week, Mia spent around 50 hours with her family (not sleeping), and around 30 hours in the preschool. In total, Mia's language exposure was not balanced, but she had a high degree of exposure to Norwegian compared to her new languages. As for the proportion of exposure to her new languages, Mia had more exposure to English than Spanish¹⁰.

¹⁰ A more accurate description of Mia's exposure to the different languages would be very interesting, but this is not possible with the available data in the current study.

3.2 Data collection: an overview

The data was collected in several stages through a variety of different methods over a period of six months. Data were collected from two different contexts, namely, the *family* environment, which included all contexts where Mia was together with one or both of her parents, and the *preschool* environment which included all the data collected from the preschool. A distinction was made according to the languages used in each environment at the exact time of the data collection. This resulted in the following sub categories: family Norwegian environment, family English environment, preschool English environment, and preschool Spanish environment.

One type of data was collected through video and audio recordings from the family environment, and audio recordings from the preschool environment. In addition, different versions of the Communication Development Inventory (CDI), which is a tool designed to assess children's language development, was completed by preschool teachers, Mia's mother, and the researcher. The researcher also had conversations with the preschool staff in order to get information about Mia's language use and about the language environment at the preschool. In addition, the researcher made field notes based on observations from the family environment.

The different types of data served different purposes in the research. De Houwer (2009) claims that transcribed recordings are suitable for research on 'language choice, the use of particular speech acts and morphosyntax' (2009:71). Accordingly, the investigation of code switching in Mia's language was based mainly on transcripts of the recordings and the field notes.

Even though transcripts are not the best source of data for analysis of vocabulary development (De Houwer 2009:72), the current study used the transcripts to confirm or disprove findings regarding vocabulary development from other sources. However, the most important source in relation to vocabulary development in the current case study was the CDI, which is a tool suggested by De Houwer (2009:72) in research on children's vocabulary development.

Moreover, the author's field notes were valuable in the current research because they consisted of examples from the everyday life with regular routines and play. They functioned as an important source of examples to support or contradict data from other sources, both in terms of vocabulary development and code switching.

The information from the conversations between the researcher and the preschool staff was mainly used to provide background information that could help explain the findings regarding both vocabulary development and code switching.

In summary, the different sets of data, that were collected from two different environments all served the purpose of providing information about different aspects of Mia's language. As for the different stages of data collection, this will be explained in detail when each data collection method is described in the following section.

3.2.1 Child Development Inventory

The Child Development Inventory (Behavior Science Systems Inc., 2011) is designed to help measure the development in children ranging from 15 months to six years of age. For the purpose of the current research, one set of the inventory was sent by mail from the Behavior Science Systems Inc. to the researcher. Since this tool only provided background information about Mia, and did not contribute with data directly relevant to answer the research questions, the Child Development Inventory will only be elaborated on in the current section.

The Child Development Inventory is a research-based questionnaire meant to be filled out by parents or other caregivers. The Child Development Inventory deals with development, in nine different areas: social development, self help, gross motor, fine motor, expressive language, language comprehension, letters, numbers, and general development. In addition, a 10th section measures possible problems, and includes various symptoms and behavior problems.

The Child Development Inventory consists of 270 statements (plus 30 questions connected to the area of possible problems) presented in a booklet, and an answering sheet. The statements describe young children's behavior in the first six years of life, and are all observable by parents in everyday situations. All of the statements are based on a broad survey of child development literature, and on psychological tests made for children. All of the 270 items are age discriminating with an age level assigned to them. The age level is a reference to a certain age when the described behavior is typical for that age group.

A caregiver answers the Child Development Inventory by reading each statement, which is random age order, and then filling yes or no on the answer sheet. The scores from the answer sheet are entered into a Child Development Inventory profile with the help of a

template, and a graph shows the child's development compared to a norm group (Behavior Science Systems Inc., 2011:1-3)¹¹.

Prior to the current research a Child Development Inventory was completed by Mia's mother when Mia was at the age of 2;3. The Child Development Inventory was designed to measure the development of native speakers of English, whereas Mia's was monolingual in Norwegian at the time of the assessment. For this reason, the questionnaire was answered based on Norwegian equivalents, which resulted in a possibility of inaccurate results. However, there were only a few statements that were not suitable for direct translation. For example, one of the statements dealt with pluralization of nouns, and since this is done differently in Norwegian and English, some considerations were required.

However, the Child Development Inventory was included in the research as part of the background information on Mia, and was not a part of the main analysis of Mia's language development. For that reason, the possibility of inaccuracies in the results on the assessment was not accounted for.

3.2.2 Communicative Development Inventories (CDI)

As requested by the author, a complete set of the CDI for assessing Mia's development in English, Norwegian and Spanish was sent by mail to the researcher, mainly from the chair of the CDI advisory board, Larry Fenson, who granted the use of the CDI in the case study¹².

De Houwer (2009:72-76) points out that the CDI is suitable for the assessment of language development in bilingual children. The CDI is a questionnaire regarding a child's language development, which is filled out by an adult who knows the child well. The CDI consists of three main parts that are made for different age groups: The *CDI: Words and Gestures (infant form)* is designed for use with children from 8 to 16 months of age, and has a focus on gestures used by the children, word production and word comprehension. The *CDI: Words and Sentences (toddler form)* is designed for use with children from 16 to 30 months of age, and does not investigate comprehension or gestures, but looks at word production and the child's use of morphosyntactic elements. The *CDI III* is designed for use with children from

¹¹ Because the Child Development Inventory is protected by copyright, no quotes or examples are included in the current thesis.

¹² The CDI is protected by copyright, and will therefore not be quoted in the current thesis, however, some details, such as the categories of the vocabulary checklist, are available online and will be presented in the paper.

30 to 37 months of age, and has a focus on grammatical complexity, semantics, pragmatics and comprehension (DeHouwer, 2009:72; CDI Advisory Board, 2015).

Mia was 31 months old when the CDI assessment took place, which indicated that the correct form to use would be either the *toddler form*, or the *CDI III*. For Mia, who had only been exposed to English and Spanish for 6 months, these two forms would be at a too advanced level to be able to make a comparison between her three languages because the score in English and Spanish would be very low. Also, the toddler form did not investigate language comprehension, but only production, which was unsuitable for the current research. For these reasons, a decision was made to use the CDI *infant form* to assess Mia's language development in English, Norwegian and Spanish.

The CDI infant form consisted of several types of multiple choice questions regarding language development, and a vocabulary checklist that was the largest part of the form. As in a study by De Houwer, Bornstein and De Coster (2006), it was only the vocabulary checklist that was used as a data source. The vocabulary checklist consisted of words (referred to as items) followed by two alternatives: *Understands* and *Understands and Says*. The assessor was supposed to mark one or none of the alternatives. If the first alternative was marked it meant the item was part of the child's passive vocabulary; if the second alternative was marked, it meant the item was part of both the passive and the active vocabulary; and if none of the alternatives were marked, it meant that the child had no knowledge of the item.

The current research applied three different approved versions of the CDI infant form (CDI Advisory board, 2015). To assess Mia's English vocabulary, The *MacArthur-Bates Communicative Development Inventory: Words and Gestures* (1993) was used. For her Norwegian vocabulary, *Foreldrerapport for kommunikatív utvikling: Ord og Gester* (2012) was employed. And for her Spanish vocabulary, *Inventario del Desarrollo de Habilidades Comunicativas: Primeras Palabras y Gestos* (1992) was used. The three different versions of the CDI will be referred to as the English, the Norwegian, and the Spanish CDI, which will only refer to the vocabulary checklist.

There were CDI norming studies conducted in several languages, including English that provided information about a considerable amount of monolingual children. This information provides a base for comparing the score of one child, to the average score of the norm group (Fenson et al. 2005). De Houwer (2009:73-74) claimed that the language development of a monolingual should not be compared to the language development of a bilingual, and suggested that research on bilingual children should not include a comparison

to the norming studies. As De Houwer (2009) suggested, the current research did not compare Mia's score to the norming studies.

As recommended in several studies (De Houwer, 2009; De Houwer, Bornstein and Coster, 2006; De Houwer, Bornstein and Leach, 2005), the CDI was filled out by several raters, and the results were counted cumulatively. In this case, a cumulative score meant that when all the raters had completed one form each, it was only the best score for each item that counted. For example, Mia's mother and the researcher marked the English word *brush* as a word not known for Mia, and the English speaking teacher at school marked this word as *understands and says*. In this case, because of the cumulative score, the item was considered as *understands and says*. The use of several raters was possible in the English language, and the Norwegian language. Three CDI's assessing Mia's English language, which was the most important language for the current research, was completed by Mia's mother, the researcher and one English speaking preschool teacher. For Mia's Norwegian language, two CDI's were completed, one by Mia's mother, and another by the researcher. For Mia's Spanish language, it was only one completed CDI, which was filled out by Spanish speaking teacher. All of the CDI's were filled out during the last week of the research period when Mia was at the age of 2;7, and had lived in Spain with her family for 6 months.

3.2.3 Audio recordings from the preschool

The first audio recording took place once initial contact with the preschool was established, and the adjustment period was over, in other words, the first audio recording was conducted when Mia was at the age of 2;3, and had lived in Spain for nearly two months. The audio recording device, an *Olympus Digital Voice Recorder (VN-415PC)*, was initially meant only for recordings at the preschool. However, for reasons that will be presented in the next section, it proved to be convenient for naturalistic recordings in the family environment as well.

The preschool audio recordings were made by the preschool staff approximately once per week. Because of holidays, Mia being ill, or other unforeseen situations at the preschool that made it difficult to perform the recording sessions, a strict once-per-week interval was not followed.

On the days that recordings were to take place, the staff at the preschool got the audio recording device in the morning, and delivered it to the author, or Mia's mother, when Mia

was picked up. Because the author was trying to minimize the demands on the preschool staff, he did not give any specific instructions to the teachers, other than explaining that the goal was to record any interaction with Mia involved. As a result, the initial recordings were from group activities and free play, and were unintelligible because of background noise, so the researcher asked if there were settings where Mia participated in smaller groups (the initial recordings were discarded). The preschool teachers suggested that recordings could be done in one-to-one settings, where Mia with the help of a teacher practiced some of the concepts they were working with in the bigger groups. These semi-structured settings included practicing vocabulary like colors, shapes, and numbers in the involved teacher's native language. Mia did not show any reluctance towards being taken out of the group for these sessions. The author did not want to demand any specific language use for these sessions, which gave the preschool staff more flexibility.

At the preschool, the teachers who made the recordings stopped the recorder between each activity, which resulted in several recordings from each session. The duration of each clip varied from the shortest clip that lasted for 8 seconds to the longest clip that lasted for 13.01 minutes, and on average, the length of each clip was 2.2 minutes. In the preschool environment, a total of ten recording sessions took place, each with an average length of 9.3 minutes, and the total length of the preschool environment recordings was 93.3 minutes. 11.1 minutes of these recordings were from interaction between Mia and the English speaking teacher, and 82.2 minutes were from interaction between Mia and the Spanish speaking teacher. There was a big discrepancy between the amount of recordings conducted by the English speaking teacher and the Spanish speaking teacher. The reason for this was most likely connected to the author's wish to give the teachers flexibility by not providing any special guidelines for the recording sessions. It seemed that the Spanish speaking had a higher motivation to conduct the recordings, which resulted in a large proportion of recordings from the Spanish preschool environment.

3.2.4 Video and audio recordings from the home

The recordings from the family environment were meant to be video recordings because this would provide information about both oral language and body language. However, the use of the video recorder, which was a *Canon, EOS, 550D DSLR* (digital single lens reflex) camera, to record spontaneous speech proved to be challenging for several reasons: Mia sometimes

got aware of the camera, which she knew from before, and only asked to watch the photos that were taken because she was often allowed to do this in other settings. Another challenge with the video recording sessions was that Mia chose to move into another room, or away from where the camera was set up, which resulted in audio recordings only. For these reasons, and the fact that the audio recorder required no set-up time or planning, the audio recorder was also used in the family environment.

In the home, the researcher made recordings in various situations where English was used by the parents. These could be instances where Mia and one or both of the parents were playing, reading a book, eating, getting ready for bed, or other activities. The first recording session took place when the family had lived in Spain for one month, and the last recording took place after six months in Spain. The recordings did not take place at strict intervals, and the longest time period with no recordings was three weeks, which occurred twice because of illness and other circumstances.

In the family environment, the recording sessions were sometimes divided into several clips of recordings. The reason for this was that the researcher found it easier to process shorter clips when transcribing, and because the video recording device sometimes stopped because of an error. The duration of each clip varied from the shortest one that was 1.05 minutes to the longest one that was 38.03 minutes, and on average, the length of each clip was 9.50 minutes. In the family environment, a total of 20 recording sessions took place, each with an average length of 13.60 minutes. The result was a total of 273.10 minutes of recordings from the family environment. 63.30 minutes of these recordings were from an environment where Mia's parents used the Norwegian language, and 209.80 minutes were from an environment where Mia's parents used the English language.

3.2.5 Field notes

Field notes based on the researcher's observations of Mia's language development were important because they included a great variety of contexts. Also, since recordings were not conducted at the very beginning of the time in Spain, the field notes provided the only data from the first stages of Mia's acquisition of the new languages.

The field notes included various information, but mostly examples of code switching, and descriptions of how Mia used her three languages in different contexts. The combination of detailed descriptions of different situations and general observations made the field notes

important in terms of answering the research questions and in terms of providing a broad picture of Mia's language development.

3.2.6 Conversations with preschool teachers

In line with Lanza (2004:91), the current research included conversations as an important source of data for the purpose of linking Mia's language development to social interactions.

The conversations with the preschool teachers were informative in terms of Mia's language use in the preschool, and in terms of the preschool language environment. All the teachers were aware that the researcher was conducting a study of Mia's language development, and they were informed when the researcher's questions were asked for the sake of the research.

The conversations took place during pick-up time and delivery time in the preschool. Usually, the conversations lasted for less than 5 minutes and were characterized by the researcher asking questions that was related to one topic only, for example Mia's language choice when addressing the teachers. No notes were taken during the interview because the researcher did not feel comfortable taking notes among the other parents that were present. However, since each conversation evolved around one topic only, it was unproblematic for the researcher to remember the answers to the questions and take notes when he was out of the preschool. Occasionally, the researcher discretely ended the conversations before an answer was provided because interruptions from other parents or children made the teacher lose focus on the questions. Whenever this occurred, the same topic of conversation was repeated another day.

3.3 Data analysis procedure

The following sections will elaborate on how each set of data has been analyzed, and what purpose each set of data has served in the current research.

3.3.1 Communicative Development Inventories (CDI)

As a result of the multiple rating of the two of three languages, the researcher had six CDI forms that were filled out by different persons: One set of three English CDI forms, one set of two Norwegian CDI forms, and one Spanish CDI form. The next step for the researcher was to count the scores cumulatively. This was done by rating a new CDI form for each language with the highest score available from the three sets in English, and the two sets in Norwegian. As for the Spanish CDI, which only had one rater, it did not require a cumulative count. When the cumulative count was done, the researcher had one Norwegian CDI form, one English CDI form, and one Spanish CDI form.

