CODE MIXING AND CODE SWITCHING IN MALAYALAM-ENGLISH BILINGUAL CHILDREN

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Certificate

This is to certify that this dissertation entitled "Code Mixing and Code Switching in Malayalam- English Bilingual Children" is a bonafide work in part fulfillment for the Degree of Master of Science (Speech-Language Pathology) of the student (Registration No.13SLP003). This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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Declaration

This dissertation entitled "Code Mixing and Code Switching in Malayalam-English Bilingual Children" is the result of my own study under the guidance of Dr. Jayashree C. Shanbal, Reader in Language Pathology, Department of Speech-Language Pathology, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier in any other University for the award of any Diploma or Degree.

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Dedicated to

Amma, Acha, Chechi and Kuttan

Acknowledgement

A note to my lovely acha…. “Your little girl will always follow your foot prints. You have shown me the way from your life….I know you are guiding me and blessing me when I am stepping forward…This is your little one’s effort with your blessings”

And to the source of strength and “lalana” from my lovely mom, sister and my cutest little brother…. “With out your support and prayers I wouldn’t have succeeded in my life. No words to express what I feel for you... I was falling down all the way and you were lifting me up…Thanks for making me realize that I can deal with every thing..”

To Jayashree Mam… “You inspired with your knowledge, you listened with patience, you spoke with care till the last moment…I love you Mam…”

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I know that God always comes in different ways.....He gives strength and courage to face everything…. "I will always remember you in every moments of my life for blessing me……"

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CHAPTER 1: Introduction

Prevalence studies on bilingualism reveal that half of the world's populations are bilinguals. According to Grosjean (1982) "bilingualism exists practically in every country of the world, in all classes of society and in all age groups". Currently abundant researches explore bilingualism and its manifestations in both written and spoken mode of communication. Literature reveals that it is quiet challenging to define and describe bilingualism. Most of the definition suggests what resembles Bloomfield's (1933) "native-like control of two or more languages". According to Breadsmore (1982) a bilingual is "the person who is capable of functioning equally well in either of his languages in all domains of activity and without any traces of the language in his use of the other". Mackey (1965) defines that bilingualism (including multilingualism) is alternation of two or more languages. Grosjean (1995) had provided the holistic view of bilingualism. According to his views "every bilingual has a specific and unique configuration, blending the knowledge of two different languages and adjusting to different communication environments". According to present linguistic, neurolinguistic and psychologic approaches the term bilinguals are "all those individuals who use two or more languages (or dialects) in their everyday lives" (Fabbro, 2001). Researchers have also attempted to classify bilinguals based on different dimensions. Depending on the age of acquisition of languages researchers classify bilinguals as "successive" and "simulataneous" bilinguals. De Houwer (1997) has described "simultaneous" bilinguals as those who are exposed to La/L1 and Lb /L2 before 2 years of age, and the others are classified as "successive" bilinguals.

When two bilinguals interact with each other they switch from one language to another language. This linguistic behavior exhibited in bilingual or multilingual contexts are referred to as code switching or code mixing. These phenomena have been the matter of study for numerous authors and they have examined this to obtain information on language switch which is used as a tool to achieve personal goals in daily communicative situations. Code mixing is defined as prompt or a swift succession of various languages with in a single speech event and it is the appearance of grammatical and lexical items from both the languages in a single sentence (Myusken, 2000).Annamalai (1989) stated that code switching occurs in full sentences with the use of other language, whereas code mixing does not involve sentence level changes.

Literature discusses the phenomenon of code switching and code mixing through various approaches and also from the evidence based on studies carried out in different languages in the world. Existing researches are available in Spanish-English, French-English, Kannada-English, and Hindi-English etc. There is a need to carry out detailed research on bilingual phenomenon such as code mixing and code switching in India, since children learn English as their second language at a young age simultaneously or successively. It is observed that the structural frame work of English and Indian languages are different. The syntactic and semantic constraints of code mixing and code switching would differ for different languages (Paradis, Nicoladis & Genesee, 2000). Hence syntactic constraints could be studied with respect to word order effects since English follows SVO word order and most of the Indian languages often follow the Subject-Object-Verb (SOV) order in sentences. Even though most of the Indian languages follow SOV word order, Malayalam (One of the Dravidian language) has free

order phenomenon (Mohanan, 1982). Malayalam has Subject-Object-Verb (the primary word order SOV) and Object-Subject-Verb (OSV) as two permissible word orders in formation of sentences. There could be influence of English on Malayalam language in bilingual children. There are limited studies on acquisition of bilingualism and on phenomenon of code switching and code mixing in Malayalam-English bilingual children. It is interesting to study how English is influencing the Malayalam language, what are the types, extent and level of code switching in Malayalam-English bilingual children. Hence the aim of the current study was to understand code mixing (CM) and code switching (CS) in Malayalam-English (M-E) successive bilingual children. The objectives of the current study was to compare the type, extent and level of code mixing (CM) and code switching (CS) in successive M-E bilingual children.

CHAPTER 2: Review of literature

Bilingualism is a multidimensional and complex phenomenon in the society and it is a topic of discussion by various researchers. There are various attempts to define, describe and classify bilingualism. Bilingual acquisition has been studied in both adult and child population. The acquisition of bilingualism in children were studied with respect to the presence and absence of code mixing (CM) and code switching (CS) instances and analyzing the pattern of development of CM and CS behaviors in children who are learning more than one languages.

2.1 Definitions of bilingualism

Group of people or individuals who achieve the competence to use more than one language are referred to as bilinguals. Bilingualism is a complex linguistic phenomenon with multidimensional aspects. There is no one definition of bilingualism. Bilinguals are defined as individuals with "native-like control of two languages" (Bloomfield, 1933).This kind of strict view limits the number of bilinguals as it is difficult to achieve "native like fluency" in the second language. Weinreich (1953) proposes simple definition of bilingualism as "the alternate use of two languages". According to Haugen (1953) bilinguals are persons who have fluency in one language but who "can produce complete meaningful utterances in the other language". According to this definition even early L2 learners can be classified as bilinguals. Few researchers have reported that a person with basic knowledge and who has control of grammatical structure of the other language can be referred to as bilingual. Macnamara (1967) stated that language skills include understanding, speaking, reading and writing. As per Macnamara (1967)

someone who controls any of the four skills even to a minimal degree in the second language are termed as bilinguals. Hakuta, Butler and Witt (2000) defined bilinguals as "individuals or group of people who obtain communicative skills, with various degrees of proficiency, in either oral or written forms, in order to interact with speakers of one or more languages in the given society". According to Fabbro (2001) "bilinguals are all those individuals who use two or more languages (or dialects) in their everyday lives". Thus bilingualism is a psychological or social state of individuals that is the result of communicative interactions using different languages with two or more linguistic codes including dialects. Grosjean (2010) has emphasized on regular use of languages compared to the fluency while speaking .As per Grosjean (2010) "Bilinguals are all those people who use two or more languages (or dialects) in their everyday lives".

Bilingualism is a complex linguistic phenomenon in which children learn from their grandparents, parents, playmates, babysitters and from formal schooling (Bhatia & Ritchie, 2006). Children use one language in school with their playmates, another language in home with the parents. As a result child acquires fluency in different areas of languages. And they learn to switch the languages according to the situation demands.

The researchers in the field of bilingualism have attempted to classify bilinguals into different categories. The classifications depend on different dimensions such as cognitive, linguistic, developmental and social.

2.2 Types of Bilingualism

Multiple dimensions need to be considered in order to understand the complex phenomenon of Bilingualism. Reflecting the multidimensionality researchers have proposed various classifications. These classifications are based on different dimensions such as organization of linguistic codes, age of acquisition, proficiency of languages learned and social aspects.

Wienreich (1953) provided the distinction between compound, coordinate and subordinate bilinguals based on the organization of two or more linguistic codes. In compound bilinguals, two sets of linguistic codes are stored in one semantic unit. They learn the two languages in the same environment and acquire one concept with two verbal expressions in both languages. There exists a combined neural representation of two languages in the brain of compound bilinguals, but these representations work independently. In coordinate bilinguals there are two set of linguistic codes stored into two sets of semantic units. They learn or acquire two languages in different contexts. A coordinate bilingual has two independent neural representations, with two independent systems. The words in each of the languages have different concepts and meanings. The individuals who interpret linguistic codes in L2 through L1 are referred to as subordinate bilinguals. They use stronger language to interpret the weaker language.

Bilinguals can also be classified as early and late bilinguals (Lambert, 1985) based on the age at which they were exposed to two or more languages. Early bilinguals are individuals who had achieved two languages in their early childhood (usually who

were trained or learned second language before the age of 6).Whereas bilinguals who had acquired second language later than in childhood (after age 12) are referred to as late bilinguals. McLaughlin (1984) provided another classification of bilingualism as simultaneous and successive bilinguals. Successive bilinguals learn one language after learning another. All individuals who achieved bilingualism in adulthood as well as who achieved bilingualism early in life are successive bilinguals. Simulataneous bilinguals learn both languages as "first languages". They directly move from no languages at all to speaking two languages. When infants have exposure to two languages from birth they can be referred to as simultaneous bilinguals. McLaughlin (1984) also proposed age criterion in order to classify successive and simultaneous bilinguals. According to this criterion acquisition of two languages before the age of 3 is referred to as simultaneous acquisition where as introduction of second language after the age of 3 is termed as successive acquisition. Another criteria proposed by Padilla and Lindholm (1984) refer "simultaneous" bilinguals as those, who are exposed to both the languages since birth and the others are referred to as "successive" or "consecutive" bilinguals. De Houwer (1997) has described "simultaneous" bilinguals as those who are exposed to La/L1 and Lb /L2 before 2 years of age, and the others are classified as "successive" bilinguals.

Literature revealed that the term "Bilingual First Language Acquisition (BFLA)" can be used instead of simultaneous bilingualism (Miesel, 1990). According to Miesel's (1990) criteria, BFLA refers to those situations in which "A child is first exposed to Lb no later than a week after he or she is exposed to La, and a child's exposure to La and Lb is fairly regular i.e. both the languages are spoken to the child almost everyday". In successive bilingual children, the second language is achieved after acquiring first

language. Studies reveal that second language acquisition refers to the acquisition of a second language in the natural environment without formal instruction. In the second language learning, formal learning situation consists of feedback, error correction and rule learning. An artificial linguistic environment is specifically created for second language learning. Most of the people who are bilinguals experience both the situations by acquiring language through the direct contact with a native speaker and learning language through formal instructions.

Based on proficiency with which the languages are mastered, Romaine (1995) classified bilinguals as balanced and dominant (unbalanced) bilinguals. In Romaine's (1995) views "The individuals who acquire similar degrees of proficiency in both languages are balanced bilinguals, whereas dominant bilinguals are individuals whose proficiency in one language is higher than other language".

Based on the social dimensions of language, Fishman (1977) distinguished between folk bilinguals and elite bilinguals. As per Fishman(1977) "Folk bilinguals are language minority groups whose own language does not have a high status in the dominant language society in which they reside whereas elite bilinguals are those who speak a dominant language in the given society and who also speaks another language which gives additional value to them in the society".

The studies reveal that during the acquisition of bilingualism there are possibilities of interference between the two languages which are characterized by code

mixing and code switching behaviors. These linguistic behaviors are distinguished and explained by researchers.

2.3 Code switching and Code mixing in bilinguals

Code switching and Code mixing are two fundamental phenomena extensively researched in the field of bilingualism. These terms are used interchangeably to describe word, phrase or sentence from one language while communicating in the other (Langdon, 2008).When two bilinguals who have the same language background converse each other; they switch from one language to another. The linguistic behavior of frequently changing the languages is referred to as 'language switching' or 'code switching' or 'code mixing'. "The term 'code' refers to an "umbrella term for languages, dialects, styles etc" (Gardner, 2009). Alternation between languages by a bilingual during a communicative interaction is referred to as "switching", whereas, "code mixing" is the terms for mixing up of various linguistic units.

Code switching occurs when bilinguals substitute a word or phrase between the languages. According to linguists people code switch to enhance listener's comprehension. Code switching can also be used as a method to compensate for less proficiency of language by the bilinguals. Researchers have tried to define code mixing and code switching. Haugen (1956) and Gumperz (1982) defined code mixing and code switching as interchanging the use of two languages. Bloom and Gumperz (1972) categorized code switching into "situational code switching" and "metaphorical code switching". During situational code switching depending on the situation the narrator changes their code. The speakers will change their code for achieving a particular

communicative result in metaphorical code switching. As per Valdes-Feillis (1977) “code switching is the use of two languages simultaneously or interchangeably”.

Poplack (1980) categorizes and defines code switching into three types.