As mentioned above, in line with De Houwer et al.'s (2006) study, the analysis was restricted to the vocabulary checklist section of the CDI's. The next step prior to the analysis was to make the three vocabulary checklists comparable. Since the three forms were not direct translations, but language adaptations, the vocabulary checklists in each language did not include exactly the same items, or the same amount of items (De Houwer et al., 2006). Also, there was a difference in how the three CDI's had categorized the items. To make a comparison possible, the categories in the Norwegian and Spanish CDI were adjusted in accordance with the English CDI. For example, in the English form there was one category named *Outside Things and Places to Go*, which had 27 items. In the Norwegian form, there was one category that corresponded to *Outside Things*, and another category that corresponded to *Places to Go*. Together, these two categories in the Norwegian form included 26 items. To make the forms comparable, the two Norwegian categories were merged, and seen as corresponding to the English category *Outside Things and Places to Go*. The result was the 19 categories presented in Table 1:

Table 1: CDI category description

1. Sound effects and animal sounds	2. Animals names (real or toy)	3. Vehicles (real or toy)	4. Toys
5. Food and drink	6. Clothing	7. Body parts	8. Furniture and rooms
9. Small household items	10. Outside things and places to go	11. People	12. Games and routines
13. Action words	14. Words about time	15. Descriptive words	16. Pronouns
17. Question words	18. Prepositions and locations	19. Quantifiers	

Because of the difference in the number of items in each language, the score in each category was calculated as percentage of full score. As a result of these calculations, the researcher had a cumulative score in the CDI of each language, an overview of the categories that corresponded, and a calculation of the percentage score in each category, both for passive vocabulary and active vocabulary. This was used to address the research questions regarding Mia's vocabulary development. With this as a foundation, the analysis of the scores in each language in both passive and active vocabulary was possible.

3.3.2 Recordings

Both the audio recordings and the video recordings have been used for the same purpose, and will be referred to as the *recordings*. The only difference in the way they have been analyzed is the inclusion of certain features of body language in the video recordings whenever this has been of importance for the interpretation and analysis.

In total, 366.38 minutes of recordings were collected. The first step in the analysis of these recordings was to make an overview with general information about each recording. For this purpose, a table was made with a heading that consisted of the date of when the recording was conducted, and either a V for video, or A for audio, plus a number. The numbers assigned

to each clip started at 1 for the first recording and continued in chronological order, for example, *09 October 2015, V003*, which was recorded on 9th October 2015, and was the third video recording clip that was made in the research. Importantly, because each recording session often consisted of several recordings there was more than one recording on the same date.

The different recordings could occur during the same activity or at different points in time during one day. The researcher listened, or watched, each recording, and filled in the table with all the information that was relevant for the research, such as code switching occurrences, and other interesting aspects, such as occurrences of inappropriate language choices in the preschool environment. Each recording was marked with general information about length of recording, language environment (the involved caregiver's language use), and setting (e.g. practicing colors in preschool). This general information was later used in the analysis to make claims about, for example, Mia's language environment and as an indication of the part of the recordings that needed to be transcribed for analysis.

The next step in the procedure was to transcribe the parts of the recordings that included code switching. The transcription conventions used for the purpose were based on the conventions used by Lanza (2004). However, some extra aspects were added because the current research dealt with three languages and not two (as was the case in Lanza's study). The way that a third language was added to the transcription convention was based on a trilingual study by Hoffmann and Stavans (2007). In their presentation English was written in normal font, Hebrew in *italics*, and Spanish in **bold** (for transcription conventions, see Appendix).

The corpus, which was based on the recordings and the researcher's field notes, was analyzed to answer the research questions that addressed Mia's code switching. The data was analyzed based on the conversational unit: turn at talk (TaT). The TaT is defined as one or several utterances bounded by a pause, or by someone else's utterance, and is claimed to be a suitable unit of analysis when investigating code switching (Lanza, 2004). This meant that if one of Mia's TaT's was in English, and another in Norwegian this would not count as a code switch because the code switch did not occur within the unit of analysis. As a consequence, the only one-word utterances that could possibly count as a code switch were the ones that consisted of a code switch within the word boundaries. Moreover, in line with Lanza (2004), any repetitions of words or phrases during a TaT or conversation were only counted as one unique code switch.

3.3.3 Field notes

The major parts of the field notes included detailed descriptions of different situations and language use, and were therefore to a certain extent analyzed as they were written. In addition, as part of the analysis, all the different entries were compared and seen in relation to each other to search for connections that were not clear when each observation was seen in isolation. Moreover, all the transcripts from the field notes were included in the same system as the transcriptions from the recordings.

3.3.4 Conversations with the preschool teachers

The researcher's notes from the conversations included entries that were very much related to each other. For the purpose of confirming the different answers and searching for connections between the different conversations, the different entries were compared.

3.4 Validity

The validity of the current research will now be evaluated by looking into the different ways data was collected, how the raw data was processed before it was analyzed, and how it was analyzed. The main data for exploring Mia's vocabulary development was the CDI, which was filled out by several raters: the researcher, Mia's mother and teachers at the preschool. All of the raters were explained in detail how to fill out the questionnaire by the researcher, and they were told to read the instructions carefully before filling it out. The raters were also told to not rush the rating, but to take the time they needed in order to get the results as accurate as possible.

The conversations with the preschool staff provided information about the language environment and the social environment in the preschool that was considered when vocabulary development and code switching was analyzed. These conversations were not structured, and not the only focus either for the researcher or the preschool teachers when they were conducted. The answers from these conversations were influenced by the teacher's interpretations, however, the preschool teachers knew that the questions were asked for the purpose of the research, and even though the setting was informal, the teachers did seem to provide properly thoughtful answers.

The recordings in this research included the speech of Mia, and one teacher, or Mia and one or two of her parents. Except from the first preschool audio recording that was partly

meant as a test, and was not included in the research, it was unproblematic to identify who the different speakers in the recordings were. Also, there were no instances of background noise that corrupted the recordings in a way that made them unintelligible. The recordings were transcribed by the researcher only, which meant that the entire corpus was based on one person's interpretations, however, when there were any doubts about what was said in the recordings, the researcher asked Mia's mother for a second opinion. All of the transcriptions of the code switching occurrences from the recordings were controlled at least once by the researcher approximately one month after they were transcribed for the first time. The intention with this was to exclude any misinterpretations or other mistakes.

The researcher's field notes provided general information and examples of Mia's language use. The observations were logged immediately by the researcher who often first took log notes on his mobile phone, and later entered them in the field notes. This made the field notes consist of accurate and detailed depictions of Mia's language experience and language use.

Importantly, in order to provide a thick description, and to reduce the possibility of misinterpretation of the data, triangulations were conducted whenever this was possible. For example, the findings in the CDI vocabulary checklists were cross checked with the recordings, and the field notes.

3.5 Ethical issues

Mia's mother supported the case study, and had no objections to how the research was conducted. No one in the study was referred to by their real name, and no one was part of a recording that had not approved it.

As for the conversations with the preschool teachers, the researcher made it clear that the questions were not asked just because the researcher was curious, but that the answers would be used as data in the ongoing research.

Moreover, the recordings from the preschool environment included Mia and one of the teachers only. The first recording included several children, but it was not able to interpret, and the recording was deleted. The preschool staff made it clear that it was not necessary with an authorization to conduct recordings in the preschool, and claimed it would only generate paper work for the researcher and the preschool. The teacher also claimed that there was no official organ in Spain that would treat a request for such an authorization properly, especially

since there was no possibilities to identify any other children than Mia. The researcher made a choice to do as the preschool teacher strongly suggested so that no additional word for the preschool was generated

3.6 Limitations

Initially it was planned to conduct several semi-structured interviews with the teacher's at Mia's preschool. However, because there were relatively few teachers at the preschool they were busy, and since the preschool was open until 18:00 it seemed to be difficult for the teachers to find a time to sit down for an interview. As a consequence, the researcher decided not to ask the teachers for this, as they were already helping very much with the recordings. Instead, the researcher chose to rely on shorter conversations when delivering and picking Mia up from the preschool. As compared to how the planned interviews would have been, the conversations were limited in time, they were not in a setting where the teachers had full focus on the questions, and they did not go much into details. Even though all of these factors were considered when the analysis took place, it is assumed that interviews would have contributed to a strengthened research because more details about the preschool environment would have been provided.

There was a relatively big difference in the amount of data that was collected from the different language environments. In the preschool environment, most of the recordings were from a context where Spanish was used, and only some recordings were from contexts with English language use. The data from the Norwegian language environment was primarily based on field notes, which did not provide as much information as the recordings did because it would be beneficial for the research if the duration of recordings from each of the language environments were more equal because it would provide a better foundation for discussing aspects related to distribution of code switches in the different environments.

4 Results

The study aimed to explore two main aspects of Mia's language development during the six months she was exposed to two new languages: Mia's vocabulary development, and code switching in her language. The first section of the chapter is a general description of Mia's language development with a special focus on the first three months, when the first and most compelling changes were noticed. This general depiction is provided to contextualize the results and to give a thick description, which is crucial for case studies. The results addressing vocabulary development, mainly based on the Child Development Inventory (CDI) scores, but also on the other sets of data, will be presented in section two. Section three will present results related to code switching, which are mostly based on recordings and field notes, but also the other sources of data. The final part of section three is a brief chapter summary.

Mia's initial experience with the English language through the exposure to around ten translation equivalents (TE's) before the family moved to Spain was probably not more noticeable for her than learning new words in Norwegian. She was used to hearing different dialects in her everyday life because her parents, aunt and grandfather used a different dialect from the one used in the wider community.

As soon as the family arrived in Spain, Mia was at the age of 2;1, and experienced that her parents used English, and some Spanish, in communication with others. Also, her parents started communicating to each other and to herself in English approximately 30 minutes every day because they wanted to prepare her for preschool as best as they could. When Mia used her Norwegian language, she was able to express her needs relatively clearly, so her parents were worried about how Mia would experience the start at the preschool, where she would suddenly lose this ability.

Mia started preschool two weeks after the family had moved to Spain, and during the first week Mia had mostly short days at the preschool. When her second week at the preschool started, Mia stayed full days (up to 6.5 hours), and the parents could see signs of Mia becoming comfortable with the changes in her language environment. A conversation between the researcher and a preschool teacher at the beginning of Mia's second week at the preschool made it clear that even though Mia did not speak at school, she seemed to be open for communication in both English and Spanish. When Mia's mother was picking Mia up from preschool at the end of her second week, Mia asked for *Ole Brum* (Winnie the Pooh) and one of the teachers understood what she was asking for and said, in English, that Winnie the Pooh was in the bed. Mia responded by turning to her mother and told her, in Norwegian,

where Winnie the Pooh was. Even though Mia most likely only understood the word *bed* at this point of time, it indicated that Mia was open to the language changes.

After four weeks at the preschool, Mia started experimenting with English and Spanish words. Her first use of another language than Norwegian on her own initiative was at the end of her fourth week in the preschool. Before this she had already used English and Spanish words in conversations at home, but then one of her parents had prompted it by using the words in speech first and encouraged Mia to use them. The first word she said on her own initiative without first hearing it from one of her parents, in a family Norwegian environment, was *amarillo* (yellow), and her second word was *pink*. She said both these words as she saw these colors on the roadside advertisements when Mia and the researcher were driving home from the preschool.

To name the colors she saw from the car became routine on the way home from the preschool: some colors were named in Norwegian, some in English and some in Spanish. She was not consistent in her language choice for each color, meaning that she sometimes used Norwegian, sometimes English, and sometimes Spanish to refer to the same color. As the conversations with the preschool staff indicated, the language choices Mia made on the way home from preschool was most likely connected to which language was used in the different activities at the preschool.

During Mia's third month in Spain the conversations with the preschool staff revealed that Mia's language was developing relatively rapidly and Mia seemed to understand most of what both the English and the Spanish speaking teachers said. With respect to Mia's English language development, this was also the researcher's impression at this point. In terms of production, Mia was already naming several colors, several animals and toys, and some words that were connected to play and routines: *mine*, *no*, *careful*, *water* and *sleep*. For most of the words Mia produced at this point, she used both the Norwegian, English and Spanish TE's when she was in the family environment. Based on the conversations with the teachers, Mia did not use the Norwegian language in the preschool environment.

In summary, the data indicated that Mia started using her new languages relatively early. Also, there was no data that reflected any reluctance towards the use of any of the languages she was exposed to. A more detailed description of Mia's language development will be presented in the following sections.

4.1 Passive and active vocabulary development

The CDI results, obtained when Mia was at the age of 2;7, and had lived in Spain for 6 months, were the main source of data for discussing Mia's vocabulary development. Additionally, field notes, recordings and conversations with the preschool staff provided information that was useful in the interpretation of the CDI results.

The investigation of Mia's vocabulary development was divided into two parts, namely, Mia's passive vocabulary, and Mia's active vocabulary. The CDI results were analyzed in accordance with the guidelines provided by Fenson et al. (2005)¹³, which explained that all items in the vocabulary checklist that were marked as either *understands* or *understands and says* should be counted as part of the passive vocabulary. For the active vocabulary, only the items marked as *understands and says* should be counted.

A comparison was made between the score in the English, Norwegian and the Spanish CDI vocabulary checklist. Since the number of items in the vocabulary checklist list varied between the languages, the score was calculated as percentage of full score in each of the different languages. The English form had 396 items in the vocabulary checklist, the Norwegian form had 395 items, and the Spanish form had 426 items. Figure 1 illustrates the passive and active vocabulary development in each language in accordance with the vocabulary checklist in the CDI results.

¹³ The researcher did not have access to the latest version of the CDI User's Guide and Technical Manual, but was provided the 2005 version by Larry Fenson, who is the chairman in the CDI advisory board. In an e-mail to the researcher, Fenson explained that the version was still useful for the purpose of the current research because it was only the norming studies (which were not relevant for the current research, see section 3.2.2) that were updated in the latest version.

Figure 1: CDI results in the passive and the active vocabulary for each language

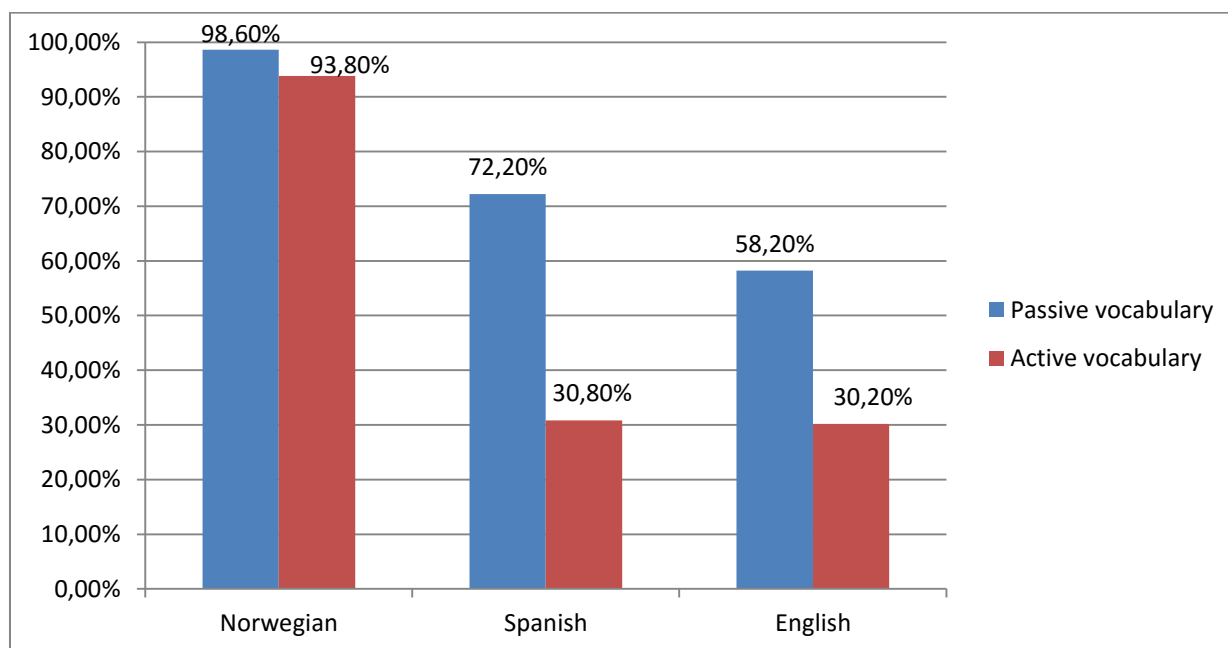


Figure 1 reveals that 98.6% of the items in the Norwegian CDI vocabulary checklist were part of Mia's passive vocabulary, and that 93.8% of the same items were in Mia's active vocabulary. For the Spanish CDI, 72.2% of the items were included in Mia's passive vocabulary, and 30.8% were part of her active vocabulary. The English CDI score was 58.2% for the passive vocabulary, and 30.2% for the active vocabulary. The CDI results indicate that Mia's passive vocabulary size was clearly largest in Norwegian, and second largest in Spanish. In terms of the active vocabulary, the gap between the scores in Mia's new languages and the Norwegian language was higher than for the passive vocabulary.