- Tag switching
- Intra- sentential code switching
- Inter -sentential code switching

Inserting tags such as “you know” and “I mean” in sentences that are entirely in other language is referred to as tag switching. Insertion of tags into monolingual utterances does not result in syntactic rule violation. Inter sentential switching “involves switches from one language to other between sentences i.e. a whole sentence (or more than one sentence) is produced entirely in one language before there is a switch to other languages” (Myers-Scotton,1993).While intra sentential switching occurs “within the same sentence or sentence fragment”(Myers-Scotton,1993). According to Bokamba (1989) “Code switching occurs when there is mixing of words, phrases and sentences from two different grammatical systems and this occurs across sentence boundaries within the same speech event”.

There are various reasons put forth in the literature in order to explain CM and CS behaviors in children. The possible reason for code mixing could be attributed to inadequate mastery of both the languages by children (Thirumalai &Chengappa, 1986). The authors have reported a trend in development of bilingualism with respect to frequency of CM and CS. Literature also reported that generally at an earlier stage CM is used to compensate for the lexical gap rather than for specific functions such as emphasis, focus, elaboration etc (Gumperz, 1982; McClure, 1998). And as the age

increases CM reduces since the older children tend to use appropriate lexical forms of first language (Goodz, 1989; Genesee, Nicoladis, & Paradise, 1995; Quay, 1995; Lanza, 1997; Lanvers, 2001). Studies reported greater CM for nouns and verbs occur because the mastery of these grammatical categories is much earlier in the developmental acquisition of language in children when compared to the other categories. (Vihman, 1998). The reason for CS is due to lack of proficiency in the learned languages. Few authors have reported that CS occurs when the individual do not have complete knowledge on both the languages (Volterra & Taeschner, 1978; Thirumalai & Chengappa, 1986; Genesee, Nicoladis & Paradis, 1995; Lanvers, 2001).Another possible reason could be the loss of inhibition of L2 or improper activation of L1 which results in code mixing (Myers Scotton, 1993; Backus, 2003).

Since the existing findings in bilingual children reveals a trend in development of CM and CS behaviors; the type, extent and level of CM and CS during the bilingual acquisition could be documented using certain measures. In order to understand type, extent and level of CM and CS behaviors, the various methods are available. Which include Matrix Language Frame Model(Myers-Scotton &Jake ,2000), Systematic Analysis of Language Transcripts (SALT) software (Miller &Chapman, 1981) and Perecman's level of code mixing and code switching (Perecman, 1984). These methods are explained in the following sections.

2.3.1 Matrix Language Frame Model

Matrix Language Frame Model (MLF model) is an abstract theoretical model which mainly explains intra sentential code switching. This model was proposed by Myers-Scotton (1993), Myers-Scotton (1995), Myers-Scotton and Jake (2000).

Two interacting hierarchies to analyze code switching are with respect to the languages which participate in code switching and differences in the pattern of occurrences of two types of morphemes. These hierarchies are Matrix Language versus Embedded Language distinction and content versus system morphemes distinction. Distributions of languages are asymmetrical when intra-sentential code switching occurs. The more dominant one is the Matrix language (ML) and the other being Embedded Language (EL). ML's form the base language or the abstract grammatical frame in which EL constituents are inserted. The morphosyntactic structure of ML has a crucial role in setting the frame the sentence. In order to identify ML, one has to distinguish between system morphemes and content morphemes. Content morphemes include verbs, nouns, and few prepositions and adjectives. They express pragmatic and semantic aspects and assign or receive thematic roles. System morphemes include inflections and function words, expressing the relationship with the content morphemes and they neither assign nor receive thematic roles. This distinction is made based on System Morpheme Principle and Morpheme Order Principle (Myers-Scotton, 1993).

- The Morpheme-Order Principle: ML+EL constituents include single lexemes from Embedded Language and any number of morphemes from Matrix Language. And the surface morpheme order will be similar to that of ML.

- The System Morpheme Principle: In ML+EL constituents, all the system morphemes which are grammatically related to their main constituent will belong to Matrix Language (Myers-Scotton, 1993).

Along with the above two principles Myers Scotton has provided three additional hypotheses. Among them blocking hypothesis is designed to strengthen the System morpheme principle. EL implicational hierarchy hypothesis and EL Island trigger hypothesis accounts for the occurrence of EL islands.

- The blocking hypothesis: According to this hypothesis within ML+EL constituents any EL content morpheme that is incongruent with the ML is blocked by a blocking filter.
- The EL Island trigger hypothesis: Whenever EL lexemes appear which are not allowed under either the ML hypothesis or the blocking hypothesis, then the constituent containing it must be an EL island.
- EL implicational hierarchy hypothesis: Optional EL islands occur, usually, they are only those elements that are either idiomatic or formulaic or peripheral to the core grammatical arguments of the sentence. According to blocking hypothesis, an Embedded Language content morpheme is incongruent with the Matrix Language when 1) EL content morpheme represents a given grammatical category that is realized by a system morpheme in the ML.2) When EL content morpheme differs from an ML content morpheme with respect to thematic role assignment; or 3) It is different from ML content morpheme with respect to the pragmatic or discourse functions.

In bilingual contexts system morphemes are contributed by ML, and ML and EL both provides content morphemes. ML Islands, EL islands and ML+EL constituents are three different basic elements according to this model. The ML islands and ML+ EL constituents consists of morpheme order of ML.

MLF model was revised and extended as "4-M Model" (Myers-Scotton & Jake, 2000, 2001) in which system morphemes are further classified into Early, Late Bridge, Late outsider system morphemes. The classification was based on the activation stage at the level of mental lexicon and formulator. This revision explains the way in which system morphemes can participate in intra sentential code switching. Myers-Scotton & Jake (2000) defined early system morphemes as "they are always realized without going outside of the maximal projection of the content morpheme that elects them" and "their form depends on the content morpheme with which they occur". Determiners, plural-s and some prepositions are few examples of early system morphemes in English. A late bridge system morpheme does integration of content morphemes into larger constituent. For example possessive markers "of" and "s" connect two nouns within a noun phrase (NP). Late outsider system morphemes are structurally assigned at the surface or positional level. 3rd person singular –s is an example of late outsider morpheme.

When there is no agreement with the principles, bilinguals use compromised strategies. MLF model is a powerful analysis tool to examine complex bilingual phenomena such as code switching in children where language contact phenomena are influenced by number of developmental factors.

2.3.2 Systematic Analysis of Language Transcripts (SALT) software (Miller and Chapman, 1981)

The Systematic Analysis of Language Transcripts (SALT) software is extensively used for eliciting, analyzing and transcribing the language samples. It has been used to study the bilingual phenomena such as code mixing and code switching. Among Indian studies Mahalakshmi and Prema (2011), Hellows and Shanbal (2013) have used the SALT software in their code mixing and code switching studies in bilingual children. The children's utterances were transcribed and analyzed as per the protocols of SALT software. The parameters which were analyzed using the software were: Mean Length of Utterance (MLU), Type, no of different words, Token Ratio (TTR), no of code switches (CS).

2.3.3 Levels of Analysis of Bilingual data

Code mixing and Code switching can occur at various levels which are lexical, syntactic, phonological and morphological level. Among these, transfer at lexical level is the most common and it mainly consists of nouns. When the bilingual are not aware of the appropriate word or when words sound similar in both languages transfer at lexical level occur.

Syntactic level of analysis is necessary when the bilinguals manipulate syntactic structure of the languages in different ways. Bilingual speaker will use the common structure when both languages share common syntactic structure. Competency of the speaker in both languages will influence the interaction of syntax in both the languages.

Transfer at the phonological level occurs when the verbal output consists of L2 accent. The words that follow the code switched words are likely to have more phonological variations compared to the words at different locations.

There are three possibilities for the transfers of words occurring at morphological level. In one case, there is no change in the morphological structure of the utterance according to the recipient language. In case two, the utterance could be incorporated morphologically with recipient language. In case three, original form of the word is used without adopting the inflections from any of the languages.

Perecman's level of code mixing and code switching (Perecman, 1984) can be used to analyze the level of transfer in the bilingual data. Subject's utterances need to be transcribed and classified into lexical- semantic (words and phrase level), syntactic, morphological and phonological levels. Research reveals that bilingual speakers show all these types of transfer in their utterances.

The literature of bilingualism reports researches done in bilingual children to understand CM and CS behaviors and acquisition of bilingualism using different methods in different bilingual contexts. Following is the review of few studies and findings on CM and CS in bilingual children across the world.

2.4 Studies on code switching and code mixing in bilingual children

Within the area of bilingualism, many researchers have attempted to investigate the pattern of acquisition of two languages in children. Most of the researchers have discussed development of bilingualism with respect to presence or absence of CM and

CS in different types of bilingual children and in different bilingual contexts such as Japanese-English, Mexican- American, Chinese-English, French- English, Spanish-English, Korean-English, Kannada-English and Hindi-English.

There are different viewpoints among the researchers about the influence of one language on the other. Milon (1974) observed a 7 year old Japanese-English sequential bilingual child during the acquisition of English negation. The result revealed that the acquisition progressed through the same developmental stage as Monolingual English speaking children. The child did not transfer Japanese negation system into English. Li (1996) had studied how well Chinese-English bilinguals can recognize code switched words. And it was found that the recognition of code-switched words will depend on the interaction between structural, phonological and contextual information. It was found that with the same amount of information Chinese –English bilinguals were able to recognize code-switched words as monolingual English listeners.

Various authors have also investigated how CM and CS occur in structurally different languages and what are the constraints for CM and CS. They also report the functions of CM and CS as linguistic properties in conversational interactions of young bilingual children. McClure (1977) examined the formal and functional properties of code-switching among Mexican-American children. The analysis was based on tape recordings of discourse by children ranging in age from 3; 0 to 15; 0.Samples were transcribed and code switches were examined for communicative intent and grammatical structure. The data indicated that there is no uniform developmental pattern in the use of code switching as stylistic device. The findings revealed that younger children use code

switching more frequently as compared to older children and their code-switching proceeds in accordance with grammatical and functional principles of languages.

The literature supports the view that in children, the use of CM and CS serves different functions depending on the contextual demands such as conversing with teachers within the class room, with peers in the play ground etc. On similar lines Brice (2000) described code mixing and code switching in a Spanish-English bilingual classroom environment. He conducted field based observation in elementary school classroom. Classroom interactions were recorded and analyzed. It was observed that code mixing and code switching occurred in 9.5% of all utterances, and code switching occurred more frequently than code mixing. The most commonly occurring items in code mixing were nouns while interjections were least common. The main categories of pragmatic function attributed to code switching and code mixing were feedback, seeking clarification, questioning, informatives and commands. Similarly Ruan (2003) conducted a descriptive study in eight young Chinese-English bilingual children in first grade to understand their code switching behavior. Class room interactions and conversation during play time were recorded, transcribed, coded and analyzed. The findings revealed that all bilingual children exhibited code switching behavior with varying frequency. This study also suggested that bilingual children use code switching as communicative device when interacting with bilingual adults. Young bilingual Chinese-English children employed code-switching during their interactions in order to appreciate different functions, such as pragmatic function, meta-linguistic function and social function.

It was also reported in the literature that there are similarities in the pattern of CM and CS in both children and adults. On similar lines, Paradis, Nicoladis and Genesee (2000) studied whether code mixing in French-English bilingual children with bilingualism follows similar structural constraints as that of bilingual adults. Data from fifteen French-English bilingual children were recorded when children interacted with both parents at six-month intervals from the age of 2; 0 to 3; 6. Obtained samples were analyzed for code mixing using Matrix Language Frame Model (Myers-Scotton, 1993, 1997).The result showed that all the constraints in the Matrix Language Frame model were followed during most of the instances by children. It was also evidenced that children's utterances included comparatively more number of violations of the System Morpheme Principle and revealed increasing agreement to System Morpheme Principle over instances.

An overview of literature on bilingualism revealed that type, extent and level of CM and CS behaviors would vary according to types of bilingualism. The frequency of CM and CS differs in simultaneous and successive bilingual children. To support this view, Shrojen (2002) studied the patterns of linguistic behavior of two 5 year old bilingual children by analyzing occurrence of code mixing and code switching in their daily conversational interactions. Recorded data was analyzed to examine the relationship between the children's code mixing, code switching and the interlocutor. Findings indicated that the male child who was a simultaneous bilingual exhibited more number of code switches. On the other hand the female child who was successive bilingual exhibited more code mixing in her conversational interactions. In order to understand the type and level of CM and CS in bilingual children, Yousif (2012) studied code mixing and code

switching in Assyrian children at pre-school level who were Neo-Aramaic – Arabic bilinguals. The findings revealed that Assyrian children exhibited code mixing at phonological level and at the semantic level while interacting with their non-Assyrian playmates. They also exhibited intra sentential code switching.