Between the English and Spanish active vocabulary CDI score there was no noteworthy difference. It was expected that Mia's English vocabulary would develop more than her Spanish vocabulary because she experienced more exposure to English. However, this was not the case, which can be connected to what the preschool teachers explained in the conversations they had with the researcher: the teachers made it clear that even though there was nothing in the preschool policy that regulated the learning environment towards a focus in Spanish, the English language was used more in bigger groups and free play, while a larger part of the explicit teaching was based on the Spanish language.

As for the high score in Mia's Norwegian language, this should be seen in relation to the fact that the study used the *CDI infant* form, and not the *CDI toddler* or *CDI III* form, which would be more appropriate in terms of her Norwegian vocabulary development (see

section 3.2.2 for further information on this choice). As a result, the differences between Mia’s score in the Norwegian CDI and the score in the other two CDI’s were most likely misleading in relation to the difference between her vocabulary size in her mother tongue and her new languages.

Based on the fact that the majority of the items in the three different CDI’s used in this study were TE’s, and that the score in Mia’s Norwegian CDI was over 90%, it is assumed that the number of Norwegian-English, and Norwegian-Spanish TE’s in her vocabulary was relatively large. It is also fair to assume that her vocabulary included some English-Spanish TE’s.

Furthermore, a comparison between the three languages in relation to each category of the CDI was made. As explained in section 3.2.2, there were differences in the way that the items were categorized in the three different versions of the CDI, and in order to make a comparison based on categories possible, a decision was made to place the Norwegian and Spanish items in accordance with the categories in the English form. This resulted in the 19 categories presented in Table 2.

Table 2: CDI category description

1. Sound Effects and Animal Sounds	2. Animals Names (real or toy)	3. Vehicles (real or toy)	4. Toys
5. Food and Drink	6. Clothing	7. Body Parts	8. Furniture and Rooms
9. Small Household Items	10. Outside Things and Places to Go	11. People	12. Games and Routines
13. Action Words	14. Words about Time	15. Descriptive Words	16. Pronouns
17. Question Words	18. Prepositions and Locations	19. Quantifiers	

Based on the score in each of the categories presented in Table 2, Figure 2 represents Mia’s passive vocabulary.

Figure 2: CDI results for passive vocabulary sorted by language and category

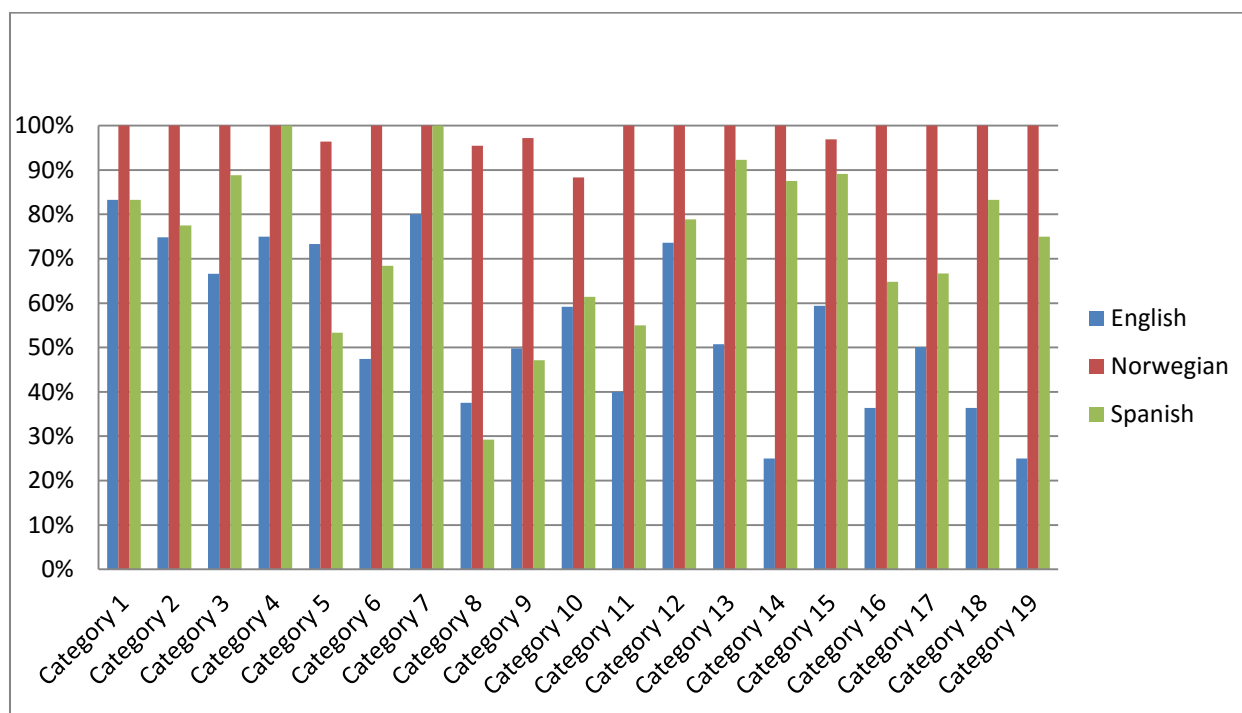


Figure 2 illustrates the passive vocabulary percentage score in each category in each language. As expected, Mia’s passive vocabulary was bigger in Norwegian than in English and Spanish in all categories. As for a comparison of the English and Spanish passive vocabulary development, the Spanish vocabulary had developed more in most of the categories. The three categories with the biggest difference between the Spanish and the English results were the following categories: category *14 Words about Time* had a score of 25% in English, and 87.5% in Spanish. Category *18 Prepositions* had a score of 36.4% in English and 83.3% in Spanish. Category *13 Action Words* had a score of 50.7% in English, and 92.3% in Spanish.

To provide a more in-depth investigation of the differences in the English vocabulary development in the different categories, the 19 categories were divided into three groups based on the percentage score: The *lower-score* group included the categories with a score from 0% to 33.3%, the *middle-score* group included the categories with a score from 33.4% to 66.7%, and the *higher-score* group included the categories with a score from 66.8% to 100%. Table 3 presents the three groups.

Table 3: CDI results for passive vocabulary in English sorted by score in each category

	Category	Score
Higher-score group	1 Sound Effects and Animal Sounds	(83.3%)
	7 Body Parts	(80.0%)
	4 Toys	(75.0%)
	2 Animals Names (real or toy)	(74.8%)
	12 Games and Routines	(73.6%)
	5 Food and Drink	(73.3%)
Middle-score group	3 Vehicles (real or toy)	(66.6%)
	15 Descriptive Words	(59.4%)
	10 Outside Things and Places To Go	(59.2%)
	13 Action Words	(50.7%)
	17 Question Words	(50.1%)
	9 Small Household Items	(49.8%)
	6 Clothing	(47.4%)
	11 People	(40.0%)
	8 Furniture and Rooms	(37.5%)
	16 Pronouns	(36.4%)
	18 Prepositions and Locations	(36.4%)
Lower-score group	14 Words about Time	(25.0%)
	19 Quantifiers	(25.0%)

As Table 3 illustrates, there were six categories that fell into the higher-score group, eleven categories in the middle-score group, and two categories in the lower-score group. As the field notes, the conversations with the preschool staff and the recordings reveal, the categories in the higher-score group consists of words that were used in several contexts by Mia and her interlocutors, and with a relatively high frequency. These words were part of Mia’s play and routines in both home and the preschool environment.

As indicated by the field notes and what the preschool teachers reported in the conversations, Mia’s free play very often included toy animals, which is connected to category *1 Sound Effects and Animal Sounds* and *2 Animals Names (real or toy)*. Also, the category with the highest score (category 1), which mostly consisted of animal onomatopoeias included words that were quite similar in the Norwegian and the English language. Mia’s high score in category *7 Body Parts* might have been connected to the parents’ focus on using correct terms when they referred to her body parts in Norwegian. Additionally, Mia knew the song *head, shoulders, knees and toes* in Norwegian before they started singing the English version at the preschool.

As for category *4 Toys*, this included words that Mia was exposed to at home and in the preschool. Most of Mia’s toys were named in English and Norwegian in the home, and the

researcher observed that when Mia picked up a toy in the preschool the teachers would often respond by naming the toy.

The words in category *5 Food and Drink*, and other English words related to food and drink not included in the CDI, were used frequently by Mia's parents because they often used the time preparing and eating food as an arena for exposing Mia to English. Also, since Mia had lunch and other smaller meals in the preschool, she experienced English language use that was connected to food and drink in that context as well.

Based on the field notes and conversations with the preschool teachers, the few words Mia could understand from the two categories of the lower score group (category *14 Words about Time* and category *19 Quantifiers*) were words that could convey meaning on their own, and were often used in one-word utterances by Mia's caregivers. For example, the word *more*, which was often used by Mia's teachers and parents to ask if Mia wanted more of something, for example water. In these situations, the words were presented to Mia alone, and therefore became significant in the caregiver's utterance. The words in the same two categories that were not part of Mia's passive vocabulary, such as the word *same*, were mostly used in multi-word utterances together with words that were most likely experienced as more significant for Mia. Also, the score in the Norwegian CDI was 100% for both of the categories in the lower-score group; and it was in the Norwegian language Mia experienced most explanations where these words were significant for Mia.

Based on the same categories as Mia's passive vocabulary, Figure 4 presents the score in each language for Mia's active vocabulary.

Figure 3: CDI results for active vocabulary sorted by language and category

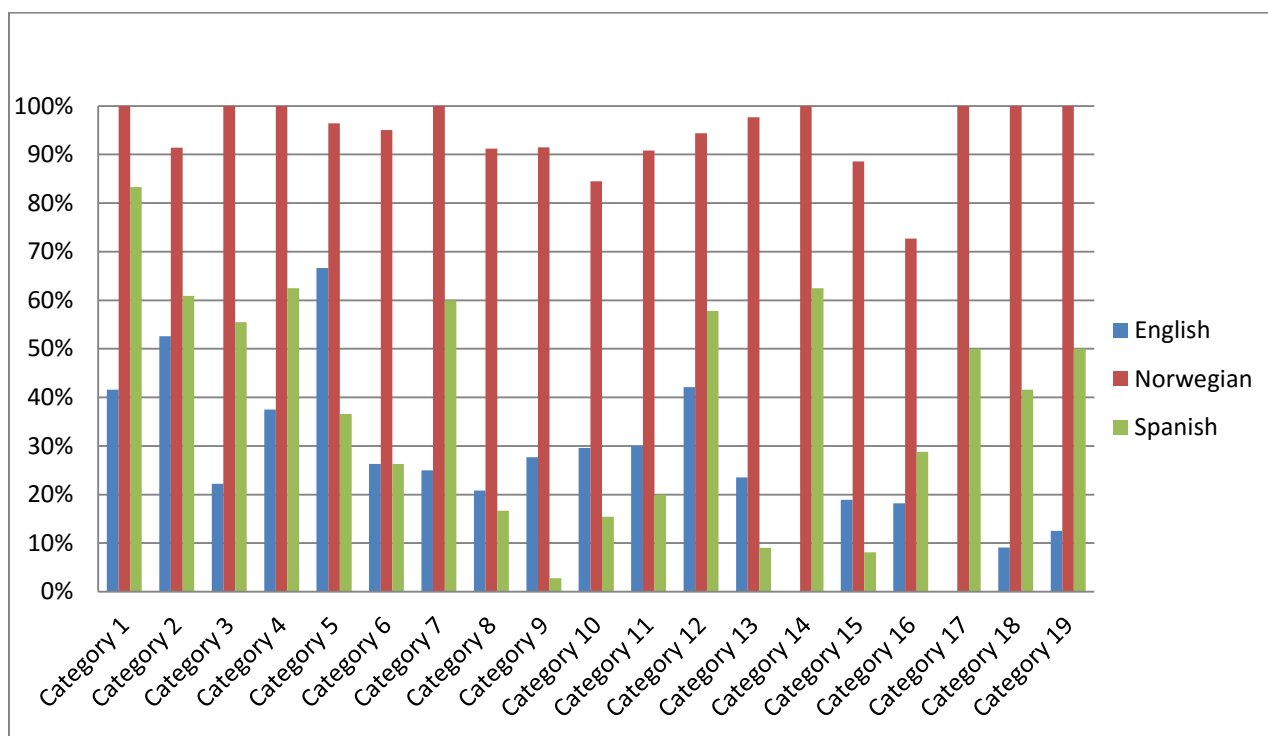


Figure 3 illustrates the active vocabulary percentage score in each category in each language. Not surprisingly, Mia’s active vocabulary was bigger in Norwegian than in English and Spanish. A comparison between the English and Spanish active vocabulary development indicated that the Spanish language had developed more than the English language in 11 of the categories, and English had developed more than the Spanish language in 7 of the categories. For one category the score was equal between the two languages.

The three categories with the biggest difference between the scores in the English and Spanish languages were: category 14 *Words about Time*, which had a score of 0% in the English language, and 62.5% in the Spanish language; category 17 *Question Words*, which had a score of 0% in the English language and 50% in the Spanish language; category 1 *Sound Effects and Animal Sounds* which had a score of 41.6% in the English language, and 83.3% in the Spanish language.

To provide a basis for discussing the variation in the results in the different categories in the development of Mia’s active English vocabulary, the 19 categories were listed in Table 4 by descending order. The reason the categories in the active vocabulary were not sorted in the same way as the categories in Mia’s passive vocabulary (Table 3) was that the scores were not distributed over the whole spectrum, as was more of the case in Mia’s passive vocabulary

scores. As a consequence, the largest portion of the categories had a score that would place them in the lower-score group, and there would be no categories in the higher-score group.