Researchers have observed the pattern of development of bilingualism in children based on type, extent and level of CM and CS behaviors during interactions. Arias and Lakshmanan (2005) had conducted longitudinal single case study in order to investigate the developmental pattern of code mixing in a Spanish-English bilingual child (female).Collection of the language samples were done over a period of nine months (from 3;0 to 3;9).The data were transcribed and analyzed for the number, percentage and MLU of the English, Spanish and code mixed utterances were calculated to account for language choice, language dominance and frequency of language mixing. Qualitative analysis was also used to classify the instances of code switching types. The results revealed that the child could choose her language based on the interlocutor and language context from the beginning of the data collection period itself. Results of this study support the view that the bilingual child's language choice is majorly determined by the language of the individuals involved in the speech interaction. They also reported that among the code switching instances, intra sentential switches were greater than inter sentential code switches. Findings also revealed that when analyzed from the perspective of the bilingual child's internal grammar, the non-adult like code switches are not truly ungrammatical and do not contain true violations of syntactic constraints on code-switching as per literature.

The development of CM and CS and the probable reason for CM and CS behaviors was studied by Shin and Milroy (2000) in twelve Korean-English bilingual children in age group of 6-8 years. They collected spontaneous speech samples within the class room. The data was analyzed for extra sentential (CS) and intra sentential (CM) code switches. The finding of the study revealed that there was no significant difference between the two groups and code mixing and code switching is limited in these two age groups and is constrained by either the preference of English language or competency in English language by the children and are mostly of CM type. According to the authors the results may be because of the reason that the data collection was done in school setup and the children mainly used the phenomenon as a contextualization strategy. The study also indicated that code switching is used by the individuals as supplemental resource to fulfill particular conversational goals while interacting with other bilingual speakers. It is not an evidence of linguistic deficit in bilingual speakers.

Along with the changes in CM and CS behaviors, literature also reports change in vocabulary growth in the languages learned with increase in age. It was also observed that bilingual children can use the acquired vocabulary according to the situational demand. On similar lines, Saffo (2010) examined and compared the samples of Spanish-English sequential bilingual children's language use in natural environment.3 and 4 years old preschool children from low socioeconomic status were taken for the study. Their vocalizations were recorded in the natural environment which included parent-child interactions. The findings indicated that Spanish-English sequential bilingual children used their L1 (Spanish) than English in home environment compared to school environment. They also found a trend in the development of vocabulary in both

languages. As age advanced the vocabulary in L2 (English) increased with incomplete grammar acquisition.

Apart from the above mentioned studies there are few researches carried out in Indian bilingual contexts also. Most of the Indian studies attempts to explore the influence of second language English on the native languages such as Kannada and Hindi in bilingual children. There are studies available on development of bilingualism with respect to type, extent and level of CM and CS behaviors and comparison of simultaneous and successive bilinguals. Harini and Chengappa (2008) studied the phenomenon of code switching and code mixing in Kannada-English successive and simultaneous bilingual children. Twenty children who were the native speakers of Kannada were selected in the age range of 4-8 years. They were classified into simultaneous and successive bilingual groups based on the age of acquisition of both the languages. Picture description task was carried out under three conditions such as monolingual Kannada, monolingual English and bilingual Kannada-English conditions. Analysis was done using MLF Model, frequency of code switching and code mixing was compared with the language proficiency using International Second Language Proficiency Rating (ISLPR) rating scale. The findings revealed that code mixing and code switching are more prevalent in successive than simultaneous Kannada-English bilingual children. This was attributed to the difference in proficiency in both the languages acquired by simultaneous and successive children.

Pattern of code switching was studied by Mahalakshmi and Prema (2011) in six Kannada-English bilingual children in the age range of 6-8 years. Spoken language sample was obtained through eliciting a story with the use of standardized pictures,

(Nagapoornima, 1990), narration and by administering Computerized Linguistic Protocol for Screening (CLIPS), (Anitha & Prema, 2008). The obtained speech samples were recorded and transcribed. After coding the speech sample, the data was analyzed using Systematic Analysis of Language Transcripts (SALT) (Miller & Chapman, 1982). Findings of the study indicated that the children borrowed or code switched words from English when asked to name nouns (fruits, vegetables, professions, and vehicles) and some verbs. Even though children selected for the study were from low-socio economic status, and they had limited exposure to English at home, these children exhibited pattern of code switching in English.

Literature also reports a study to understand code switching pattern under two different language conditions .The study was done by Mathew (2012) in eight Kannada-English bilingual children in the age range of 14-16 years. They were asked to describe a picture, depicting a farm, in two languages English and Kannada separately. It was observed that the code switching was exhibited by all the children with individual variations. The findings also indicated that all participants used the intra- sentential pattern of code switching (13%) while speaking Kannada and only single-word switching was observed. The author also noted that code switching was present only at semantic level. Similarly a study was done by Hellows and Shanbal (2013) to understand the type, extent and level of CM and CS in H-E bilingual children. They investigated code switching and code mixing in forty Hindi-English bilingual children in the age range of 6-8 years using picture description task. The data was transcribed and analyzed using SALT software, Perecman's level of code mixing and code switching and Matrix Language Frame Model. The findings of the study revealed that successive bilingual

children exhibited greater code switching and code mixing in comparison to the simultaneous bilingual children and influence of second language English on First language Hindi was evident. This study also revealed that code mixing reduced in 7-8 years than 6-7 years indicating a developmental trend in acquisition of bilingualism. It was also observed that most of the bilingual children exhibited greater CM than CS and code mixing occurred at lexical semantic (word and phrase) level. The findings also indicated that the CM behaviors reduced with increasing proficiency in learned languages.

There are very limited studies available in Indian research with respect to CM and CS behaviors to understand the pattern of bilingual acquisition. Hence there is a scope to carry out research in order to add evidences to the developmental pattern of bilingualism and CM and CS behaviors in different bilingual contexts.

Need for the study

The studies investigated in the field of bilingualism in children indicated a developmental pattern in acquisition. Since India is diverse in languages there is a need to carry out similar kinds of research in other bilingual contexts also. English being a global language has its effects on our native languages. In the current education system English is taught at a young age itself. The current study was to understand the influence of English on native language i.e. Malayalam in Malayalam-English (M-E) successive bilingual children. The studies in the field of Linguistics revealed that Malayalam is one among the Dravidian Language which has relative flexibility in word order (Mohanan, 1982).Malayalam has Subject-Object-Verb (the primary word order SOV) and Object-Subject-Verb (OSV) as two permissible word orders in formation of sentences. Literature also reports that word structure and syntactic structure of English might influence Malayalam (Bhattathiri, 1977).The current study will help to investigate whether English would influence the structure of Malayalam Language in children who acquire both the languages successively. And it was generally observed that successive bilingualism is more than simultaneous bilingualism in M-E bilingual children since most of the children start learning English after they are enrolled in preschool. Hence the proficiency and competency in the use of Malayalam and English would be different in successive bilingual children. There is a possibility of increased competency and performance in one of the languages compared to other and there might be influence of one language on the other during conversational interactions. The earlier studies also revealed that the frequent use of English can influence spoken and written forms of Malayalam (Marar, 1971). The agglutinative feature of Malayalam will allow morphological mixing easily

compared to other languages (Jayan, Rajeeve, & Rajendran, 2011; Mathai, 2014). Hence the possibilities of combining the English morphemes with Malayalam morphemes are easy and thus this will result in code mixing. The current study will also help to analyze the CM behaviors with respect to agglutinative feature of Malayalam. The language contact phenomenon such as CM and CS behaviors in Malayalam-English could be compared with children in other bilingual contexts such as Spanish-English, French-English, Kannada-English, and Hindi-English based on the available researches. This study will also provide information regarding the type, extent and level of code switching and code mixing in Malayalam-English bilingual children.

Aim of the study

The aim of the current study was to understand code mixing (CM) and code switching (CS) in Malayalam-English (M-E) successive bilingual children. The objectives of the current study was to compare the type, extent and level of code mixing (CM) and code switching (CS) in successive M-E bilingual children.

CHAPTER 3: Method

The primary aim of the current study was to compare type, extent and level of code mixing and code switching in Malayalam-English successive bilingual children. A cross sectional normative research design was used for the study in order to study the code switching and code mixing phenomenon in Malayalam-English successive bilingual children.

3.1 Participants

Sixty children in the age range of 6-8 years (thirty children each in the age group of 6-7 years and 7-8 years) who are native speakers of Malayalam and who are learning English as the second language were considered for the study. Following criteria was used to select participants:

- De Houwer's criterion (1997) for successive bilinguals was considered. According to De Houwer (1997), "simultaneous" bilinguals are those who are exposed to La/L1 and Lb/L2 before 2 years of age, and others are classified as "successive" bilinguals.
- All the children were screened and ruled out for language and sensory impairment using ICF CY checklist (WHO Work group version, 2004) 1.C for 6-8 years.
- All children were selected from mid/high socio economic status using Socio Economic Status Scale (Venkatesan, 2011).

- The Language Use Questionnaire (Shanbal & Prema, 2007) was administered to parents to check the language use in children in two languages.
- All the participants were selected from Indian school setting only.

3.2 Test Material

A picture stimuli depicting a 'Park' (Appendix) was used as test material to elicit the verbal responses in sentences as suggested in a study by Hellows (2013).

3.3 Test Environment

The children were comfortably seated in a quiet room. The picture stimulus was presented and they were allowed to practice. Audio and video samples were recorded using Sony Cyber shot camera.

3.4 Procedure

The study was carried out in two phases.

Phase I: Socio demographic details were collected and children were screened for any language and sensory impairment using ICF CY checklist (WHO Work group version, 2004). Participants were selected on the basis of language exposure and language preference using the questionnaire developed by Shanbal and Prema (2007).

Phase II: In the second phase, picture stimulus was presented to the children and the picture was familiarized before actual description task with no verbal practice. After

familiarization actual description task was carried out and the verbal responses were elicited from the children. They were instructed to give descriptions in their native language Malayalam and were allowed to use the second language English, whenever they found difficulty to get words in the native language. The children were prompted when they found difficulty to describe the picture.

Instructions: The following instructions were given-"I will show you a picture. See the picture. Then you have to talk about what you see in the picture"

3.4 Scoring, Coding & Analysis

Audio recorded verbal responses of each child was transcribed and marked as per the protocols of Systematic Analysis of Language Transcripts (SALT) software (Version 2012) (Miller &Chapman, 1981). The utterances were analyzed according to the Systematic Analysis of Language Transcripts (SALT) software and also using the Matrix Language Frame (MLF) Model (Myers -Scotton, 1993; Myers –Scotton and Jake (1995).

The number of code mixing and code switching were calculated for each of the subjects. The total number of code mixing and code switching exhibited by the two age groups were calculated.

Following parameters were obtained with the use of Systematic Analysis of Language Transcripts (SALT) software:

- Total number of utterances(TU)
- Total completed words(TWC)
- Mean Length of Utterance (MLU) in words
- Number of different words(NDW)
- Type Token Ratio(TTR)
- Total number of code switches(TCS)

The utterances were classified into lexical-semantic, syntactic, morphological and phonological levels using Perecman's level of code mixing and code switching (Perecman, 1984).Matrix Language Frame (MLF) Model also was used to analyze the sample and the following parameters were obtained:

- Matrix Language Islands(ML Islands)
- Matrix Language Shifts(ML Shifts)
- Embedded Language Islands(EL Islands)
- Matrix Language +Embedded Language constituents(ML+EL)
- Borrowed Forms
- Embedded Language Insertions (EL Insertions)
- Revisions

The obtained data was analyzed using the Statistical Package for the Social Sciences (SPSS) software package (Version 20.0) to understand the pattern of bilingual acquisition in the two age groups. The descriptive analysis was carried out to calculate mean, median and standard deviation values for the frequency of CM and CS in the successive Malayalam-English bilingual children, various parameters obtained through

SALT software analysis such as TU, TWC, MLU-W, NDW, TTR and TCS, Perecman's level of CM and CS at word and morphological level and also for the parameters of MLF model such as ML islands, ML shifts, EL islands, ML+EL constituents, Borrowed forms, EL insertions and Revisions. Nonparametric Mann Whitney test was carried out to compare the above parameters between the two age groups.

CHAPTER 4: Results

The aim of the current study was to understand code mixing (CM) and code switching (CS) in Malayalam-English (M-E) successive bilingual children. The objectives of the current study was to compare the type, extent and level of code mixing (CM) and code switching (CS) in successive M-E bilingual children. Sixty M-E bilingual children in the age range of 6-8 years were divided into two groups 6-7 years and 7-8 years who were native speakers of Malayalam and who acquired English as their second language were the subjects for the study. Thirty children were considered in both the age groups.

The type, extent (frequency) and level of CM and CS was studied by analyses of different parameters using SALT software, MLF model, Perecman's level CM and CS. The obtained data was analyzed qualitatively and quantitatively. The parameters analyzed were frequency of CM and CS, Total number of utterances (TU), Total completed words(TWC), Mean Length of Utterance (MLU) in words, Number of different words(NDW), Type Token Ratio(TTR), Total number of code switches(TCS) using SALT (version 2012) software; and Matrix Language Islands(ML Islands), Matrix Language Shifts(ML Shifts), Embedded Language Islands(EL Islands),Matrix Language +Embedded Language constituents (ML+EL), Borrowed Forms, Embedded Language Insertions (EL Insertions), Revisions parameters were analyzed using MLF model (Myers-Scotton & Jake,2000); and Perecman's level of code mixing and code switching (Perecman,1984).

Descriptive statistics was carried to calculate mean, median and standard deviation (SD) values. Nonparametric Mann Whitney test was done to analyze the significant difference for various parameters between the two age groups.

The results of the present study are explained under following sections.

4.1 Frequency or extent of code mixing (CM) and code switching (CS) in M-E bilingual children on Systematic analysis of Language Transcripts (SALT)

4.2 Comparison of performance of M-E bilingual children between age groups on Systematic analysis of Language Transcripts (SALT).

4.3 Comparison of performance of M-E bilingual children between age groups on Perecman's level of Code mixing and Code switching

4.4 Comparison of performance of M-E bilingual children between age groups on MLF model.

4.1 Frequency of code mixing (CM) and code switching (CS) in M-E bilingual children on SALT[1]

The frequency of CM and CS was analyzed between the two age groups (6-7 years and 7-8 years).Descriptive statistics was carried out to calculate the median and standard deviation values for the two age groups 6-7 years and 7-8 years. Table 4.1 shows frequency of code mixing (CM) and code switching (CS) in M-E bilingual children.

[1] The SALT software considers intersentential CS and intrasentential CS. Intrasentential CS is referred to as CM

Table 4.1

Performance of children for frequency of CM and CS between the age groups (N=30)

Age group	Parameters	Median	SD
6-7 years	CM	10	7.56
	CS	0	0.00
7-8 years	CM	7	2.11
	CS	0	0.00
Total	CM	7.00	6.04
	CS	0.00	0.00

The analysis of results for frequency of CM and CS as shown in table 4.1 revealed that the M-E bilingual children with in the age range of 6-7years showed greater CM (Median=10, SD=7.56) than CS (Median=0.00, SD=0.00).Analysis of CM and CS in 7-8 years group also revealed that CM (Median=7.00, SD=2.11) instances were found to be greater than CS instances (Median=0.00,SD=0.00) (See figure 4.1).Comparison of data for CM and CS between the two age groups revealed greater amount of CM in 6-7 years than 7-8 years. Analysis also revealed that 6-7 years and 7-8 years M-E bilingual did not exhibit any CS errors.

Overall results as shown in table 4.1 showed that M-E bilingual children exhibited more CM (Median=7.00, SD=6.04) than CS (Median=0.00, SD=0.00) (See figure 4.1). Among the sixty bilingual children no one showed CS behaviors. Non-parametric Mann Whitney was carried to statistically compare the performances between the two age

groups. Analysis of results revealed that there is a significant difference between the two age groups for the frequency of CM ($|Z|=2.719$, $p<0.05$).

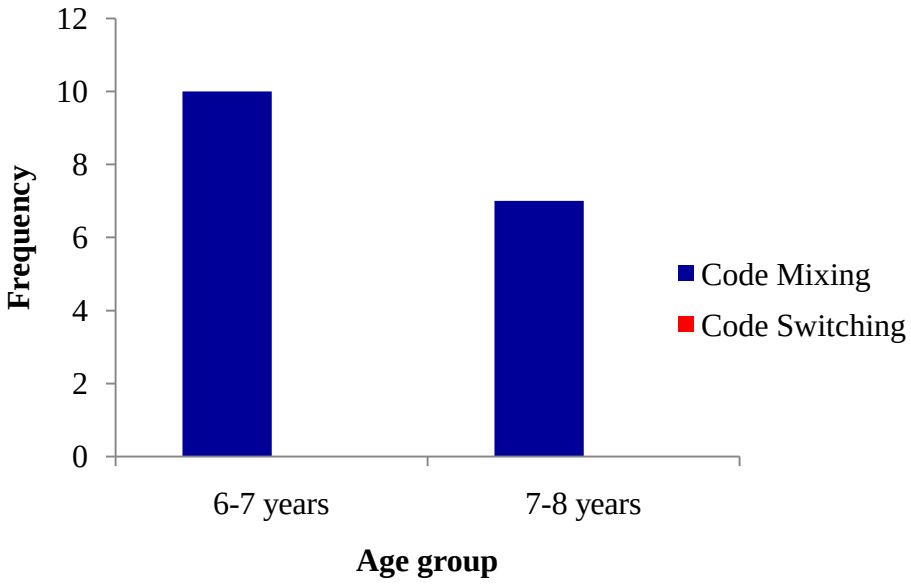

*Figure 4.*1 Comparison of performance of children for frequency of CM and CS between the age groups

Quantitative analysis of the results of the current study revealed that M-E successive bilingual children in the age group of 6-7 years exhibited greater number of code mixing than M-E successive bilingual children in the age group of 7-8 years (See figure 4.1). Analysis also showed greater number of code mixing instances than code switching in both the age groups. Code switching instances were not noticed in the current study. Results of the present study revealed a developmental trend with respect to code mixing.

Qualitative analysis was also done in order to compare the CM and CS behaviors in M-E bilingual children in the age range of 6-7 years and 7-8 years. The transcribed sample and qualitative analysis of these children have been explained in the following section.

Qualitative analysis of the samples revealed that children in the age range of 6-7 years exhibited greater number of CM than children in the age group of 7-8 years. It was also observed that even though corresponding Malayalam words existed, children in the age range of 6-7 years code mixed the utterances. For example tree for /maram/, boy for /a:nkUṭṭi/, boat for /ʈo:nI/, picture for /tʃIʈram/ etc. Where as older children in the age range of 7-8 years used borrowed forms from English in greater number in the absence of corresponding words in Malayalam. The intersentential CS was not observed, only intra sentential CS (also considered as CM) was observed in these samples.

Sample A- 6-7 years

The transcribed sample of a successive M-E bilingual child in the age range of 6-7 years has been qualitatively analyzed below. Here [CS] denotes the code switched utterances.

Transcription of Sample A

1 C pakshi tree[CS] inte athilude parakunnu.
2C oru girl[CS] kuttinte ingane picture[CS] varachittu inagne tire[CS] aakittə nadakunnu.
3 C pinne girl[CS] um boy[CS] um cycle[CS] o:dikunnu.
4 C girl[CS] um boy[CS] um vellathil kalikunnu.

5 C pinne desk[CS] um undə boat[CS] um undə.

6 C a:de girl[CS] ice[CS] cream[CS] thinunnu.

7 C boy[CS] um boy[CS] um a:dunnu shuttle[CS] cock[CS] kalikunnu.

8 C shower[CS] undə.

9 C girl[CS] um boy[CS] um nerangi kalikunnu.

10 C girl[CS] um boy[CS] um ball[CS] kalikunnu.

11C horse[CS] inte mele kalikunnu girl[CS] um boy[CS] um.

12 C a:de oru gate[CS] undə.

Qualitative analysis of Sample A revealed greater number of CM or intrasentential CM and no intersentential CS. For example, /pakʃI tri:nḍe aṯIlu:ḍe parakunnu/ (In English it means that bird is flying over the tree) the 1st sentence is code mixed with the use of the word 'tree' in English instead of /mərəm/ in Malayalam. Mainly nouns from English were code mixed with the Malayalam words such as girl, tire, ball, horse, boy, boat and picture. It was also observed that the child used borrowed words such as ice cream, gate and cycle. The child's CM instances followed the syntactic rules of Malayalam and English .Child also used a sentence which implies a free word order phenomenon in Malayalam. For example, in the 11th utterance horse[CS] inte mele kalikunnu girl[CS] um boy[CS] um' (which means 'girl and boy are playing on the hoarse') the subject position has been shifted to the end of the utterance. Even though this sentence does not follow the SOV or OSV word order, it is still acceptable in Malayalam.

Sample B- 7-8 years

The transcribed sample of successive bilingual children in the age range of 7-8 years has been analyzed qualitatively as given below.

Transcription of Sample B

1 C randə a:nkuttikal badminton[CS] kalikunnu.

2 C oru penkutti cycle[CS] o:dikunnu.

3 C oru a:nkuttiyum oru penkuttiyum vellathil kalikunundə.

4 C oru ammumma bench[CS] il irikunnu.

5 C oru penkutti o:dikalikunundə.

6 C kurach kuttikal kuthirapurath keri kalikunundə.

7 C oru penkutti ice[CS] cream[CS] thinnukondə pokunnu.

8 C kore kuttikal park[CS] il o:di kalikunundə.

9 C kuttikal nirangi kalikunundə.

10 C oru amma kunjine kondəpokunnu.

11 C kuttikal mannu kondə kottaramundaki kalikunnu.

12 C oru na:ya o:dipokunnu.

13 C valiya maravum kore pookalum ivide undə.

Qualitative analysis of Sample B revealed that the CM instances or intra sentential code switching instances are reduced in M-E bilingual children in the age group of 7-8 years compared to 6-7 years. Among the CM utterance borrowed forms were more than EL constituents in M-E bilingual children in the age group of 7-8 years. They used borrowed forms such as badminton, bench, cycle, ice cream and park. The main CM utterances were nouns and insertion of embedded language constituents followed the

grammatical rules of both the languages. Intersentential code switches were not noticed in sample B.

The findings of the results on quantitative and qualitative analysis between 6-7 years and 7-8 years revealed the frequency of CM was observed to decrease from 6-7 years to 7-8 years of age. In both the age groups CM utterances included nouns and borrowed forms. The code mixing instances were observed in both word level and morphological level. Both the age groups did not violate the grammatical constraints of both languages. CS (Intersentential code switching) was not noticed in M-E bilingual children in the age range of 6-8 years.

4.2 Comparison of performance of M-E bilingual children between age groups on Systematic analysis of Language Transcripts (SALT).

The Systematic analysis of Language Transcripts (SALT) software was used to calculate the following parameters:

- Total number of utterances(TU)
- Total completed words(TWC)
- Mean Length of Utterance (MLU) in words
- Number of different words(NDW)
- Type Token Ratio(TTR)
- Total number of code switches(TCS)

The descriptive statistics was carried out and median and SD values were obtained for each parameter. Table 4.2 shows the median and SD values for the various parameters analyzed using SALT software between the age groups.

Table 4.2

Performance of children on parameters of SALT between age groups (N=30)

Age group	Parameters	Median	SD
6-7 years	TU	12.00	2.77
	TWC	52.00	16.96
	MLU in words	4.44	0.93
	NDW	29.00	9.43
	TTR	0.58	0.11
	TCS	10.00	7.56
7-8 years	TU	13.00	1.87
	TWC	59.50	17.81
	MLU in words	4.79	1.00
	NDW	38.00	8.58
	TTR	0.62	0.08
	TCS	7.00	2.11

Note: TU- Total number of utterances, TWC-Total completed words, MLU-W Mean Length of Utterance (MLU) in words, NDW- Number of different words, TTR- Type Token Ratio, TCS-Total number of code switches

Total number of utterances (TU)

The analysis of the results as shown in Table 4.2 revealed that M-E bilingual children in the age range of 7-8 years (Median=13.00, SD=1.87) exhibited greater total number of utterances than M-E bilingual children in the age range of 6-7 years(Median=12.00, SD=2.77) (See figure 4.2). The analysis of the results on Mann-

Whitney test revealed that there was no significant difference between the two age groups (|Z|=1.04, p>0.05) for the total number of utterances.