Table 4: CDI results for active vocabulary in English sorted by score in each category

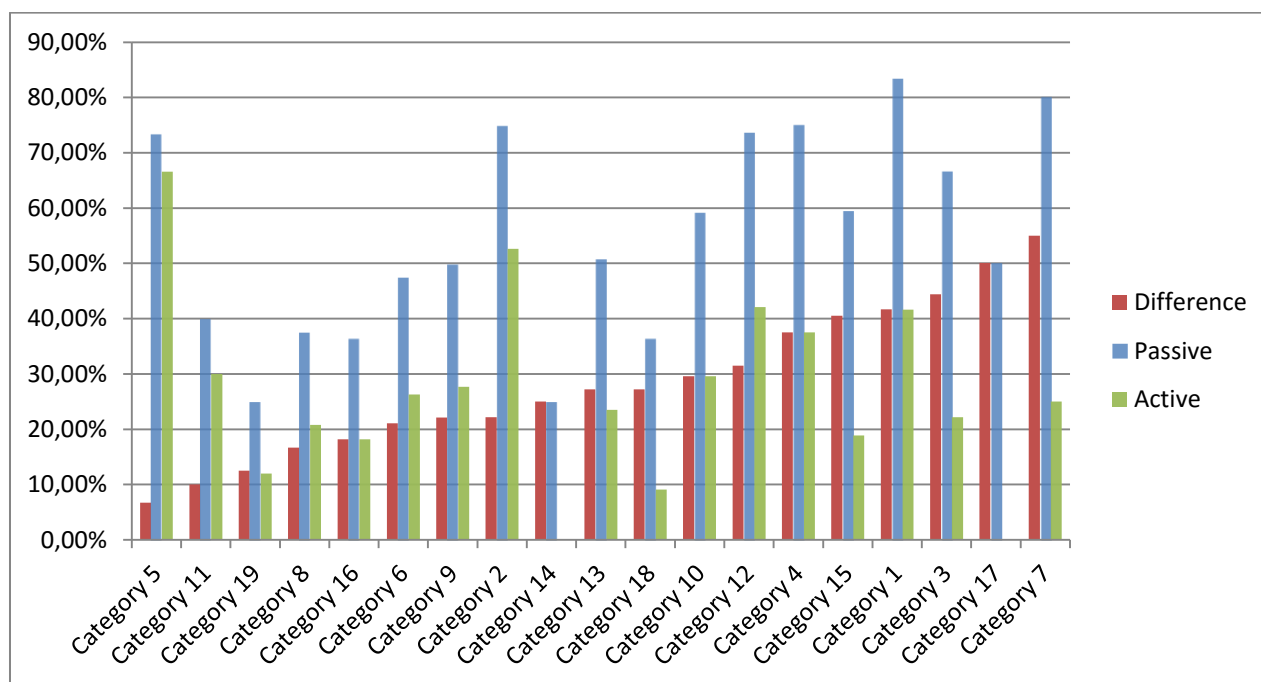
Category	Score
5 Food and Drink	(66.6%)
2 Animals Names (real or toy)	(52.6%)
12 Games and Routines	(42.1%)
1 Sound Effects and Animal Sounds	(41.6%)
4 Toys	(37.5%)
11 People	(30%)
10 Outside things and Places To Go	(29.6%)
9 Small Household Items	(27.7%)
6 Clothing	(26.3%)
7 Body Parts	(25.0%)
13 Action Words	(23.5%)
3 Vehicles (real or toy)	(22.2%)
8 Furniture and Rooms	(20.8%)
15 Descriptive Words	(18.9%)
16 Pronouns	(18.2%)
19 Quantifiers	(12.5%)
18 Prepositions and Locations	(9.1%)
14 Words about Time	(0.0%)
17 Question Words	(0.0%)

The two categories on top stand out because they both had a score of over 50%. The explanation of the score in these two categories follows the same arguments as the ones presented for Mia’s passive vocabulary in the same categories (the arguments follow Table 3).

Moreover, the six categories that included function words were all placed in the bottom of the list. As the conversations with the teachers, and the recordings from the preschool environment indicated, Mia did not produce multi-word utterances in the preschool environment. For this reason, the need for function words was relatively small, except from the words that could convey meaning in one-word utterances, such as the ones discussed under passive vocabulary (the arguments follow Table 3). In the family environment, the need for English function words was also small because Mia’s multi-word utterances were based on Norwegian structures with Norwegian function words.

A comparison between the scores in the English CDI categories, with a focus on the differences between the scores in her passive and active vocabulary, is presented in Figure 4.

Figure 4: Differences between the scores in passive and active English vocabulary



The red bars in Figure 4 represent the difference between each category’s percentage score in passive and active vocabulary. The blue bars represent Mia’s score in the passive vocabulary for each category, and the green bars represent the score in the active vocabulary.

As the Figure illustrates, the biggest difference between Mia’s passive and active vocabulary checklist score was in category 7 *Body Parts* where the difference was 55%. In this category the score was 80% for the passive vocabulary and 25% for the active vocabulary. The category with the smallest difference was category 5 *Food and Drink* where the difference was 6.7%. In this category the score was 73.3% for the passive vocabulary, and 66.6% for the active vocabulary.

4.2 Main characteristics and functions of code switching occurrences

The data addressing Mia’s code switching is mainly based on the recordings and field notes, but data from the other data collection sources are also considered in this section. The data have been analyzed with a focus on the characteristics of Mia’s code switching occurrences, and the purpose they seemed to serve in her language. The following presentation of the findings will start with an overview of the proportion of data collected in the different contexts, and the language environment in these different contexts. This will be followed by a

look at the characteristics of Mia’s code switches, firstly in relation to the changes that occurred during the six months, secondly by looking at the characteristics with respect to types, languages, word classes and directionality. Finally, the focus will turn to the functions Mia’s code switches seemed to serve in her language.

Data was collected from two different contexts, namely, the family environment, where one or both parents were present, and the preschool environment. Each context was divided into two language environments, which refers to the languages used by the caregivers. In the family Norwegian language environment Mia’s parents mainly used Norwegian. However, code switching by inserting English, and sometimes Spanish, words into Norwegian sentences occurred from time to time. In the family English language environment Mia was alone with one or both parents, who spoke to Mia or each other in English only. In the preschool English language environment Mia interacted with one of the English speaking teachers. In the preschool Spanish language environment Mia interacted with the Spanish speaking teacher. Because the amount of collected data from the different language environments was unbalanced, a look at the distribution of the total amount of 366.38 minutes of recordings in relation to language environment is presented in Figure 5.

Figure 5: Duration of recordings in the different language environments

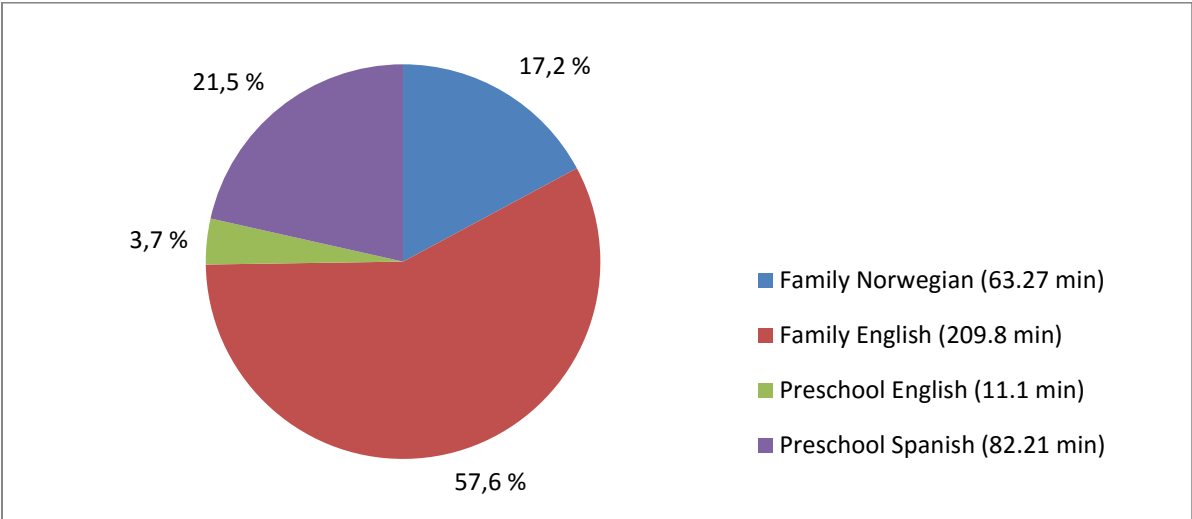


Figure 5 shows a huge discrepancy between the amounts of recordings from the different language environments.

In addition to the recordings, field notes provided code switching examples from the family Norwegian and the family English environment. The conversations with the preschool teachers provided general information about Mia's language development, but they did not provide any specific examples that could be analyzed in direct relation to code switching.

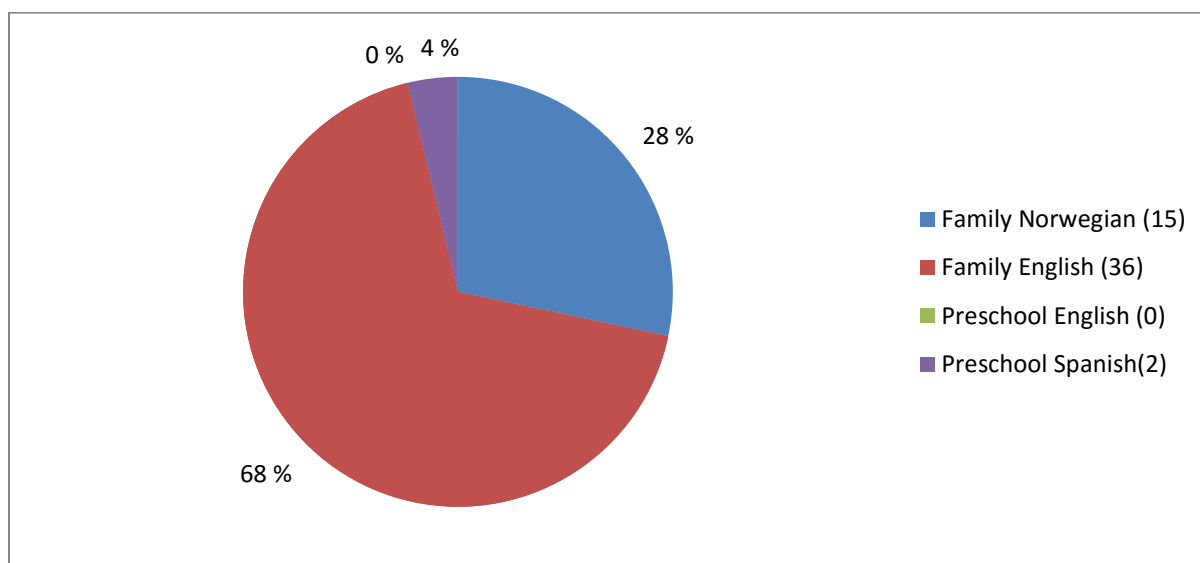
In summary, the largest amount of data addressing the code switching occurrences was collected in the family context, where Mia spoke very freely, and Mia's parents could understand Norwegian, English and Spanish.

In the data, there were 76 identified code switching occurrences in total, 17 in the field notes, and 59 in the recordings. However, in line with Lanza (2004) and Redlinger and Park (1980), a distinction was made between unique code switches and code switches that were repetitions of words, phrases or entire utterances during one day. For example, if one specific word was used in two different code switches during the same day, it was only the first of these code switches that was counted as unique. As a result, out of the 76 code switches only 53 were counted as unique, 13 from the field notes, and 40 from the recordings. It is the 53 unique code switches that will be presented in the following sections.

The remaining parts of this chapter will present the results regarding Mia's code switches, which will be seen in relation to various aspects: firstly, the language environment, secondly, the development of code switching frequency and complexity, thirdly, the characteristics of her code switches, and finally, the functions Mia's code switches seemed to serve.

Figure 6 illustrates the amount of identified code switches in Mia's language in the different language environments.

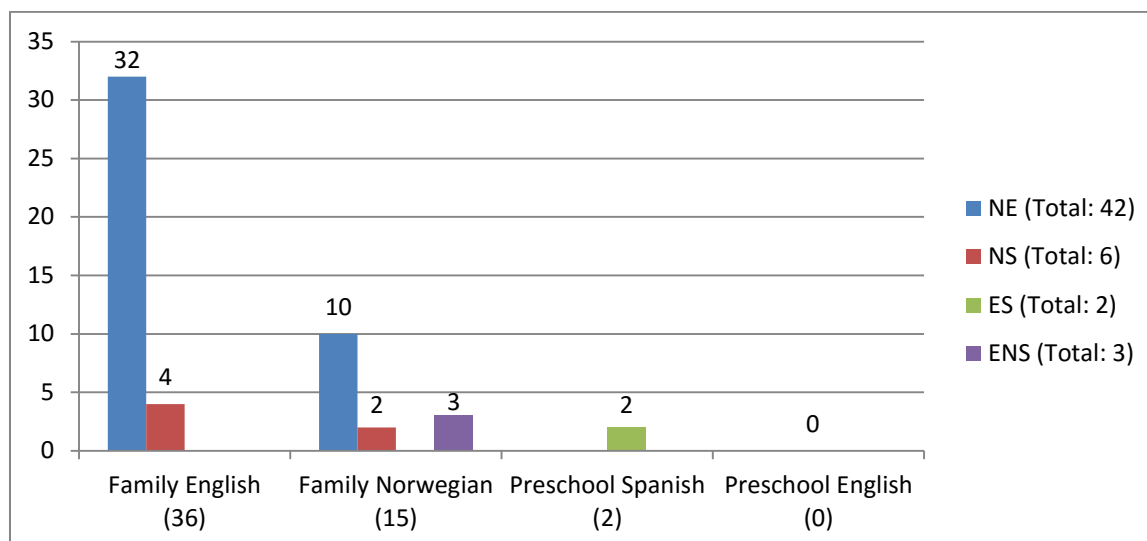
Figure 6: Amount of code switching in relation to language environment



Importantly, the low amount of code switching occurrences identified in the preschool recordings must be seen in relation to the low number of multiword utterances that were produced by Mia in this environment. As the teachers reported in the conversations, and the analysis of the recordings indicated, Mia's language production at the preschool was almost exclusively in one-word utterances. In addition, there was less data available from the preschool environment that addressed code switching, than from the family environment.

Another aspect that was investigated was the languages involved in relation to language environment. Figure 7 illustrates which languages Mia combined in the four different language environments.

Figure 7: Languages involved in code switching occurrences in relation to language environment



In Figure 7, the y-axis represents the number of code switching occurrences in the four categories that represents the different language environments. The different colored bars represent the different languages that were involved in the code switching occurrences: Blue represents Norwegian and English, red represents Norwegian and Spanish, green represents English and Spanish, and purple represents Norwegian, English and Spanish. Figure 7 indicates that most (79%) of the identified code switches were with different combinations of Norwegian and English in the family English environment.

The next step in the data analysis was to look at Mia’s production of code switches in relation to the time Mia and her family had lived in Spain. More specifically, the data collection took place over a time period of 192 days, which was divided into three periods of 64 days each: period 1, period 2, and period 3. Figure 8 illustrates how the 53 code switches were distributed over the six months, and which languages Mia code switched between in these three periods.