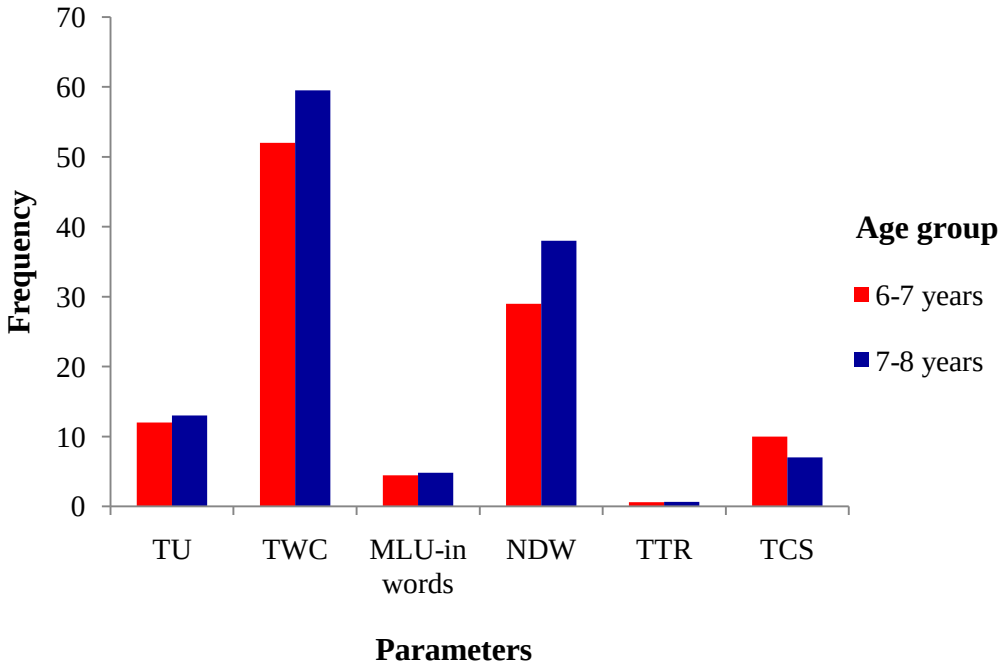

Figure 4.2 Comparison of performance of children on parameters of SALT between age groups

Note: TU- Total number of utterances, TWC-Total completed words, MLU-W Mean Length of Utterance (MLU) in words, NDW- Number of different words, TTR- Type Token Ratio, TCS- Total number of code switches

Total Completed words (TWC)

The analysis of the results as shown in Table 4.2 revealed that the M-E bilingual children in the age range of 7-8 years (Median=59.50, SD=17.81) had greater total number of completed words than M-E bilingual children in the age range of 6-7 years (Median=52.00, SD=16.96) (See figure 4.2).Non parametric Mann Whitney test was used

to compare two age groups and results revealed no significant difference between them (|Z|= 1.93, p>0.05) for the total number of completed words.

Mean Length of Utterance (MLU) in words

The analysis of the results as shown in Table 4.2 revealed that the M-E bilingual children in the age range of 7-8 years (Median=4.79, SD=1.00) had greater MLU in words than M-E bilingual children in the age range of 6-7 years (Median=4.44, SD=0.93) (See figure 4.2).The two age groups were compared for any significant difference using Non parametric Mann-Whitney test. The results revealed a significance difference between the two age groups (|Z|=1.55, p<0.05) for MLU in words.

Number of different words (NDW)

The analysis of the results as shown in Table 4.2 revealed that the M-E bilingual children in the age range of 7-8 years (Median=38.00, SD=8.58) showed greater number of different words than M-E children in the age range of 6-7 years (Median=29.00, SD=9.43) (See figure 4.2).The two age groups were compared statistically using non parametric Mann-Whitney test. The results revealed a significant difference between the age groups (|Z|=3.35, p<0.05) for number of different words.

Type Token Ratio (TTR)

The analysis of the results as shown in Table 4.2 revealed that the M-E bilingual children in the age range of 7-8 years (Median=0.62, SD=0.08) had greater TTR than M-E bilingual in the age range of 6-7 years (Median=0.58, SD=0.11) (See figure 4.2).The

two groups were compared statistically using Non parametric Mann-Whitney test. The results revealed significant difference between the two age groups ($|Z|=1.96$, $p<0.05$).

Total number of code switches (TCS)

The analysis of the results as shown in Table 4.2 revealed that the M-E bilingual children in the age range of 6-7 years (Median= 10.00, SD=7.56) showed greater total number of code switches than M-E bilingual children in the age range of 7-8 years (Median=7.00, SD=2.11) (See figure 4.2). Both the groups exhibited intra-sentential code switches which are referred to as code mixing (CM).Non parametric Mann-Whitney test was used to compare between the age groups. The results revealed a significant difference between the two groups ($|Z|=2.71$, $p<0.05$).

Analysis using SALT software revealed that frequency of total number of utterances, TWC, MLU-in words, NDW and TTR was greater in Malayalam-English bilingual children in the age range of 7-8 years compared to Malayalam-English bilingual children in the age group of 6-7 years. The findings also revealed that in the current study, frequency of TCS was greater in children in the younger age group of 6-7 years. Nonparametric test revealed significant difference in the frequency of MLU-in words, NDW, TTR and TCS on comparison between the two age groups.

4.3 Comparison of performance of M-E bilingual children between age groups on Perecman's level of Code mixing and Code switching

The utterances were classified into lexical-semantic (LS) (Word and Phrase level), syntactic, morphological and phonological levels using Perecman's level of code

mixing and code switching (Perecman, 1984). It was observed from the data that the participants in the study did not exhibit phrase level, syntactic, and phonological levels of code mixing and code switching. Hence the descriptive statistics was carried out and median and SD values were obtained for only word level and morphological levels of CM and CS. Table 4.3 shows median and SD values for different levels of CM and CS.

Table 4.3

Performance of children on parameters of Perecman's level of CM and CS between age groups (N=30)

Age group	Parameters	Median	SD
6-7 years	LS-word level	7.50	3.22
	Morphological level	1.55	5.66
7-8 years	LS-word level	5.50	1.92
	Morphological level	1.00	0.96

The analysis of the results as shown in Table 4.3 revealed that the M-E bilingual children in the age range of 6-7 years (Median=7.50, SD=3.22) showed greater lexical semantic level of CM and CS at word level than the M-E bilingual children in the age range of 7-8 years (Median=5.50, SD=1.92) (See figure 4.3).Non parametric Mann-Whitney test was done to compare Perecman's level of CM and CS at Lexical semantic level (word level) between the two age groups. The results revealed a significant difference between the two age groups ($|Z|=2.18$, $p<0.05$) for Perecman's level of CM and CS at Lexical semantic level (word level).

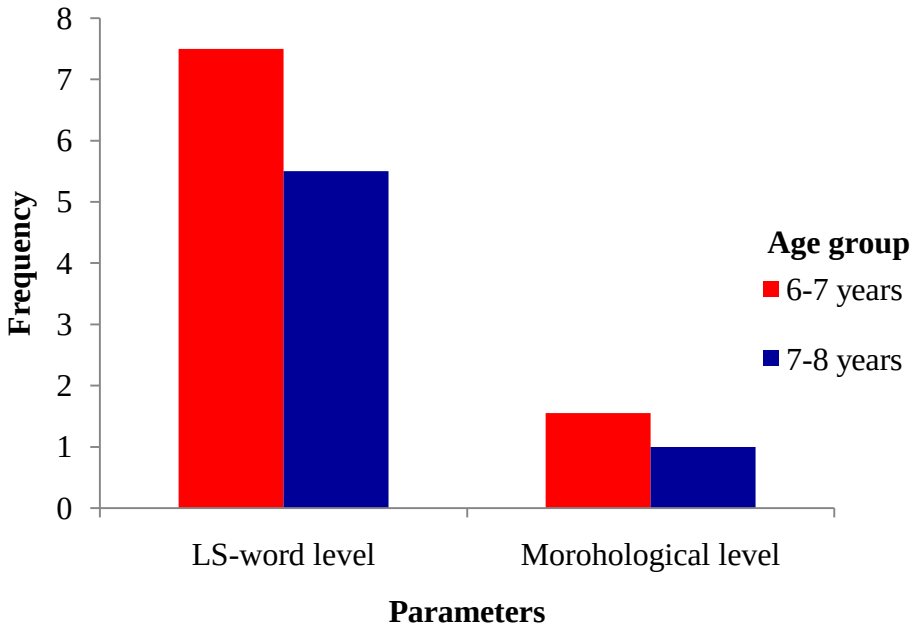

Figure 4.3 Comparison of performance of children on parameters of Perecman's level of CM and CS between age groups

The analysis of the results as shown in Table 4.3 also revealed that the M-E bilingual children in the age range of 6-7 years (Median=1.55, SD=5.66) had greater CM and CS at morphological level than the M-E bilingual children in the age range of 7-8 years (Median=1.00, SD=0.96) (See figure 4.3).The two age groups were compared statistically using non parametric Mann-Whitney test for Perecman's level of CM and CS at morphological level. The results revealed no significant difference between the two age groups ($|Z|=1.06$, $p>0.05$) for Perecman's level of CM and CS at morphological level.

The analysis of the results obtained using Perecman's level of Code mixing and Code switching revealed that word level and morphological level of code mixing were greater in M-E bilingual children in age group of 6-7 years than children in the age

group of 7-8 years. There was a significant difference between the age groups on comparison for the frequency of CM at word level.

4.4 Comparison of performance of M-E bilingual children between age groups on MLF model

MLF model (Myers-Scotton & Jake, 2000) was used to calculate following parameters:

- Matrix Language Islands (ML Islands)
- Matrix Language Shifts (ML Shifts)
- Embedded Language Islands (EL Islands),
- Matrix Language +Embedded Language constituents (ML+EL),
- Borrowed Forms
- Embedded Language Insertions (EL Insertions)
- Revisions

Descriptive statistics was carried out to calculate the median and SD values for each parameter. Statistical analysis of ML shifts and EL islands were not carried out since children in both the age groups did not exhibit ML shifts and EL Islands. Table 4.4 shows the median and SD values obtained for the parameters analyzed using MLF model.

Table 4.4

Performance of children on parameters of MLF model between age groups (N=30)

Age group	Parameters	Median	SD
6-7 years	ML Islands	5.00	3.51
	ML+EL	2.00	1.52
	Borrowed forms	4.00	1.44
	EL Insertions	2.00	1.33
	Revisions	0.00	0.00
7-8 years	ML Islands	6.50	2.11
	ML+EL	1.17	1.02
	Borrowed forms	5.50	2.04
	EL Insertions	0.00	0.55
	Revisions	1.00	1.11
Total	ML Islands	6.00	3.15
	ML+EL	2.00	1.46
	Borrowed forms	4.00	1.92
	EL Insertions	0.00	2.58
	Revisions	0.50	1.17

ML Islands

The analysis of the results as shown in Table 4.4 revealed that the frequency of ML Islands was found to be more in the age range of 7-8 years (Median=6.50, SD=2.11) than 6-7 years (Median=5.00, SD=3.51) (See figure 4.4) in M-E bilingual children.ML Islands were compared between the two age groups statistically using non parametric

Mann-Whitney test. The results revealed a significant difference between the two age groups (|Z|=2.74, p<0.05) in the frequency of ML Islands.

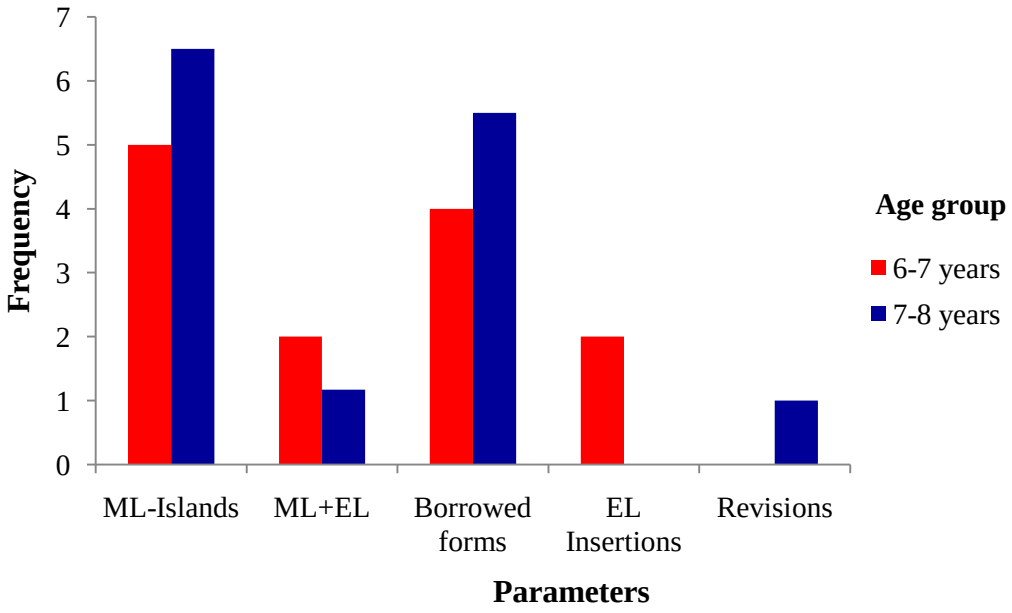

Figure 4.4 Comparison of performance of children on parameters of MLF model between age groups

ML+EL constituents

The analysis of the results as shown in Table 4.4 revealed that the frequency of ML+EL constituents noticed to be greater in the M-E bilingual children in the age group of 6-7 years (Median=2.00, SD=1.52) than the M-E bilingual children in the age group of 7-8 years (Median=1.17, SD=1.02) (See figure 4.4). Non parametric Mann-Whitney test was used to compare the frequency of ML+EL constituents between the two age groups. The analysis of the results revealed that there is a significant difference between

the two age groups (|Z|=3.86, p<0.05). An example of ML+EL constituent is /pakʃI tri:nḍe aṭIlu:ḍe parakUnnU/ (In English it means that bird is flying over the tree).