Figure 8: Development of code switching during the research period

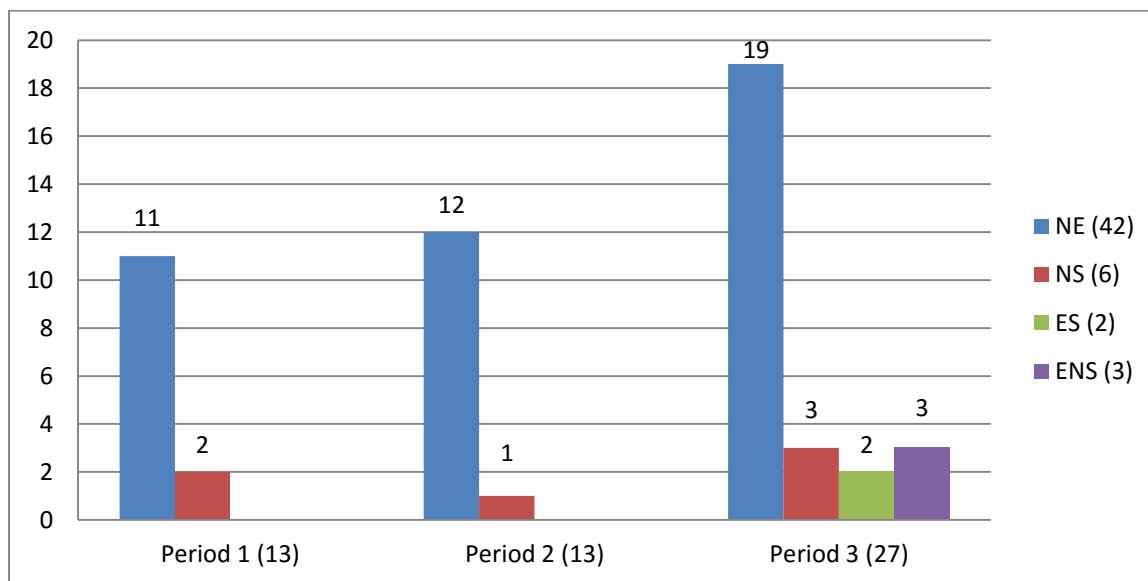


Figure 8 illustrates how the 53 code switching occurrences identified in the research were distributed over the time period of six months. Figure 7 follows the same explanation key as Figure 8, except from the x-axis, which represents the first, second and third period of the research period, and the number in brackets provides the total sum of code switching occurrences for each time period.

During the first period 13 code switching occurrences were identified, during the second period another 13 code switches were provided in the data, and during the third period 27 code switches were identified. The amount of code switches that involved Norwegian and English increased by one from the first to the second period, and from the second to the third period the amount increased by seven. The number of code switches that involved Norwegian and Spanish was too small to notice any patterns. Moreover, the third period was the only period that included code switches that did not include Norwegian, and also the only period that included trilingual code switches. Two of these were repetitions of the exact same phrase, in a very similar setting. However, there were two days between these occurrences, which was the reason both occurrences were counted as unique code switches.

The first code switching occurrence that was identified in the data occurred when the family had lived in Spain for one month. As Example 1 illustrates, this code switch involved Norwegian and English.

Example 1 (V001-1-1)

Mia (2;2 – 1mo¹⁴) and the researcher are reading a book, which Mia has never heard in Norwegian, but has heard a couple of times in English. The researcher both reads, and speaks in English, while Mia responds mostly in Norwegian. The researcher has been speaking English only since the activity was initiated (1.5 minutes before the code switch). There is a short period of silence while the researcher turns the page, as soon as the page is turned Mia responds to the picture of a hunter aiming at a rabbit:

Mia	Researcher	Comment
<i>nei</i> don't shoot!/ (no don't shoot!/)		CS (V001-1-1)

This code switch involves one Norwegian word, and one phrase that Mia had learned as a whole. There was nothing in the data that indicated that Mia knew the meaning of the words in this phrase at this moment, which fits Wray's (2002) description of formulaic sequences.

The first identified code switch that involved Norwegian and Spanish occurred when the family had lived in Spain for 1.5 months, and Mia had attended preschool for 1 month. This is presented in the following example.

¹⁴ The information in the brackets represents Mia's age and the number of months Mia had been exposed to her two new languages.

Example 2 (V002-1-1)

Mia (2;2.5 – 1.5mo) and the researcher are playing with wooden building blocks of different color. During the activity Mia has named several colors in Spanish, English, and Norwegian. The researcher has been speaking English only since the activity started two minutes before the following example.

Mia	Researcher	Comment
//<?>]	let's build a new house · a new house · OK then we need a //red] what do you say in Spanish? you say/	
rojo/		
(red/)	rojo/	
<i>det er ikke rojo/</i>	(red/)	Pointing at a purple wood block.
(that is not red/)	no this is not red this is purple/	CS (V002-1-1) Confirming Mia's statement.

In this example the researcher wanted Mia to answer in Spanish, and asked specifically to get the color named in Spanish. When Mia had responded to the question and continued the interaction, she produced a sentence with a Norwegian grammatical structure, where a Spanish word was inserted.

There were also three occurrences of code switches with three languages involved. The first one was produced when Mia's family had lived in Spain for 5 months, and is presented in Example 3.

Example 3 (FN008-1)

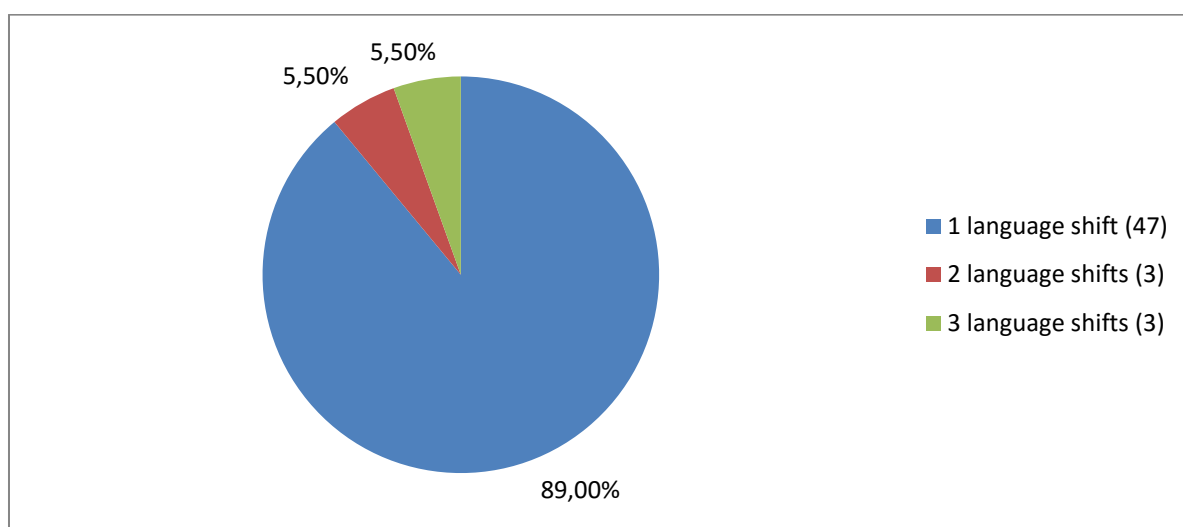
Mia's (2;6 – 5mo) family and some Norwegian speaking visitors are at a café eating ice cream. Approximately five minutes before this code switching occurrence the ice cream was ordered with the use of English and Spanish. Besides, the language use was Norwegian only. Mia's ice cream has one white and one pink scoop.

Mia	Researcher	Comment
	<i>kan jeg få smake is av deg?/</i>	
	(can I have (a) taste (of) your ice cream?)	
<i>ja/</i>		
(yes/)		
	<i>ikke pink men blanco/</i>	The researcher moves his spoon slowly towards Mia's pink ice cream scoop. CS (FN008-1)
(not pink but white/)		

Mia used all three languages even though, as indicated by the field notes and recordings, she knew the name of both colors in Norwegian, English and Spanish.

Another aspect of Mia's code switching that was explored was the number of language shifts in each of the code switching occurrences. The pie-chart in Figure 10 is divided into three categories: one language shift, two language shifts and three language shifts. The term *language shift* refers to the number of language changes in one TaT. For example: '*ballong · balloon! · kom/*' (balloon · balloon! · come/) (corpus, Mia 2;3, CS: A002-2-1) was counted as two language shifts because the language shifted from Norwegian to English, and from English to Norwegian.

Figure 9: Number of language shifts in the code switching occurrences



As Figure 9 shows, Mia’s code switches were mostly characterized by one language shift, and as the following overview reveals most of these switches were from Norwegian to English.

Table 5: Language shifts

1 language shift		2 language shifts		3 language shifts	
N-E	33	N-E-N	2	N-E-N-S	1
E-N	7	N-S-N	1	N-S-N-E	2
S-E	2				
N-S	5				
Total:	47	Total:	3	Total:	3

The eight different language shift combinations presented in Table 5 will be exemplified by presenting eight different TaT’s chosen from the corpus. The context explanation will be limited to the marking of each excerpt as FE (family English environment), FN (family Norwegian Environment), or PS (preschool Spanish environment).

Example 4 (several examples from different transcription excerpts)

Ex.	Language shift combination	Excerpt from corpus	Language environment	(Age - months in Spain)	Reference to corpus:
4a	N-E	<i>der er baby dog/</i> (there is baby dog/)	FE	(2;2.5 - 1.5)	V002-2-1
4b	E-N	<i>pink kanin/</i> (pink bunny/)	FN	(2;7 - 6)	FN007-1
4c	S-E	<i>=tres five/</i> (=three five/)	PS	(2;7 - 6)	A055-1-2
4d	N-S	<i>det er=Mia fant · rojo/</i> (that is=Mia found · red/)	FE	(2;4.5 - 3.5)	V007-1-2
4e	N-E-N	<i>det er car og/</i> (that is car too/)	FE	(2;2.5 - 1.5)	V002-3-2
4f	N-S-N	<i>kan vi dra på picnic I dag papi vær så snill?/</i> (can we go for a picnic today daddy please/)	FN	(2;7 - 6)	FN012-1
4g	N-E-N-S	<i>ikke pink men blanco/</i> (not pink but white/)	FN	(2;6 - 5)	FN008-1
4h	N-S-N-E	<i>sjå mamma tres og five/</i> (look mommy three and five/)	FN	(2;7 - 6)	FN009-1

Most of Mia's code switches (68%) were characterized by the insertion of single English words into Norwegian utterances. However, there were 10 instances where the code switch resulted in more than one single word from another language. Two of these ten instances have already been presented in example 4g and 4h. In fact, six out of these ten instances were connected to numbers, such as the final example in the overview above (4h), and the following excerpt (Example 5) where Mia (2;7 – 6mo) was counting cats in a book.

Example 5 (A043-4-1)

Mia	Researcher	Comment
= <i>det</i> · <i>det</i> = <i>det</i> = <i>det</i> = <i>det</i> · <i>det</i> <i>er</i> one · two three four/		CS: (A043-4-1)
(= <i>it</i> · <i>it</i> = <i>it</i> = <i>it</i> = <i>it</i> · <i>it</i> is one · two three four/)		

Despite the differences in the identified code switching occurrences, all 53 occurrences were of the intrasentential type. 51 of the code switches consisted of whole words that were code switched intrasententially. All the examples above (example: 1, 2, 3, 4a-h, 5) were examples of such code switches.

The other two code switches that were identified in the data were within morphological boundaries, and will be presented in the following paragraphs. The first one (example 6) occurred when Mia and her family had lived in Spain for 2.5 months. Example 6 illustrates the code switch, and also provides an example of how TE's were used by the researcher to teach Mia words. The word *sun* was not entirely new to Mia, so in this case the researcher used the TE as a form of practicing a relatively new term.

Example 6 (FN003-1)

Mia (2;3.5 – 2.5mo) and the researcher are eating breakfast and are looking out of the window. The researcher has been speaking Norwegian the whole morning.

Mia	Researcher	Comment
	<i>se der kommer solen</i> · sun/ (look there comes (the) sun · sun/)	
sun/		A moment of silence, and the sun disappears behind some clouds.
<i>sun</i> <i>hvor</i> <i>er</i> <i>du</i> ?/ (the sun where are you?/)		CS (FN003-1) Within word boundary, Norwegian suffix <i>a</i> .

In this example Mia first repeated the word that was fairly new to her, and then later morphologically adapted the word to fit the Norwegian sentence structure. Instead of using the definite article *the* in front of *sun*, she added the Norwegian suffix *-a* to the word, which is the correct way of making the Norwegian indefinite noun *sol* into the definite noun *sola*. An important aspect here is that the researcher did not include the definite article when he presented the TE. Maybe Mia’s utterance would have been different if the researcher had included the definite article.

The second example of a code switch within the word boundaries, which occurred when the family had lived in Spain for 4.5 months, will be presented in the following excerpt from the corpus:

Example 7 (CSV009-2-2)

Mia (2;5.5 – 4.5mo) and the researcher are talking about some pictures in a book. The researcher has been speaking English only for the last three minutes. One of the pictures shows a dog eating a bone:

Mia	Researcher	Comment
<i>voff/</i>	what does the dog eat?/	
(woof/)	no not <?> what does the dog eat · the dog is hungry and the dog in the book eats · what does the dog eat?/	
<i>eate den/</i>		Mia is pointing at the dog bone in the dog’s mouth.
((is) eating that/)	yeah what’s this?/	CS (V009-2-2) The researcher is pointing at the dog bone.

Mia’s utterance is not a complete sentence, so it is difficult to say exactly in what way she wanted to communicate that the dog was eating the bone. However, she did manage to communicate this successfully. The Norwegian TE for the verb *to eat* is *å spise*, which is built upon the root *spis*. When using the Norwegian verb in this context, it would be correct to for add the suffix *-er* to the root word. In Mia’s family’s dialect the suffix *-e* is used instead. This means that if Mia was to say for example *he is eating that*, the correct utterance would be *han*

spise den. Based on this, it is assumed that Mia used the English verb *eat* and added a suffix from her Norwegian dialect, which resulted in her utterance: *eate den*.

The next two aspects of Mia's code switches that were analyzed were based on the code switched element. In order to identify the code switched element, different approaches were used for the insertional code switches and the non-insertional code switches. An insertional code switch is characterized by an element from a non-dominant language that is inserted into the structure of the dominant language. The non-insertional code switches were the ones that did not follow the definition of the insertional code switches¹⁵. In the corpus there were 36 (68%) insertional code switches and 17 (32%) non-insertional code switches.

The non-insertional code switches were characterized by words from different languages in random order without any sentence structure. For example the code switch “*nei no/ (no no/)*” (corpus, Mia 2;3, CS: V003-2-2) did not have a sentence structure that could connect it to a specific language. As a result, the code switched element was identified by looking at the first language of the TaT, and then identifying words from another language in the same TaT as the code switched element. If the same approach was applied for the insertional code switches, such as this one ‘*suna hvor er du?/ (the sun where are you?)*’ (corpus, Mia 2;3.5, CS: FN003-1) it would not always identify the correct element as the code switched one. As seen in the example, the code switch starts in English, and shifts to Norwegian. This would, according to the approach used for the non-insertional code switches, suggest the Norwegian elements in this TaT as the code switched elements. So, for the insertional code switches, the identification of the code switched elements was based on the inserted elements regardless of the order of the languages in the TaT. Because three of Mia's code switches involved two different code switched elements, the total number of code switched elements (56) was larger than the number of code switching occurrences (53).

With these two different approaches to identify the code switched elements, each code switch was categorized by the language code switched into, and the word class of the code switched element: noun, adjective, number, verb, and other. The results from this categorization are presented in Table 6.

¹⁵ Some studies distinguish between insertional and alternational code switches (Muysken 1995). In the current study the non-insertional code switches did not fit the definition of alternational code switches, and were therefore assigned another label. For more information about the definitions, see section 2.1.1.