Borrowed Forms

The analysis of the results as shown in Table 4.4 revealed that the frequency of borrowed forms was found to be greater in M-E bilingual children in the age group of 7-8 years (Median=5.50, SD=2.04) than M-E bilingual children in the age group of 6-7 years (Median=4.00, SD=1.44) (See figure 4.4). The two age groups were compared statistically using non parametric Mann Whitney test. The analysis of the results showed a significant difference between the age groups (|Z|=3.09, p<0.05) for the frequency of borrowed forms. An example of borrowed form is /orU penkuṭṭI saIklə o:ḍikunnU/.Here /saIklə/ (cycle) is a borrowed form.

EL Insertions

The analysis of the results as shown in Table 4.4 revealed that the frequency of EL Insertions was found to be greater in the M-E bilingual children in the age group of 6-7 years (Median=2.00, SD=1.33) than M-E bilingual children in the age group of 7-8 years (Median=0.00, SD=0.55) (See figure 4.4). Non parametric Mann-Whitney test was carried out to statistically compare the frequency of EL Insertions between the age groups. The analysis of the results indicated a significant difference between the two age groups (|Z|=4.22, p<0.05) for the frequency of EL Insertions. An example for EL Insertion is /orU kUṭṭI tu: wi:larIl po:kUnnU/ (The child is going on a two wheeler).

Revisions

The analysis of the results revealed that the frequency of revisions was found to be greater in 7-8 years (Median=1.00, SD=1.11) than M-E bilingual children in the age group of 6-7 years (Median=0.00, SD=0.00) (See figure 4.4).The two groups were compared statistically using non parametric Mann-Whitney test. The analysis of the results revealed no significant difference between the two age groups ($|Z|=0.54$, $p>0.05$).

The results from quantitative analysis using MLF model revealed that frequency of ML Islands and Borrowed forms were greater in number in M-E bilingual children in the age group of 7-8 years. Whereas ML+EL constituents and EL Insertions were noticed to be greater in M-E bilingual children in the age group of 6-7 years. Frequency of revisions was found to be greater in M-E bilingual children in the age group of 7-8 years compared to the M-E bilingual children in the age group of 6-7 years. It was also found that there was significant difference in the frequency of ML Islands, Borrowed forms, ML+EL constituents and EL Insertions between the two age groups.

The data obtained was also qualitatively analyzed using MLF model. The comparison of two age groups revealed that ML+EL constituents, EL insertions are more in M-E bilingual children in age range of 6-7 years. As the age increased CM reduced and ML Islands increased. Borrowed forms were used more by the bilingual children in the age range of 7-8 years. Both the age groups followed the grammatical constraints of both the languages while code mixing.ML shifts and EL islands were not noticed in M-E bilingual children in both the age groups.

The transcribed samples were qualitatively analyzed for few MLF parameters in M-E bilingual children in the age range of 6-8 years. The transcribed sample C is depicted below.

Sample C- 6-7 years

Transcribed sample

1 C randə kuttikal shuttle[CS] kalikunnu.

2 C oru kutti ice[CS] cream[CS] kazhikunnu.

3 C swimming[CS] pool [CS] il ninnu kalikunu.

4 C oru kutti skating[CS] cheyyunnu.

5 C cycle[CS] o:dikunnu.

6 C oru kutti clapping[CS] cheyunnu.

7 C oru kutti cycling[CS] cheyunnu.

8 C oru kutti sliding[CS] cheyunnu.

9 C oru kutti catching[CS] catching[CS] kalikunnu.

10 C randə kutti unjal a:dunnu.

11C birds [CS]gal paripari kalikunnu.

Analysis of Sample C revealed more number of code mixed utterances where second language constituents are embedded in the matrix language.ML islands were lesser compared to ML+EL constituents. In the above sample there was 11th sentence represented ML Island. The child used few borrowed forms such as shuttle, ice cream and cycle. Other code mixed utterances included both nouns and verbs which has corresponding word in Malayalam. For example the 3rd utterance /swImmiŋ puːḷil nInnU kaḷIkkUnnU/ (Means that playing in the swimming pool) contain EL Insertions /swImmiŋ puːḷil/.Instead of ‘swimming pool’ child should have used corresponding

malayalam word i.e.; /ni:nt̪alkUḷam/. The CM utterances were present in word level and morphological level without violating the grammatical rules of the languages.

Sample D- 7-8 years

Transcribed sample

1 C ithə oru park[CS] a:nə.

2 C ivide kore kuttikal kalikunundə.

3 C ivide randə penkuttikal fountain[CS] inte aduthu neendunundə.

4 C oru kutti vere orukuttide koode shuttle[CS] bat[CS] kalikunundə.

5 C pinne oru penkutti ice[CS] cream[CS] thinittə pokunundə.

6 C pinne ivide randə kuttikal veedə undakunundə manninekondə.

7 C pinne ivide orupenkutti o:dikalikunundə.

8 C ivide kure kuttikal slide[CS] cheyunundə.

9 C pinne ivide achante koode oru kutti nadannu pokunundə.

10 C pinne ivide oru achachante koode kochumol irikunundə.

11 C pinne oru amma kuttine eduthə park[CS] kanichu kodukunundə.

12 C pinne ivide oru kutti circus[CS] kalikunundə.

13 C pinne ivide randə kuttikal football[CS] kalikunundə.

14 C pinne ivide orukutti karangunna kuthirayil kerikalikunundə.

Analysis of Sample D revealed that CM instances reduced as the age increased and the frequency of ML Islands increased with age. CM utterances included borrowed forms such as park, shuttle, bat, ice cream and circus which were nouns. Example of ML+EL constituent in the above sample is /pInne IvIḍe ranḍə kUṭ̪ṭ̪Ikaḷ fUṭə ba:l̪[CS] kaḷIkUnUnḍə/. The child should have used /ka:lpandə/ for ‘football’. EL insertions were

not noticed in Sample D. The CM utterances followed the grammatical constraints of both the languages.

Overall results from quantitative and qualitative analysis using MLF model also revealed a pattern of development in CM and CS in M-E bilingual children in the age range of 6-8 years. From the current study it was found that ML islands , Borrowed forms and Revisions are more in the age group 7-8 years bilingual children and other parameters such as ML+EL constituents, EL Insertions were greater in younger 6-7 years bilingual children. ML shifts and EL Islands were not noticed in M-E bilingual children in the age group of 6-8 years selected for the present study.

To summarize the results of the current study in Malayalam-English bilingual children revealed that children in the age group of 6-7 years exhibited greater CM than children in the age group of 7-8 years. CS instances were not noticed in both the age groups.

Analysis using SALT software showed that the M-E bilingual children in the age range of 7-8 years showed more total number of utterances than M-E bilingual children in the age range of 6-7 years. Similar trend was repeated for the parameters like TCW, MLU-in words, NDW and TTR. This shows a trend in the pattern of development from 6-7 years to 7-8 years of age in children with bilingualism. The results also revealed that the M-E bilingual children in the age range of 6-7 years showed greater total number of code switches than M-E bilingual children in the age range of 7-8 years. This also

indicates a developmental trend in acquisition of bilingualism. As the age increases children become proficient in using learned languages.

The results based on analysis using Perecman's level of Code mixing and Code switching revealed that the M-E bilingual children in the age range of 6-7 years exhibited more number of lexical semantic level of CM at word level compared to the M-E bilingual children in the age range of 7-8 years. The results also revealed that he M-E bilingual children in the age range of 6-7 years also exhibited more number of CM at morphological level. The results suggest that intra-sentential code switching or code mixing is exhibited by young children in the process of acquiring bilingualism. As the age increase the frequency of code mixing reduces.

The results based on analysis using MLF model also showed that frequency of ML Islands and Borrowed forms were greater in number in M-E bilingual children in the age group of 7-8 years. Whereas ML+EL constituents and EL Insertions were noticed to be greater in M-E bilingual children in the age group of 6-7 years. Frequency of revisions was found to be greater in M-E bilingual children in the age group of 7-8 years compared to the M-E bilingual children in the age group of 6-7 years.

CHAPTER 5: Discussion

The aim of the current study was to understand code mixing (CM) and code switching (CS) in Malayalam-English successive bilingual children. The objectives of the current study were to understand the type, extent and level of CM and CS in M-E successive bilingual children in the age group of 6-8 years.

The findings of the present study are explained under the following sections.

5.1 Frequency of code mixing (CM) and code switching (CS) in M-E bilingual children.

5.2 Comparison of performance of M-E bilingual children between age groups on Systematic analysis of Language Transcripts (SALT).

5.3 Comparison of performance of M-E bilingual children between age groups on Perecman's level of Code mixing and Code switching

5.4 Comparison of performance of M-E bilingual children between age groups on MLF model.

5.1 Frequency of code mixing (CM) and code switching (CS) in M-E bilingual children.

The frequency of CM and CS was analyzed between the two age groups (6-7 years and 7-8 years).The findings of the study revealed that children in the age group of 6-7 years exhibited greater CM than children in the age group of 7-8 years. CS instances were not noticed in both the age groups (See figure 4.1). The findings of the current study revealed a developmental pattern in the acquisition of bilingualism. It was noted that in the present study, with age the number of code mixing was observed to be

decreasing in from 6-8 years M-E bilingual children. This could be indicative that since the older children tend to use appropriate lexical forms of first language (Goodz, 1989; Genesee, Nicoladis, & Paradise,1995; Quay, 1995; Lanza, 1997; Lanvers, 2001) the frequency of mixing words in another language would be lesser and hence, reduced CM in older children. It could also be that, since younger children (6-7 years) are less proficient in one language, they tend to borrow forms from the more proficient language in order to complete the sentence. The increased number of code mixing in M-E bilingual children in the age range of 6-7 years also suggests that these children are least proficient in using English. This could also be attributed to the fact that their usage of English is restricted to school environment and hence reduced proficiency in English (Saffo, 2010). Thus, in the present study CM reduced from 6-7 years to 7-8 years of age. On similar lines a study done by Hellows (2013) in Hindi-English (H-E) bilingual children in the age range of 6-8 years also revealed that CM was observed more in younger age group compared to older age group.

In a study done by Thirumalai and Chengappa (1986), it was identified that code mixing is the result of inadequate mastery. Hence it could be inferred that since younger children do not have a mastery of each of these languages there is a high possibility of greater CM in 6-7 years children in the current study. It has been found by many researchers that generally at an earlier stage CM is used to compensate for the lexical gap rather than for specific functions such as emphasis, focus, elaboration etc (Gumperz, 1982; McClure, 1998). From this view it could be inferred that children in the age group of 6-7 years exhibited more number of CM due to difficulty in finding an existing word or missing word in first language. In the current study it was observed that children did

not use CM in order to emphasize any information or to focus on specific topic or to provide elaborate information.

In the present study it was found that the code mixed categories mainly included nouns, few verbs and more borrowed forms. Greater CM was observed for nouns and verbs could be because the mastery of these grammatical categories is much earlier in the developmental acquisition of language in children when compared to the other categories. (Vihman, 1998)

The other possible reason could also be attributed to constraints such as preference for English language or competency (Shin & Milroy, 2000). Reduced competency in either of the languages or preference to use English could have lead to greater number of CM type in young children than older children in the current study. Another similar study in young bilingual children done by Shrojen (2002) reported that successive bilingual exhibited more code mixing in their conversational interactions because of the reduced proficiency in using the learned languages. However they improve their performance by code mixing or borrowing words from both the languages. In the current study, the reason for increased CM in younger children could be attributed to lack of proficiency in English and Malayalam and increased preference to use Malayalam for the task given. It has to be noted that depending on the situational demand children use the learned languages and take help from either of the languages to compromise for the missing lexicon for effective interaction while conversing. In the current study children tend to maintain the task with out disrupting the content fluency by code mixing or borrowing from the learned languages when they could not access the

appropriate lexicon from a particular language. The older children are proficient with respect to the vocabulary of learned languages they exhibited lesser frequency of code mixing as a compensation for missing lexicon (Volterra & Taeschner, 1978; Thirumalai & Chengappa, 1986; Genesee, Nicoladis & Paradis, 1995; Lanvers, 2001). They used more of lexicalized forms during these instances.