Table 6: Word class of code switched elements

	Nouns	Numerals	Adjective	Other	Verbs	Total
Norwegian	3.6%	0%	0%	3.6%	0%	7.2%
English	46.5%	12.5%	5.3%	7.1%	5.3%	76.7%
Spanish	1.8%	7.1%	7.1%	0%	0%	16.0%
Total	51.9%	19.6%	12.4%	10.7%	5.3%	Total amount: 56

Table 6 makes it clear that the largest amount of code switched elements were nouns (over 50%). The largest amount of the code switched nouns were names of animals, toys or food. The numerals, which accounted for almost 20% of the code switched elements, were used in counting of objects, or recognition of written numbers. Roughly 12% of the code switched elements were adjectives, and these were exclusively the names of colors. The category *other* included formulaic sequences, such as *thank you*, exclamations, such as *no*, and phrases such as *please daddy*, and accounted for close to 11% of the code switched element. Slightly more than 5% of the code switched elements were verbs; these were connected to daily routines, such as *sleep*.

The next aspect of Mia's code switches that was investigated was the directionality of her code switches. More specifically, the data was analyzed to see which languages Mia code switched from, and which languages Mia code switched into. This analysis was also based on the two aforementioned approaches to identify the code switched elements in insertional and non-insertional code switches. Figure 10 illustrates the proportion of code switches away from Norwegian, from English, and from Spanish.

Figure 10: Code switching directionality (away from language)

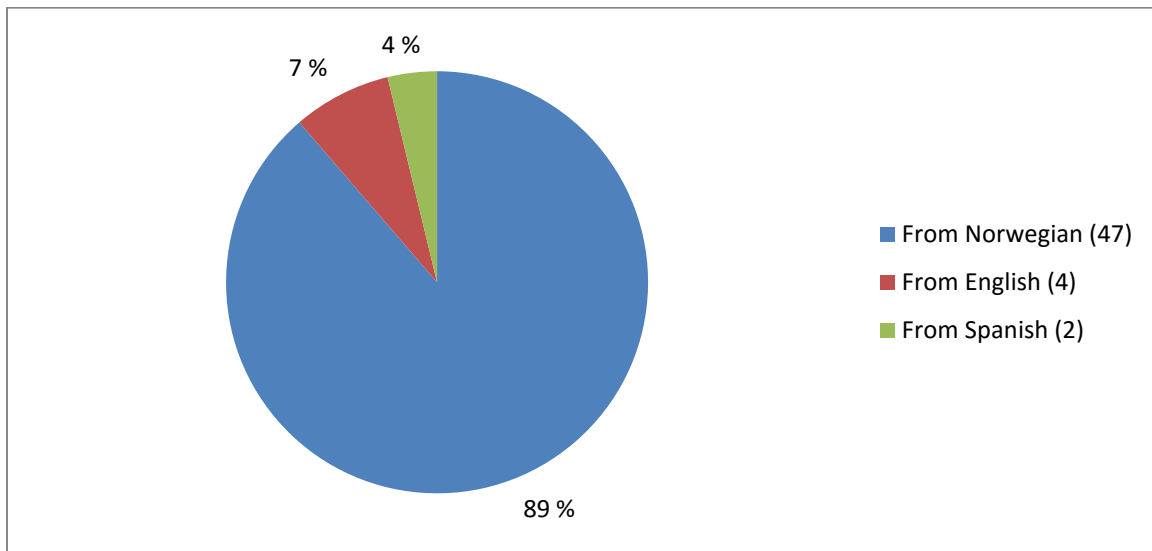


Figure 10 makes it clear that the largest amount of Mia’s code switches were from Norwegian to one of the other two languages. As for the languages that Mia code switched into, this is illustrated in Figure 11.

Figure 11: Code switching directionality (into language)

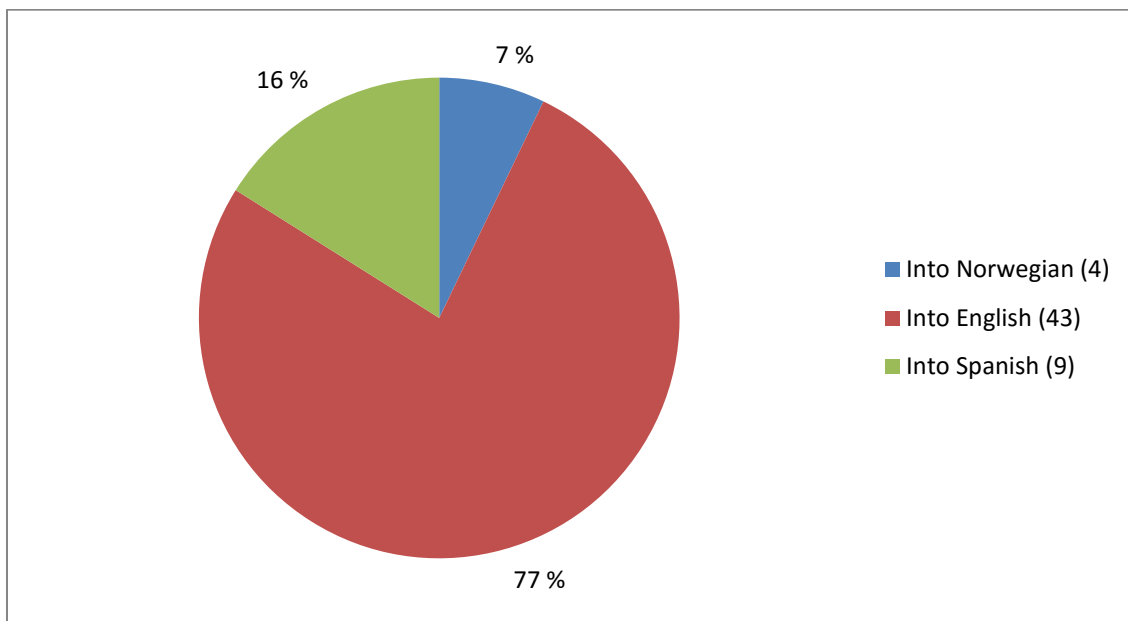


Figure 11 reveals that most of Mia’s code switches were from either Norwegian or Spanish, and into English. If Figure 11, Figure 10, and Table 6 are seen in relation to each other, it is

clear that Mia's code switches were mainly from the Norwegian language and into the English language.

Finally, attention will be turned to the functions of Mia's code switches. It was expected that Mia, in line with Baker (2011) and Meisel (1994), would code switch to fill lexical gaps. In order to investigate this, an analysis was made where all the code switched elements in Mia's corpus were compared to the CDI vocabulary checklist results, the field notes and the recordings to find out if the code switched elements were part of Mia's active vocabulary in the languages she code switched away from. The results indicated that none of Mia's code switches included words that were not part of Mia's active vocabulary in the languages code switched away from. In other words, none of Mia's code switches served the purpose of filling lexical gaps.

Moreover, all of Mia's code switches were analyzed in relation to function, and categorized based on what seemed to be the reasons that Mia code switched. Two of the categories were based on a study by Baker (2011), which suggested that code switching was sometimes used by children to copy an adult's language use, and sometimes to reinforce a request. One category was based on Vihman's (1985) description of random code switches that was defined as not reflecting awareness of context or interlocutor's language. The final category was data driven, and was based on the findings in the current research, which indicated that Mia sometimes code switched to respond to an adult's encouragement to use a specific language. The four categories were labelled *copying an adult's speech*, *reinforcing a request*, *responding to an adult's encouragement* and *random code switches*. Examples of each of the four categories will be presented in the following paragraphs. For the first category two examples will be presented, for the second category there will be three examples, and one example will be connected to each of the last two categories. Each example will be followed by an explanation.

Firstly, *copying an adult's speech* seemed to be the reason for 60% of Mia's code switches. This often resulted in code switching because she only copied the adult's language use for fragments of her own utterances. The reason two examples (Example 8 and Example 9) are provided for this category is that the examples illustrate two slightly different outcomes.

Example 8 (V004-2-1)

Mia (2;3.5 – 2.5) is looking at a picture in a book together with the researcher. The researcher has been speaking only English for the last 8 minutes. The researcher asks Mia if she can find a balloon in the picture:

Mia	Researcher	Comment
	where is the balloon? · where is the balloon?/	
<i>der er</i> balloon/ (there is balloon/)		Mia pointing at the balloon. CS (V004-2-1)
	yeah good girl/	

The example shows that Mia, after hearing the researcher use the word *balloon*, also used the same word, but did not use English for the rest of her utterance, which resulted in a code switch. The following example is another way of *copying an adult's speech*.

Example 9 (A043-4-1, A043-4-2, A043-4-3)

Mia (2;7 – 6mo) and the researcher are reading a book, and the researcher has used only English for the last 6 minutes. They are looking at different pictures in the book, and talks about what they can see:

Mia	Researcher	Comment
<i>pusekatten gjemmer</i> / (the) pussycat (is) hiding)	what's this then?/	Pointing at a dog Responding to an earlier question.
<i>hund</i> / (dog/)	yeah/	Responding to the researcher's question
= <i>det · det=det=det=det · det er</i> one · two three four/ (=it · it=it=it=it · it is one · two three four/)	yeah dog=	Attention on the cats, pointing at the cats CS (A043-4-1)
<i>det er// fi] det er</i> five six/ (it is// fi] it is five six/)	four cats/ //<it>]	CS (A043-4-2)
= <i>masse</i> ice cream/	oh good · good girl · wow and what's= oh yeah lots of ice cream/	Pointing at a fridge full of ice cream CS (A043-4-3)

In this example, Mia does not copy the language use in terms of the specific words that the researcher uses, but she seems to be influenced to use just the same language as the researcher.

Secondly, the following three examples indicate that Mia also code switched with the purpose of *reinforcing a request*, which was interpreted as the function of 6% of Mia's code switches. Three examples (Example 10, 11 and 12) are presented because they reflect metalinguistic knowledge, and different ways Mia used her language knowledge as part of communicative strategies.

Example 10 (FN011-1)

Mia (2;6.5 – 5.5mo) and the researcher are preparing for a longer drive. The language use this morning has been Norwegian only. The researcher asks Mia what she wants to bring in the car, and Mia sees some bananas in the kitchen.

Mia	The researcher	Comment
<p>kan Mia ta med banan · please daddy/</p> <p>(can Mia bring bananas · please daddy/)</p> <p>Mia sa please daddy (LF)/</p> <p>(Mia said please daddy (LF)/)</p>	<p>(LF) yeah/</p>	<p>CS (FN011-1)</p> <p>The researcher is laughing because he is surprised by Mia's language use.</p> <p>Repetition, not unique CS.</p>

It seemed that Mia used the first code switch in this excerpt to make an impression on the researcher hoping that this would make the researcher respond positively to her request. The second code switch in example 10 indicates that Mia was aware of her language choice. The next example from the same category was very similar to the abovementioned one.

Example 11 (FN012)

Mia (2;7, 6mo) and the researcher have just gotten out of bed. The researcher is changing Mia's diaper, and asks what Mia wants to do today. The language has been Norwegian only.

Mia	The researcher	Comment
	<i>hva skal vi gjøre i dag?/</i>	
	(what are we doing today?/)	
<i>kan vi dra på picnic i dag papi være så snill?/</i>		CS (FN 012-1)
(can we go for a picnic today daddy please?/)		
	<i>nei men kanskje en tur på lekeplassen/</i>	
	(no but maybe a walk to the playground/)	
		Then there is a silent period before Mia takes a hug from the researcher and continues:
<i>Mia sin papi og Emma sin papi/</i>		Emma (pseudonym) is Mia's sister. (repetition, not a unique CS)
(Mia's daddy and Emma's daddy/)		

This is another example of Mia using one of her new languages to reinforce a request. The third and final code switch that was placed in the same category as the two above, serves the same main function, namely to reinforce a request, but in a different manner.

Example 12 (FN006)

Mia (2;5 - 4mo) the researcher, Mia's mother and Mia's sister are eating supper while Mia cannot find her spoon. Mia's mother is busy helping Mia's sister, so she does not pay attention to what Mia says. The language has been Norwegian only for several hours.

Mia	Mia's mother	Comment
<i>hvor er skjeen?/</i> (where is (the) spoon?/)		Mia is looking at her mother.
	<i>hæ?/</i> (what?)	
<i>hvor er spoon?/</i> (where is (the) spoon?/)		CS (FN006-1) Mia changes language when she does not get the answer she wanted the first time.

There are three possible explanations for this code switch. Firstly, it can be a random code switch that occurred for no special reason. Secondly, Mia might have changed language because she thought her mother did not understand what she said, which is not likely since Mia seemed to be well aware that her parents could understand Norwegian. Finally, Mia might have code switched because she wanted to put extra emphasis on her request in order to manipulate her mother's answer. Based on the field notes, Mia's intonation and body language indicated that she thought she was not getting a spoon, and therefore code switched to manipulate her mother's response, in other words, to reinforce a request.

Thirdly, another reason for some of Mia's code switches seemed to be the result of a *response to an adult's encouragement*, which is illustrated by Example 13.

Example 13 (V007-1)

Mia (2;4.5 – 3.5mo) and the researcher are reading a book. The researcher has only used English for the last 10 minutes. He points at a bird and asks what it is. Mia answers in Norwegian, and the researcher helps her to retrieve the English word.

Mia	Researcher	Comment
	What's this?/	Researcher pointing at a bird in the book.
<i>fuggel/</i>		
(bird/)		
// <i>det er frosk]</i>	yeah · how do //we say] in how do we say in English? how do we say this in English?/	Mia points at a frog. The researcher points at the bird.
(//that is frog])		Mia points at the bird.
<i>der/</i>		
(there/)	bii/	Trying to help Mia say bird.
<i>det er bird/</i>		Mia pointing at the bird.
(that is bird/)	bird yes=	CS (V007-1-1)

The researcher guided Mia to use the word *bird*, which is the reason this code switch was categorized as a response to an adult's encouragement.

The fourth and final category included code switches that did not seem to be part of a conscious choice, and were not influenced by anyone else in the setting. This category of *random* code switches is illustrated in Example 14.

Example 14 (FN004-1)

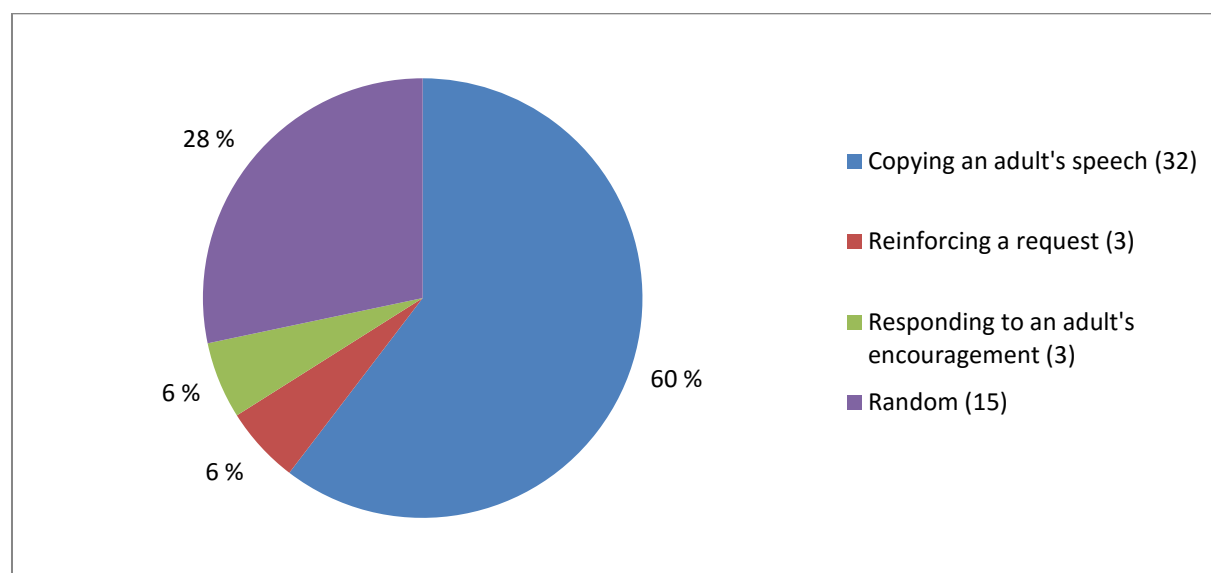
Mia (2;3.5 – 2.5mo) is preparing breakfast together with the researcher. Mia is setting the table, and is looking for a table spoon, but can only find a tea spoon. Because this is early morning, it is certain that Mia has not heard any other languages than Norwegian:

Mia	Researcher	Comment
	<i>det var bare en bitteliten t-skje/</i>	
	(there was only a very small teaspoon/)	
<i>ja baby spoon/</i>		CS: (FN004-1)
(yes baby spoon/)		

The researcher in this example used the Norwegian equivalent for *teaspoon*, which according to the field notes and CDI is also a known word for Mia. Then, Mia confirmed the researcher’s observation, but not by using the same word as the researcher, but the English equivalent *spoon*.

Now that all four categories have been exemplified, a presentation of the distribution of Mia’s code switches will be illustrated in Figure 12.

Figure 12: The functions of Mia’s code switches



As Figure 12 shows 60% of Mia’s code switches were placed in the category that is explained as *copying an adult’s speech*. 28% were interpreted as *random* code switches, and the final

12% were divided between the category of *responding to an adult's encouragement* to use a specific language, and *reinforcing a request*.

This suggests that the majority of Mia's code switches were results of an adult's language choice, which influenced Mia to copy the use of the exact same elements as the adult, or to copy the language choice of the adult and use the same language without copying the use of the same word.

In summary, the CDI's indicated that Mia's vocabulary developed most in the CDI categories that included content words that she was exposed to in several contexts, and that conveyed specific meaning. The more Mia's languages developed, the more frequently she code switched, and the code switches developed to be more complex. As for the characteristics, all of Mia's code switches were intrasentential, the majority was code switching of whole words, and a few code switches were within the morphological boundaries. Most of Mia's code switches were insertional, and the directionality was mostly from Norwegian to English. A small amount of her code switches were trilingual, and the largest proportion of her bilingual code switches included elements from Norwegian and English. Mia's code switches served various purposes, most of them were the results of Mia's attempt to copy the language use of an adult, and a small portion of Mia's code switches seemed to be part of a communication strategy.

5 Discussion

The main aims for the current research were to investigate Mia's English vocabulary development, and different aspects of code switching in her language. The results from the data that was collected during Mia's first six months in Spain, where she was exposed to two new languages, have provided a good foundation to critically examine these aspects of Mia's language development in relation to the previous research and theory in the field. This will be the main focus in the present chapter, which starts with a discussion regarding aspects of Mia's vocabulary development, and is succeeded by addressing the characteristics, and the functions of Mia's code switches.

5.1 Vocabulary development

The first part of this section looks at how Mia's two languages developed in relation to each other, and at some possible explanations for the differences. The final part discusses the passive and active vocabulary and looks at some differences and common denominators in the development.

5.1.1 Differences between her new languages

As the results from the CDI illustrated, the vocabulary checklist score was higher in Mia's Spanish language than her English language in the passive vocabulary (72.2% for Spanish, and 58.2% for English). The score for both languages in her active vocabulary was very similar (30.8% for Spanish, and 30.2% for English). It was expected that Mia's English vocabulary would develop more than the Spanish because she had exposure to English both at the preschool and at home. In contrast, the exposure to Spanish was almost exclusively connected to the preschool. The exceptions were when Mia overheard the researcher communicate in Spanish in shops and restaurants or with friends that did not speak English, and when she initiated Spanish language use in the family environment. Mia's Spanish language development occurred mainly in the preschool, where the language environment was estimated to be roughly 50% English and 50% Spanish. This means that Mia was exposed to more English than Spanish, and still the CDI results indicated that Mia's English vocabulary was smaller than her Spanish one.

The unexpected findings of a higher score in the Spanish CDI than the English CDI can be seen in relation to Hamers and Blanc's (2000) claim that for a child to acquire a language, the child must experience a need to acquire the different aspects of language it is exposed to. The extra language experience Mia had in English, as compared to Spanish, occurred in the family environment. In this environment, Mia might not have experienced a significant need for the English language because she could communicate freely in Norwegian, and also in Spanish.

Moreover, Vygotsky (1978) suggests that language acquisition is a product of socialization, and that children develop their language when they experience adult modelling of language use. As for Mia's language experience with English and Spanish, there was a difference in the settings where this occurred. However, none of the settings lacked the aspect of socialization or adult modelling.

The largest difference between Mia's English and Spanish language experience was that she experienced more one-to-one interaction with explicit teaching in Spanish than English in the preschool. In the family environment, Mia's parents also tried to teach Mia different concepts in one-to-one settings, but this occurred in play with for example puzzles, building blocks or book reading. In these settings Mia's parents would not stick to one topic, but ask various questions about different topics. Often, an answer from Mia was not required, but the focus of the parent usually followed Mia's focus, which shifted rapidly.

In comparison, the one-to-one settings in the preschool were characterized by a much clearer structure. They mostly included different types of flash cards with numbers, colors, shapes etc., and each session included one topic, for example colors. To practice colors, a teacher would use colored flash cards, and spend a couple of minutes asking Mia to name the colors, followed by a pause before changing topic. The one-to-one settings in the preschool provided clear distinctions between the different topics and clear links between each word and what it referred to. In addition to the importance of child-directed speech (Oller, 2010), the findings in the current study suggests that structure also plays an important role when specific concepts are to be learned.

Established theory claims that socialization and adult modelling of language use is predominant in children's language acquisition (Hamers and Blanc 2000; Vygotsky, 1978). Accordingly, Mia's language development was most likely largely dependent on the socialization with her caregivers and peers in the family and preschool environment. However, in terms of vocabulary development, which is just a part of language development, the explicit teaching in the preschool might have helped Mia in systematizing her knowledge

into something that was easily retrieved. To conclude, it is suggested that Mia's motivation for acquiring English and Spanish was most likely equal, and the explicit teaching made her Spanish vocabulary develop more rapidly.

Another point to consider is that the scores and the large amount of TE's in the CDI's indicate that Mia acquired a large amount of TE's. For monolingual children the *Principal of Contrast* (Clark, 1993) suggests that young children only acquire one word for each concept. According to De Houwer, Bornstein and De Coster (2006) and Poulin-Dubois et al. (2012) it is normal that young bilingual children acquire TE's, which is supported in the current study. According to Genesee and Nicoladis (2007) and Patterson and Pearson (2004), both as cited in Poulin-Dubois et al. (2012), these findings can be seen as evidence for language system differentiation in Mia because her need for TE's must be a result of her awareness of the differences in the language systems.

5.1.2 English vocabulary development

Mia's total score in the English CDI vocabulary checklist was 58.2% in her passive vocabulary and 30.2% in her active vocabulary. A higher score in Mia's passive vocabulary than her active vocabulary is in line with established theory, which claims that children exposed to new languages usually goes through a silent period, in which they only develop their passive vocabulary, and later starts developing an active vocabulary (De Houwer, Bornstein and De Coster, 2006; R. Ellis, 2008).

As for the development in each category of the CDI vocabulary checklist, Mia's highest score was on the categories that included words familiar for Mia from both the preschool environment and the family environment. Hamers and Blanc (2000) suggest that if a child is to learn a language, the child must experience the language as a valuable and functional tool. They also claim that if the adults surrounding a child model certain features of language as valuable and functional, the child will also develop these aspects. With this in mind, it can be pointed out that Mia's score in both the passive and active vocabulary was the highest in the categories that included words that were related to the activities that were modelled by caregivers from several contexts, such as the preschool and the home.

There were four categories that stood out with a high score in both the passive and active vocabulary, namely, category 1 *Sound Effects and Animal Sounds*, category 2 *Animals Names (real or toy)*, category 5 *Food and Drink*, and category 12 *Games and Routines*. As indicated by the field notes and conversations with the preschool teachers, Mia often played

with toy animals in the preschool and at home, which can explain the high score in category *1 Sound Effects and Animal Sounds* and *2 Animals Names (real or toy)*. As for the high score in the two categories *5 food and drink* and *12 games and routines*, this can be explained by Mia's experience with these words in the family environment and in the preschool environment.

Category *14 Words about Time* and category *19 Quantifiers* had a low score in both the passive and the active vocabulary. These included many function words, and words that referred to concepts that Mia might have regarded as less valuable. At home Mia produced multiword utterances with function words in them, but the function words she used were from the Norwegian language. At school, Mia produced almost only single word utterances, which made her need for function words from English or Spanish small. Such findings could be accounted for by Hamers and Blanc's (2000) claim that a child will only learn to use the language aspects that the child experiences as useful in the social environment.

5.2 Code switching

The main focus of the current section will be on exploring characteristics of the different code switches that occurred in Mia's language, and to explore the functions her code switches had. At first, the discussion will look at the development of Mia's code switches during the research. The discussion will mainly deal with characters of Mia's code switches, but also a look at language choice and language modes, which will provide a broader understanding of some of the code switching characteristics, such as languages involved. Following this, classification, and a discussion about the characteristics of Mia's code switches will take place. Finally, the discussion will deal with some factors influencing the code switching, and the purposes the code switches serve in Mia's language.

5.2.1 Code switching development

Mia and her family had lived in Spain for around one month when her first code switch was identified by the researcher. It is also noted that her use of English and Spanish was not very frequent at that point of time, which was no surprise since she had only been exposed to these languages for one month. As the time passed, and Mia's experience with English and Spanish increased, all of her three languages developed and Mia started to code switch. During the

first two months she and her family lived in Spain (period 1) there were thirteen identified code switches, and since her first code switch occurred after one month, this means that the thirteen code switches occurred during one month. Over the next two months (period 2), the corpus includes another thirteen code switches, which means that the frequency between her code switches, as compared to the first period, had decreased. In the last two months of the research period (period 3), there were 27 code switching occurrences.

This development is partially in line with the findings of the study conducted by Wei and Hua (2006). They claim that as bilingual children's languages develop, code switching becomes more frequent. The findings in the current research do not reflect a pattern that is as clear as what Wei and Hua (2006) suggest, but there is no doubt that Mia code switched more in the last two months when her languages had developed than she did in the first months of the study. Also, it was during the last two months of the study that Mia made the only trilingual code switches, and the only code switches that did not include Norwegian.

Additionally, if the number of language shifts is taken into account, the findings reveal that five out of six code switches that included more than one language shift occurred during the last two months. In summary, as Mia's languages developed, her code switches increased in terms of frequency, and switches that included more than one language shift occurred more frequently.

5.2.2 Classification and characteristics of code switching occurrences

Now the focus will move towards the characteristics of Mia's code switches, which will be compared to findings in previous studies, and with a look at possible explanations for the variations in the studies. Firstly, a major classification, secondly, the types of the code switched elements, and finally, the role of each of the three languages.

As for the main categorization, all of Mia's code switches were intrasentential (Poplack, 1980). This finding is in line with both Redlinger and Park's (1980) and Wei and Hua's (2006) study, who also found that intrasentential code switches seemed to be the most common type in children's language. In Wei and Hua's (2006) study, they also concluded that the children code switched whole phrases and formulaic sequences more often than they code switched single lexical items. However, Mia's code switches showed a different pattern. The largest amounts of Mia's code switches were insertion of single lexical items, and there were only three (5.3%) code switches that included formulaic sequences or phrases.

The differences between the results of these two studies could be attributed to certain features of their design. Wei and Hua's (2006) study followed two children who were raised with Chinese Mandarin as their only language until around two and a half years of age when they moved to Britain with their families and experienced regular English exposure in addition to their mother tongue. The data was collected at four stages during the first 18 months after the families arrived in Britain.

Different patterns of exposure to the new language(s) in the current study and in Wei and Hua's (2006) study can explain the contrasting findings. The two children in Wei and Hua's (2006) study had television as the main source of English (the new language) for the first period after they arrived in Britain (3 months for one of the children and 6 months for the other). They arrived in Britain when they were at the age of 2;3 and 2;6. As for the time in preschool, it was pointed out by the researchers that the children's days at preschool were mostly filled with practical activities, and a reading session, but not settings with direct interaction and focus on learning. Also, during the first six months of the time in Britain, which was also the first six months of the research period, the children's parents mostly addressed the children in Chinese Mandarin. As their research revealed, both of the children's English language use was mainly the use of formulaic sequences.

In comparison, Mia's language experience and development during the first six months in a new language environment was very different. Mia experienced exposure to her new languages in accordance with an OPOL approach (King, Fogle and Logan-Terry, 2008) in the preschool where different settings provided a large amount of interaction between Mia and the teachers in both English and Spanish. In addition, she experienced a non-OPOL (King, Fogle and Logan-Terry, 2008) approach in her family environment, where she was mostly exposed to Norwegian, but also a certain amount of English, and to some extent Spanish.

According to the CDI results, Mia's new languages developed into a relatively large vocabulary. The recordings and the field notes indicated that there were very few formulaic sequences in Mia's language. In the light of this, it can be assumed that both Mia and the two children in Wei and Hua's (2006) used their dominant language the most, but code switched into whatever they had available in their new languages. However, in Lanza (2004) the findings indicated that the children code switched function words more frequently than content words. These children were raised bilingually from birth, but it is very unlikely that their vocabulary included more function words than content words.

One of the types of intrasentential code switch that was identified in Mia's language was of the type that occurs within the word boundary. There were only two occurrences of this type: while one of them was an English verb with a Norwegian suffix, the other was an English noun with a Norwegian suffix. In both examples, the suffixes were from Mia's dominant language, and the English word was inserted into a sentence with Norwegian structure, this was in line with an insertional view (Muysken, 1995) and could be explained by the Matrix Language Frame model (Myers-Scottons, 1997). Hoffmann and Stavans (2007) present a similar example in their study, in which they investigated the code switching occurrences in the language of two siblings who were raised trilingually in English, Hebrew and Spanish from birth (example presented in section 2.1.5). Hoffmann and Stavans (2007) explain this code switch as an example that reflects the child's covert metalinguistic awareness that is used to cope with the demands of language production, which they see as sign of multicompetence in the child. In line with this view, Mia's two insertional code switches could be regarded as a sign of her metalinguistic awareness because she used her knowledge in Norwegian to modify English words to fit utterances based on a Norwegian matrix language.

As for further categorization, the majority of Mia's code switches were insertional. More specifically, 68% of Mia's code switches reflected an asymmetrical relationship between the three languages she was acquiring, which is one of the aspects Muysken (1995) points out in relation to insertion. In line with Boumans' (1998) definition of insertion, Mia's insertional code switches had a Norwegian frame that provided grammatical structure marked by syntax, morphology and function words. The elements from English and/or Spanish that were inserted were perceived by Mia to be congruent to the Norwegian element that would otherwise fill this slot.

The 32% of Mia's code switches that did not fit this description were categorized as non-insertional. These code switches were characterized by a lack of sentence structure, and seemed to be random in terms of languages involved and directionality.

As the data in the current study indicate, Mia's use of the three different languages varied between the different contexts. The discussion will now address this difference, and see how Mia's language use changed, and how this can be seen in relation to language modes.