Overall findings of the present study revealed that among the subjects taken, all M-E bilingual children exhibited greater number of CM and no CS (See figure 4.1). The increased frequency of CM in children in the age group of 6-7 years compared to children in the age group of 7-8 years (See figure 4.1) indicated a developmental trend in CM behaviors. The use of CM & CS could be a strategy used by children to enhance the effectiveness of communication. It was also found that CS instances (intersentential code switching) were absent in M-E successive bilingual children in the age group of 6-8 which may be attributed to the fact that since the instructions were given in Malayalam, children tried to maintain same language while describing the picture. The finding also revealed that the child could choose her language based on the interlocutor and language context and bilingual child's language choice is majorly determined by the language of the individuals involved in the speech interaction (Brice, 2000; Ruan, 2003; Arias & Lakshmanan, 2005)

5.2 Comparison of performance of M-E bilingual children between age groups on Systematic analysis of Language Transcripts (SALT).

The findings from the analysis using SALT software revealed that M-E bilingual children in the age range of 7-8 years showed more total number of utterances than M-E bilingual children in the age range of 6-7 years. Similar trend was repeated for the parameters like TCW, MLU-in words, NDW and TTR (See figure 4.2) in the current study. This implicates a trend in the pattern of linguistic development from 6-7 years to 7-8 years of age in children with bilingualism.

Increased MLU from 6-7 years to 7-8 years in the present study indicates increase in linguistic productivity with age. Similarly there was an increase in NDW and TTR with age suggesting the acquisition of vocabulary variation or lexical variety with in speech. The findings also revealed that the M-E bilingual children in the age range of 6-7 years showed greater total number of code switches than M-E bilingual children in the age range of 7-8 years. From these findings it could be inferred that increase in TU, NDW, TTR and MLU-in words with advancing age suggests development of vocabulary variation with in each language thus reducing the use CM behaviors. As exposure to each of the languages increases from 6-8 years children achieve mastery in linguistic production in both languages and children learn to select appropriate lexicon from the learned languages according to the situations.

In the present study it was found that even though equivalent words exist in Malayalam, children in both the age groups code mixed English words. For example tree

for /maram/, boy for /a:nkUʈi/, boat for /ʈo:nI/, picture for /tʃIʈram/ etc. It could be due to the popularity and commonality of English in the Indian population. This could make them use English automatically and unconsciously (Mathai, 2014; Apte, 1976).

Overall findings of the current study using SALT analysis revealed that TU, TWC, MLU-in words (4.44 words in 6-7 years and 4.79 words in 7-8 years), NDW (nouns and verbs) and TTR (0.58 in 6-7 years and 0.62 in 7-8 years) were greater in bilingual children in the age range of 7-8 years than younger bilingual children in the age range of 6-7 years suggests a developmental trend in acquisition of bilingualism. The categories of nouns used for CM in both the age groups were food items, games, automobiles, furniture etc. It also revealed that from 6-7 years to 7-8 years there was reduction in total number of code switches. From findings it is evident that as the age increases children become proficient in using learned languages.

5.3 Comparison of performance of M-E bilingual children between age groups on Perecman's level of Code mixing and Code switching

The findings based on Perecman's level of Code mixing and Code switching revealed that the M-E bilingual children in the age range of 6-7 years exhibited more number of lexical semantic levels of CM at word level compared to the M-E bilingual children in the age range of 7-8 years. The results also revealed that the M-E bilingual children in the age range of 6-7 years exhibited more number of CM at morphological level than children in the age range of 7-8 years (See figure 4.3). Occurrence of CM at lexical semantic and morphological level in M-E bilingual children would suggest fewer

constraints by Malayalam language for CM at lexical semantic and morphological level. The findings of the present study suggested that the frequency of code mixing at word level and morphological level reduced in M-E successive bilingual children with increase in age. In the current study findings from analysis using Perecman's level of Code mixing and Code switching revealed that CM at lexical semantic level was more frequent followed by CM at morphological level (See figure 4.3). This indicates that mental lexicon may be more loosely bound than other levels of language (Yaron, 2000).

It was found that the children in the present study did not exhibit CM at phrase level, syntactic level and phonological level in this study. The qualitative analysis of data revealed that the CM utterances did not violate the rules of either of the languages .The absence of phrase level CM in Malayalam- English bilingual children may be due to fact that M-E children do not achieve the proficiency to use English at sentence level till 8 years of age. . With respect to syntax, the word order remained either S-O-V order (/oru kUṭṭI əIskri:m ṯInnuUnnU/ i.e. 'A girl is eating ice cream' in English) or O-S-V order (/pa:rkIl kUṭṭIḷ kaḷIkkUnnU/ i.e. 'Children are playing in the park' in English) in the code mixed utterances in children with in both the age groups. Hence CM at syntactical level were not noticed in children with in the age group of 6-8 years. The absence of CM at phonological level indicates that the English words are not nativised with respect to phonological aspects in children.

The presence of increased frequency of CM at word level in M-E bilingual children in the age range of 6-7 years compared to children in the age range of 7-8 years (See figure 4.3) indicates that children at younger age are least proficient in terms of

vocabulary compared to older children in using both the languages and reduced exposure to the English would have resulted in CM restricted only at word level.

The comparison of frequency of CM at morphological level between the two age groups did not reveal any significant difference in the current study. It was observed from the qualitative analysis that the presence of morphological level of CM was commonly associated with the borrowed forms which indicate that content morphemes from English can be easily blended with the bound morphemes from Malayalam. Qualitative analysis also revealed that CM at morphological level occurred in both the age groups when Malayalam sound units or case markers are added to English words such as /bentʃIl/ /graUnḍIl/,/pa:rkIl/ etc. In these examples it can be noted that with the root words (bench, ground and park) Malayalam auxiliaries are used by children. Where in /Il/ refers to the preposition 'in'. In another example /ba:ḷIne/ (with the ball), /bo:jUm gəḷUm/ (boy and girl) indicates the agglutinative feature of Malayalam. In highly agglutinative languages such as Malayalam, a word can be easily formed by adding suffixes to root or stem using Sandhi rules (Jayan, Rajeeve, & Rajendran, 2011; Mathai, 2014). The finding of the current study revealed that young bilingual children exhibited agglutination of Malayalam suffixes with the root word from English at an early stage itself.

On qualitative analysis of the samples taken for the present study few examples indicated the influence of English on suffixes of Malayalam. For example; /kUratʃə a:ḷ kUṯIre:nte me:le ke:ri:ṭṭə po:kUnnU/ which means that 'Few people are going in the hoarse'. Here /kUṯIrajIl/ will be sufficient to indicate the preposition 'on'. In another example /kUṭṭIkaḷ ba:ḷIne konḍəkaḷIkUnnU/ in order to indicate 'with', /ba:ḷIne konḍə/ is used. Whereas /kUṭṭIkaḷ ba:ḷkaḷIkUnnU/ would be sufficient. But it is noted that the

sentences remain grammatical in both the examples. Since such utterances were present in both the age groups comments could not be made regarding the developmental trend.

In the present study few interesting CM utterances noticed were like /orU kUṭṭI ske:tIŋ o:ḍIkkUnnU/ (The child is skating), /orU kUṭṭI swImmIŋ ʧejjUnnU/ (The child is swimming), /orU kUṭṭI kla:ppIŋ ʧejjUnnU/ (The child is clapping) etc. This indicates a problem of *"double marking"* of English and Malayalam words which also reported by another study by Mathai (2014). Here words such as swimming, sliding, skating, clapping being verbs, another verb /ʧejjUnnU/ (means doing) is added to them. But without /ʧejjUnnU/ the utterances will be incomplete for Malayalam speakers. There was no developmental trend noticed in the usage of these types of utterances.

The findings from analysis of Perecman's level of code mixing and code switching also revealed that intra sentential code switching or code mixing (especially at word level than morphological level) was exhibited by young M-E bilingual children in the process of acquiring bilingualism. The reduction of word level CM and morphological level CM with advancing age indicate a developmental trend.

4.4 Comparison of performance of M-E bilingual children between age groups on MLF model.

The findings based on analysis using MLF model revealed that frequency of ML Islands and borrowed forms were greater in number in M-E bilingual children in the age group of 7-8 years. Whereas, ML+EL constituents and EL Insertions were noticed to be greater in the M-E bilingual children in the age group of 6-7 years. Frequency of revisions was found to be greater in M-E bilingual children in the age group of 7-8 years

compared to the M-E bilingual children in the age group of 6-7 years (See figure 4.4). Similar findings were also reported in a study done in H-E bilingual children in the age group 6-8 years except for the parameters such as borrowed forms and revisions (Hellows, 2013).

The findings of the current study revealed that frequency of ML Islands were increased in M-E bilingual children in the age group of 7-8 years than 6-7 years (See figure 4.4). Increase of ML Islands as the age increases may suggest improved linguistic competency in each languages with advancing age. As the age increased children in the age group of 7-8 years might have learned to inhibit the second language constituents resulting in increased ML Islands. It was found that subjects in the study did not use EL islands and ML shifts which indicated absence of intersentential code switching. Generally presence of intersentential switches indicates increased proficiency in the usage of two languages. Since there were no intersentential code switches in M-E bilingual children; this might indicate that they become proficient in the languages probably at a later stage.

It was also found that ML+EL constituents were more in younger bilingual children in the age group of 6-7 years compared to older bilingual children in the age group of 7-8 years. It can be inferred that younger bilingual children select more easily accessible vocabulary without considering whether it is from L1 or L2.This is cognitively less taxing to them. When they select the vocabulary from L2 and mix it with L1, it will result in ML+EL constituents. This may be indicating that young bilingual children are not proficient in either of the languages. The reason for ML+EL constituents could be attributed to loss of inhibition of L2 or improper activation of L1 while code mixing in

younger bilingual children in the age range of 6-7 years (Myers Scotton, 1993; Backus, 2003). Reduced ML+EL constituents in the age group of 7-8 years could be due to increase of the proficiency in using both the languages. The reduced ML+EL constituents in 7-8 years bilingual children can be correlated with reduced CM instances in them.

Another possible explanation for the presence of ML+EL constituents may be that EL lemmas which meet the ML matrix grid is selected among ML or EL lemmas activated in the mental lexicon. Increased frequency of ML+EL constituents in young bilingual children (6-7 years) may be attributed to activation of both ML and EL lemmas without any inhibition. Whereas children in the age range of 7-8 years learns to inhibit the second language or Embedded Language lemmas as the proficiency of usage of languages increases along with the language exposure.

Qualitative analysis of the data revealed that CM behaviors of M-E bilingual children in both the age groups did not violate syntactic constraints of both the languages which mean that the structure of CM follows the predictions of adult model (Vihman, 1998). It was found that morphological level of code mixing in M-E bilingual children followed Morpheme order principle (Myers –Scotton, 1995) according to which "the surface morpheme order will be that of ML in ML+EL constituents". This suggests that children acquire the complex knowledge of how to use the two languages in single utterance and they also have knowledge regarding the grammatical structure of specific languages during the early developmental period itself.

The findings of the current study revealed that the presence of Borrowed forms were more in M-E bilingual children in the age group of 7-8 years than M-E bilingual

children in the age group of 6-7 years which also indicates the effect of increased exposure to English language by older children. Since the language exposure was increased with age older children would have learned or mastered more borrowed forms and stored in the mental lexicon (Chomsky, 1972; Tomoda, 1999; Saffo, 2010). This could have resulted in more use of borrowed forms in children in the age group of 7-8 years compared to 6-7 years.

In general the presence of borrowed forms such as ice cream, park, cycle, scooter etc revealed that children tend to use borrowing as a way to compensate for the missing knowledge and they have an entry into the mental lexicon. According to Mathai (2014) the use of borrowed words especially the names of products invented in Western world or technical terms in various disciplines of science, commerce and economics force to use those words in their original form. Similar borrowed forms exhibited by M-E bilingual children in the current study were slide, seesaw, fountain, ice cream, shuttle, scooter, cycle, football etc. Qualitative analysis of the results revealed the presence of CM instances, where bound morphemes from ML were attached to root word from EL. This helped to avoid the confusion while recognizing the borrowed forms or lexicalized forms. According to Saffo (2010) "Derivational/inflectional affixes occur with a root of other language only if it has been phonologically adapted via lexicalization". It was also found that few children used description as a strategy to compensate for the missing knowledge without borrowing or code mixing the word from L2. For example a child used /nIraŋUnna sa:danam/ for the word 'slide'.

The findings from qualitative analysis also revealed that the CM categories in Malayalam-English bilingual children were nouns, verbs, automobiles, furniture and food

and most commonly occurred CM category included nouns. Similar to the findings of the present study Mahalakshmi and Prema (2011) also reported more number of nouns (fruits, vegetables, professions, and vehicles) and some verbs as code mixing category in Kannada-English bilingual children. It was reported in the literature that Malayalam being one of Dravidian language shows extensive lexical (vocabulary) borrowing, but few traits of structural (either phonological or syntactical) borrowing (Chengappa, 2009).