Because there were no findings that indicated that Mia used Norwegian in the preschool, it can be assumed that she deactivated the Norwegian language to a certain degree when she was there. This is in line with Grosjean's (2001) notion of language modes. In this view, a trilingual has seven available language modes, three monolingual modes for each of

the languages, three bilingual modes that are made up of three different two-language combinations, and one trilingual mode where all three languages are activated. Moreover, a trilingual will not necessarily be in one of these modes, but on a language mode continuum where one or more languages are partially activated and deactivated.

The recordings from the preschool environment and the information provided by the teachers, who all understood English and Spanish but followed a one person-one language (OPOL) approach (King, Fogle and Logan-Terry, 2008), indicated that Mia usually addressed the teachers in their native language. It seemed that Mia, in line with Grosjean's (2001) wholistic view on bilingualism, alternated between different language modes depending on the interlocutor. As the recordings revealed, Mia sometimes used Spanish to address the English speaking teacher, and vice versa, but there was no examples in the recordings of Mia using Norwegian in the preschool.

In relation to what Lanza (2004) refers to as parental discourse strategy, the teachers seemed to respond to Mia's inappropriate language choices by repeating the same word in the correct language, and at times required a confirmation by the child. Based on the recordings and conversations with the preschool teachers, it seemed that Mia was aware that the teachers could understand both English and Spanish, and it also seemed like she knew that they did not understand Norwegian. This indicated that Mia experienced the preschool language environment as bilingual. When Mia was with her family, it seemed she was aware that her parents could understand all three languages. In this setting, she used mainly Norwegian, which was her dominant language, but also English and Spanish. This is in line with Lanza (2004) and Barnes (2006) who claims that children are able to make appropriate language choices based on interlocutor and context.

The field notes and the recordings revealed that when Mia was in the family environment and was exposed only to Norwegian, she could spend long stretches of time producing utterances in Norwegian only. This suggests that she moved towards a Norwegian monolingual mode. As for the other two monolingual modes available to Mia, the setting where she was closest to having only the English or Spanish language activated was most likely in one-to-one settings with one of the preschool teachers. In terms of the bilingual language modes, the data indicates that she was close to an English and Spanish bilingual mode at the preschool, and that during the English speaking sessions with Mia's parents in the family environment, it seemed that Mia moved towards a Norwegian English bilingual mode.

Hoffmann (2001) claims that trilingual children often use six language modes, but not the trilingual mode. In contrast, Hoffmann and Stavans (2007) reported some instances of

trilingual code switching, which they interpret as evidence for the use of a trilingual language mode. They also point out that a trilingual language mode is rare because of the difficulties with combining three languages. Hoffman and Stavans (2007) report less than 10% trilingual code switches in their case study, and they raise the question of whether or not bidirectional code switches should be taken as the norm in trilingual children. The current study identified three trilingual code switches. Importantly, the children in Hoffmann and Stavans (2007) study were raised trilingually from birth, which is very different from Mia's pattern of language exposure. In spite of the largely different contexts of the two studies, the small proportion (5.6%) of trilingual code switches identified in Mia's language supports the idea that bidirectionality can be seen as the norm in trilingual children's language. However, contradictory to Hoffmann's (2001) claim, based on Hoffmann and Stavans' (2007) study and the current research, trilingual mode is possible.

5.2.3 Factors influencing code switching and language choice

To explore the reasons for Mia's code switches, a closer look at the family language policy and parental discourse strategies in the environment where the code switches occurred is necessary. Out of the total of 53 identified code switches, 51 (96%) occurred in the family environment. The low number of code switches in the preschool environment could be seen in relation to the teacher's use of an OPOL approach in the preschool. However, Mia did not produce multiword-utterances in this environment, which provided no opportunities for code switching (Lanza, 2004:200-201). As a result, the two code switches that were identified from the preschool environment were not considered sufficient for a discussion basis.

Consequently, the discussion addressing the functions of Mia's code switches will only include the code switches that occurred in the family environment.

The family language policy that characterized the family language environment was in line with a non-OPOL approach (King, Fogle and Logan-Terry, 2008), which meant that there was no specific language connected to any of the parents, but each parent demonstrated knowledge in Norwegian, English and Spanish. Mia's parents used mainly Norwegian and some English when they interacted with each other and with Mia. Mia experienced extensive English language use for around ten minutes almost every day, which was part of the family language policy. Besides, Mia's parents code switched into English whenever Mia initiated this, or if there were words that they wanted Mia to be exposed to. As for the Spanish

language, this was also code switched into by the parents if Mia initiated this, and in these cases it was only to repeat the words Mia used for the purpose of encouraging her to use all her languages. In addition, Mia experienced that her parents used English and Spanish occasionally in the wider community. If this is seen in light of the code switches she made when she was with her parents, it seems that Mia was aware that her mother and the researcher could understand all three languages.

In relation to the parental discourse strategy, Mia's parents most often reacted to Mia's code switching in line with either the one referred to as *adult code switches* or the *move on strategy* (Lanza, 1998). The first one meant that if Mia used an English word when the conversation was originally in Norwegian, the parents would either make a complete shift to English for the following part of the conversation, or use the same English word in a code switch from Norwegian in their response to Mia. The second one, the *move on strategy*, was often followed if the parents were providing an English environment for the sake of exposing Mia to English. If Mia used Norwegian when her parents were using English only, Mia's parents did not make any reaction to the inappropriate language choice, but continued the conversation without making any remarks about the language choice.

As a result of the family language policy and the parental discourse strategy, Mia most likely experienced that she could use any language in interaction with her parents. In the family, code switching was accepted, and often encouraged.

In line with Lanza's (2004) findings, a language environment such as the one Mia experienced in the family environment will result in code switching in the child's language. Tomas, who was one of the children in Lanza's (2004) case study, experienced a similar attitude towards language use in the family. His parents, who raised Tomas bilingually from birth, accepted the use of any language and code switching, but encouraged the use of the minority language.

In terms of parental discourse strategy, Tomas' parents reacted according to the same two strategies that Mia's parents used in the present study. This suggests that Mia and Tomas experienced similar attitudes towards their language use in the family environment. In comparison, when Mia and Tomas were between two and three years of age both code switched in interaction with their parents. They both mainly code switched by inserting lexical items from other languages into utterances with the Norwegian grammatical framework.

As for code switching directionality, 89% of Mia's code switches were from the Norwegian language, which was her dominant language, and into a non-dominant language.

A similar conclusion was made in Wei and Hua's (2006) study, where they found that the two bilingual children in their study code switched in one direction only, namely by inserting English words and phrases in sentences with a Chinese Mandarin structure. In contrast, the findings in Hoffmann and Stavans' (2007) study indicated that the younger of the two trilingual children in their study (around 2.5 years old) did not make any code switches away from English, which was the dominant language. All code switches at this point of time were from one of the non-dominant languages and into the dominant language English.

These differences can be attributed to certain differences in the language learning contexts (De Houwer, 2009) in the different studies. Mia experienced *early multilingual acquisition*¹⁶, which is characterized by a child that is raised monolingually from birth, but experiences regular language input in two or more new languages in the preschool years (1;6 to 4;0) (De Houwer, 2009). The children in Wei and Hua's (2006) study experienced *early second language acquisition*, which is similar to early multilingual acquisition, but includes only two languages (De Houwer, 2009). In Hoffmann and Stavans' (2007) study, the children were raised trilingually from birth, which can be compared to De Houwer's (2009) definition of *bilingual first language acquisition*. In comparison, the language learning contexts in the different studies were similar for Mia and the children in Wei and Hua's (2006) study, and different for the children in Hoffmann and Stavans' (2007) study.

Accordingly, the children in Hoffmann and Stavans' (2007) study had three languages that were much more balanced in their development than both Mia and the children in Wei and Hua's (2006) study. As for the latter group of children, their proficiency in their non-dominant language(s) was so low that the children did not produce any utterances that were based on a non-dominant language structure. If they had, it would most likely increase the possibility of a lexical gap that would require a *relief strategy* (Meisel, 1994), and therefore a code switch into the dominant language. The children in Hoffmann and Stavans' (2007) study had developed all three languages enough to use them as a matrix language, which could result in the situation explained above. This points toward a link between balance and directionality of code switches, but no claims can be made on the available data.

Furthermore, 77% of Mia's code switches were into English, and 9% were into Spanish. According to the CDI scores, Mia's active vocabulary in English and Spanish were similar in size, and Mia's passive vocabulary was larger in Spanish than in English. This suggests that the directionality of Mia's code switches were not influenced mainly by language

¹⁶ The term *early multilingual acquisition* is derived from a combination of De Houwer's (2009) term early second language acquisition, and Cenoz' (2000) term multilingual acquisition.

proficiency. Language environment might have had an influence on the code switches, but according to the findings, 10 out of the 15 code switches that occurred in the family Norwegian environment included English, and not Spanish.

5.2.4 Code switching purposes

Now the focus of the discussion will move to the functions of Mia's code switches. In the results, Mia's code switches were categorized into four main categories of code switching purposes. Three of Mia's code switches (6%) seemed to serve the purpose of reinforcing a request; another three code switches (6%) seemed to be Mia's response to an adults encouragement to use a specific language; 15 (28%) code switches were categorized as random because they did not seem to serve any specific purpose, they did not seem to be results of deliberate language choices and they did not seem to be a result of influence from the environment; 32 (60%) code switches were most likely a result of Mia copying the language use of an adult.

The categories that were defined as the reinforcing of a request, and copying an adults speech were based on Baker (2011). The other two categories were defined based on the findings in the current research.

Moreover, Meisel states that “[a] factor mentioned in most studies is that children mix as a kind of *relief strategy*” (1994). This claim is similar to one of the purposes Baker (2011) highlights when he discuss code switching purposes, namely, that code switching is sometimes used to fill a lexical gap. With respect to this, based on the CDI's, the recordings and field notes, none of Mia's code switches included words that were not part of Mia's active vocabulary in the language she code switched away from. Accordingly, there is nothing in the current research that indicates the use of code switches to fill a lexical gap. One possible explanation for this is that Mia produced very few multiword utterances in her non-dominant languages. If she had, the need for a relief strategy might have been necessary.

5.3 Limitations and future research

Due to limitations in the data, some aspects of Mia's language development could not be fully explored. As for Mia's vocabulary development, more data on Mia's vocabulary development

would strengthen the research. The CDI results combined with the other data available in the study were sufficient to make certain claims, but it would have been valuable to include results from a word retrieval test similar to the one conducted in the study by Poulin-Dubois et al. (2012). More data addressing the language use between the children in Mia's preschool would most likely have contributed to a better understanding of the factors influencing Mia's vocabulary development.

Moreover, a more balanced amount of data from each language environment would provide a basis to make stronger claims regarding the language environment's influence on Mia's code switches. In terms of the characteristics of Mia's code switches, the data in the current research pointed in a direction of a relationship between the word class of the most frequently code switched elements and the proportion of this word class in Mia's vocabulary, however, there was insufficient data to make any claims based on this. A further exploration of this relationship would be interesting in a future study.

There were potential limitations related to bias in the case study. There was a possibility that the researcher, unconsciously influenced Mia towards behavior that suited the research and that interpretation of data was influenced by the researcher's expectations or wish to make specific findings. The fact that the researcher was also Mia's father, might have increased the possibility of this.

The current case study was limited to one person only, which means that the findings might not be applicable to other children that experience other languages, in a different environment and in other stages in development.

As a suggestion for further research, it would be interesting to investigate the socialization aspects in more detail. An exploration of the language use between children as compared to that used between children and adults could provide a better understanding of how different factors influence language acquisition. Another interesting feature that appeared in Mia's language two months after the research was finished, was Mia modifying Norwegian words with English-like phonological features. An investigation of this would be very interesting in connection to several aspects, such as language system differentiation and multicompetences.

6 Conclusion

The current case study set out to explore aspects of Mia's language development as she experienced a transition from being monolingual in Norwegian to an emergent trilingual in Norwegian, English, and Spanish at the age of 2;1.

The reason for the change in Mia's language experience was that she, together with her family moved to Spain. In Spain she was exposed to English and Spanish in accordance with a one person-one language (OPOL) approach (King, Fogle and Logan-Terry, 2008) in the preschool. In the family environment, she experienced Norwegian and English in line with a non-OPOL approach. Additionally, Mia experienced some Spanish use by her parents whenever she initiated the use of Spanish. The main family language continued to be Norwegian.

The data for the research was collected over a time period of six months with a starting point at the time when Mia was at the age of 2;1 and the family moved to Spain. The main research focus was Mia's English vocabulary development and code switching.

As for Mia's vocabulary development, a distinction was made between her passive and her active vocabulary, both of which were assessed with the Communicative Development Inventory (CDI). In addition, the researcher's field notes, recordings and conversations with the preschool staff provided information that was used in the analysis of Mia's vocabulary. The code switching in Mia's language was investigated with respect to characteristics and functions. The majority of data for the analysis of Mia's code switches was collected through recordings from the family and preschool environment, and field notes from the family environment, but the other two sources of data were also consulted.

The main findings in relation to Mia's vocabulary development suggested that two factors were important for Mia's vocabulary development. Firstly, she seemed to acquire words more easily if she recognized the words as valuable in the social settings that she participated in, especially if the words were functional in several contexts, such as in play with peers in preschool, and in interaction with her parents. Secondly, it seemed that she acquired more words from settings that were connected to direct one-to-one interaction with an adult than in contexts in which the adult language was not directed to her alone, but to a group of children in guided activities. The findings suggested that these two factors influenced both her passive and active vocabulary. However, as expected, her passive vocabulary developed more than her active vocabulary.

As for the main findings connected to code switching, these revealed that Mia started to code switch not long after she started using her new languages in spontaneous speech. As her new languages developed, the frequency and to a certain extent the complexity of Mia's code switches increased. The development of code switching in Mia's language seemed to be influenced by the family language policy and the parental discourse strategies. The parental discourse strategy that Mia experienced in the home most likely contributed to the use of code switching because it signaled that code switching was accepted, and also appreciated.

All of Mia's code switches were of the intrasentential type. Furthermore, there was a dominance of insertional code switches, which were most often English nouns inserted into a sentence with Norwegian structure. In relation to word class, it was the nouns that were most susceptible to code switching. Still, there were many code switching occurrences that were not insertional, but seemed to occur for no purpose.

Another characteristic of the code switches in this study was that they were mostly from her dominant language and into one of the non-dominant ones. Besides, despite that all languages could be used freely, alone or in combinations, in the family environment, the number of trilingual code switches was small. This finding seen in relation to previous research indicated that bilingual code switching is most likely less complex than trilingual code switching, and that bidirectionality can be seen as the norm in trilingual children's code switching.

The various functions and reasons for Mia's code switching testified to a certain complexity and metapragmatic awareness that was beyond the author's expectations. Mia's sophisticated use of her three languages reflected multicompetences, which allowed her to make use of the three languages in different combinations and for different purposes.

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8 Appendices

8.1 Appendix: Transcription Conventions

The transcription conventions are based on conventions used in Lanza's (2004) and Hoffmann and Stavans' (2007) studies.

Meaning	Indication
English language	Normal font
Norwegian language	<i>Italics</i>
Spanish language	Bold
Not language specific	Normal font grey background
English translation	(word)
Unintelligible	<?>
Tentative reading	<word>
Pause	.
No gap	=
Laughing	(LF)
End of utterance	/
Overlapping speech	// placed at beginning of overlap.] placed at end of overlapped utterances