It was also found that EL Insertions were more in the M-E bilingual children in the age group of 6-7 years. This could be attributed to confusion in selecting appropriate words from learned languages (Harini & Chengappa, 2008). The greater number of revisions in children in the age group of 7-8 years might be due to the reason that children poorly organized thoughts or it resulted due to confusion. Comparison between the two age groups did not reveal any significant difference in the occurrence of revisions. This may indicate no developmental trend in this aspect of usage of revisions in Malayalam- English bilingual children.

It was observed from the results of the current study that CM behaviors did not violate the syntactic rules of Malayalam. Most of the utterances of the M-E bilingual children followed S-O-V word order followed by O-S-V order. An example of utterance which follow exceptional word order is like, /pInne IvIḍe ranḍə kUṭṭIkaḷ vi:ḍə unḍa:kUnUnḍə mannIne konḍə/ (means ‘here there are two children who are making home with the mud’). In this utterance child shifts the prepositional phrase/mannIne konḍə/ (with the mud) at the end of the utterance which is not usual in Malayalam grammar. But the sentence does not loose its acceptability also. This may indicate the flexibility of word order in Malayalam (Mohanan, 1982). Various authors have reported

that word structure and syntactic structure of English might influence Malayalam (Bhattathiri, 1977). However Varier (2014) has a different view about how English influences Malayalam. He says that there are more borrowed forms in Malayalam and English will never change the basic syntactic structure of Malayalam.

In general it was observed that all children used adjective /orU/ (means 'one') in most of the utterances. This usage is not required in Malayalam sentences (Marar, 1971). In his views this occurs due the influence of indefinite article a/an in English. For example, /orU kUṭṭI ʃuṭṭlə[CS] ba:t[CS]Ine konḍə kaḷIkkUnnUnḍə/ (means that the child is playing shuttle bat), /orU kUṭṭI klaːppIŋ ʧejjUnnU/ (means that the child is clapping). It could be noted that without using the article the sentence can express the meaning. However Marar (1971) also notes that now it is accepted to use /orU/ in both written and spoken form without any question because of the frequent use of it by translators from English.

Overall findings of the current study based on MLF model revealed that reduction in frequency of ML+ EL Islands, EL insertions in M-E bilingual children in the age group of 7-8 years when compared to 6-7 years indicates a developmental pattern in achieving the proficiency of languages with advancing age. The reason for increased ML Islands in bilingual children in the age group of 7-8 years could also be attributed to increased proficiency in using learned languages. It was also found that borrowed forms were more in M-E bilingual children in the age group of 7-8 years which could be due to increased language exposure with age and they would have learned or mastered more borrowed forms and stored in the mental lexicon.

In general it was observed from the findings of the present study that, the type of CS exhibited by M-E bilingual children in the age group of 6-8 years was intrasentential type (referred to as CM) as strategy for effective communication. It was also found that intersentential type of CS was absent in M-E successive bilingual children in the age group of 6-8 years which indicates that M-E bilingual children achieve proficiency to code switch at sentence level at a later stage. The extent or the frequency of CM was greater in children in the age group of 6-7 years than 7-8 years indicating a trend in development of bilingualism M-E successive bilingual children. On analysis of the levels of CM on Perecman's level of CM and CS it was found revealed that the children in the age range of 6-8 years exhibited CM at word level and morphological would suggest fewer constraints by Malayalam language for CM at lexical semantic and morphological level.

Summary and Conclusions

The current study was done in order to understand the influence of English in Malayalam in young bilingual children. The aim of the current study was to understand code mixing (CM) and code switching (CS) patterns in Malayalam- English bilingual children in the age group of 6-8 years. Researchers have conducted studies in different languages for the understanding of language contact phenomenon and acquisition of bilingualism in children. Most of the studies research the influence of English as global language on their mother tongue for example Spanish-English, Korean-English, and French- English etc. Within Indian context there are studies conducted in Hindi-English, Kannada-English bilingual children. English being a global language has its effects on our native languages. Hence it would be interesting to further investigate the influence of English in M-E bilingual children since Malayalam has different syntactic structure compared to English. And there is need for research on code mixing and code switching behaviors during acquisition of bilingualism in the Malayalam-English bilingual children. The objective of the current study was to compare the type, extent and level of code switching and code mixing in Malayalam-English successive bilingual children.

The participants of the present study included sixty M-E bilingual children in the age range of 6-8 years were divided into two groups 6-7 years and 7-8 years who were native speakers of Malayalam and who acquired English as their second language. Thirty children were considered in both the age groups. Children were asked to describe a picture of a park (Hellows, 2013) in order to obtain the speech sample. The obtained data was analyzed qualitatively and quantitatively. Analyses of different parameters were

carried out manually and using SALT software, MLF model, Perecman's level CM and CS. The parameters analyzed were frequency or extent of CM and CS, Total number of utterances (TU), Total completed words(TWC), Mean Length of Utterance (MLU) in words, Number of different words(NDW), Type Token Ratio(TTR), Total number of code switches(TCS) using SALT (version 2012) software; and Matrix Language Islands(ML Islands), Matrix Language Shifts(ML Shifts), Embedded Language Islands(EL Islands),Matrix Language +Embedded Language constituents(ML+EL), Borrowed Forms, Embedded Language Insertions (EL Insertions), Revisions parameters were analyzed using MLF model (Myers-Scotton &Jake,2000); and Perecman's level of code mixing and code switching (Perecman,1984).

The findings of the current study indicated that the frequency of code mixing was greater in Malayalam-English bilingual children in the age group of 6-7 years than 7-8 years which indicated a developmental trend in these children. It has been found by many researchers that generally at an earlier stage CM is used to compensate for the lexical gap rather than for specific functions such as emphasis, focus, elaboration etc (Gumperz, 1982; McClure, 1998).From this view it could be inferred that children in the age group of 6-7 years exhibited more number of CM due to difficulty in finding an existing word or missing word in first language. It could also be due to the fact that reduced proficiency in languages could have resulted in increased code mixing in younger age group. As the age increases code mixing behaviors reduces indicating the increased proficiency in usage of languages. Absence of CS instances in both the age groups may be attributed to the reason that since the instructions were given in Malayalam, children tends to maintain same language while describing the picture or the

proficiency to switch at sentence level might be acquired at a later stage in M-E bilingual children.

Further the finding from analysis using SALT software revealed increased number of total utterances, TCW, MLU-in words, NDW, TTR in the age group of 7-8 years. This could suggest a trend in the pattern of linguistic development with respect to productivity and vocabulary from 6-7 years to 7-8 years of age in children with bilingualism. Increased number of CM in children in the age range of 6-7 years would indicate that at younger age children are least proficient in using the learned languages which might lead to confusion in selecting appropriate lexicon.

Further, the findings based on Perecman's level of Code mixing and Code switching indicated that the M-E bilingual children in the age range of 6-7 years exhibited more number of lexical semantic levels of CM and CS at word level compared to the M-E bilingual children in the age range of 7-8 years The this could be attributed to the fact that children at younger age are least proficient compared to older children in using both the languages and reduced exposure to the English would have resulted in CM restricted only at word level. It was also found that the M-E bilingual children in the age range of 6-7 years also exhibited more number of CM and CS at morphological level than children in the age range of 7-8 years. The presence of morphological level of code mixing may be due to the agglutinative feature of Malayalam which allows mixing of EL free morphemes with ML bound morphemes. Occurrence of CM at lexical semantic and morphological level in M-E bilingual children would suggest fewer constraints by Malayalam language for CM at lexical semantic and morphological level.

The findings from analysis using Perecman's level of Code mixing and Code switching indicated that CM at lexical semantic level is more frequent followed by CM at morphological level in both the age groups. This indicated that mental lexicon may be more loosely bound than other levels of language (Yaron, 2000).

On analysis using MLF model it was found that ML Islands were more in children in the age range of 7-8 years compared to 6-7 years. Increase of ML Islands as the age increases would suggest improved linguistic competency in each languages and ability to inhibit the second language constituents with advancing age. The absence of EL islands and ML shifts indicates absence of intersentential code switching. Presence of intersentential switches indicates increased proficiency in the usage of two languages. Since there were no intersentential code switches in M-E bilingual children; this would indicate that they become proficient in the languages at a later stage. The presence of Borrowed forms found to be greater in 7-8 years M-E bilingual children than 6-7 years children suggests the use of compensation of strategy for missing lexicons in the mother tongue i.e., Malayalam. Hence, children borrowed words from English in Malayalam. This strategy is advanced in the older bilingual children than the younger ones.

EL Insertions were found to be greater in the M-E bilingual children in the age group of 6-7 years attributed to confusion in selecting appropriate words (Harini& Chengappa, 2008).The greater number of revisions in children in the age group of 7-8 years might be due to the reason that children poorly organized thoughts or confusion.

To conclude, the findings of the present study indicated a trend in development of bilingualism with respect to language contact phenomena such as code mixing and switching in M-E successive bilingual children in the age group of 6-8 years. The findings of the study also revealed that the type of code switching exhibited was only intrasentential type (referred to as CM) by all children in the age range of 6-8 years. Also it was found that CM is greater than CS in the selected age group in the study. Increased code mixing in 6-7 years could be attributed to the difficulty in finding an existing word or missing word in first language or due to inadequate proficiency in using both the languages. It was found that in the present study CS was not exhibited by M-E successive bilingual children which indicated that the skill to switch at sentence level might be acquired at a later stage in M-E bilingual children. It was also found that children in the age group of 6-8 years borrow words from English to compensate for the missing lexicon in Malayalam language which is their native language.

Implications of the study

The current study in M-E successive bilingual children indicated a trend or pattern in the development of bilingualism. The study gives insight into the language abilities of M-E successive bilingual children and how the performance varies with respect to age and duration of language exposure. Since most of the children learn two or more languages during the school going period as part of the curriculum, it is important to know the language abilities of these bilingual children. It is not necessary that all the children become proficient in using both the languages as soon as they are exposed to them. Even though the successive children are exposed to English at a younger age the

degree of use is limited to School situation. This would lead to difference in the competency and use of both of the languages. The language preference of children would vary depending on the situations or task demands.

Most of the young successive bilingual children will be highly proficient in one of the languages and performance on the other language will be poor. The current study explains the reason for the difference in the performance of the two languages based on the developmental pattern of bilingualism. Thus it supports the existing research findings which explain acquisition of bilingualism with respect to code switching and code mixing in children (Mc Clure, 1977; Shrojen, 2002; Mathew, 2012).

With in clinical population there are children with communication disorders who are exposed to two or more languages. Assessing the language abilities of those children is generally difficult. The interference of one language has to be taken into consideration while commenting on the various linguistic aspects affected in these children. The current study would help to understand and describe the pattern of difficulties in each of the languages in Malayalam-English bilingual children.

The study also provides evidences in terms of the pattern of language contact phenomena such as CM and CS in young bilingual children. The CM and CS patterns are considered to be normal phenomena in young bilingual children during the acquisition of bilingualism and do not require any intervention to reduce CM and CS in young children. This also implicates that the parents or the teachers should not expect high proficiency in using both the languages at the same point of time.

In the therapeutic point of view the study suggests that the borrowed forms used by children for compensating for missing lexicon and CM can be encouraged since the ultimate aim is to improve the effective communication in children. SLP's can also work on teaching vocabulary from both the languages if the child's environment permits the usage of them.

The findings of the study indicated that young children code mix greater at word level and morphological level than older children. Hence, this would suggest that only at a later stage decisions could be taken for intervention of such errors. It is important to know the stage at which such patterns disappear in young children. The current study helps to understand the developmental trend with respect to the level of CM and CS in younger and older age groups. The study will also help to know at which point the transition from one language to another occur based on grammatical constraints and word order. In the current study CM and CS behaviors were studied only in M-E successive bilingual children, further research could be carried out to compare the bilingual acquisition pattern in simulataneous and successive M-E bilingual children.

The study could also facilitate the understanding of CM and CS phenomena in different Indian languages with similar structure as Malayalam. Hence, further studies could be encouraged to explore the language contact phenomena in young children in different languages. The study will also help to understand the language specific difficulties in bilingual children such as Specific Language Impairment, Learning Disability and Acquired Childhood Aphasia. It is important for professionals dealing

with such children such as the Speech-Language Pathologists to understand their difficulties in each of the learned languages and know the assessment and management options for such bilingual children. For further understanding of the language difficulties in bilingual children further research could be carried out in future.

In conclusion, the current study implicates that CM and CS behaviors would occur during the acquisition of bilingualism in M-E children. The study evidences a development with respect to type, extent and the level of CM in M-E bilingual children. Code mixing is used as a strategy to compensate for the lexical gap and is not and abnormal pattern in children.

Limitations of the study

The current study was done to understand the CM and CS behaviors in M-E bilingual children with in the age range of 6-8 years only. Hence, in order to comment on the developmental pattern of bilingualism children with in a wide age range could have been selected for the study. Future research will be required to generalize the results of the present study considering a broader age range and larger sample size. The CM and CS behaviors could vary with respect to the tasks such as conversation, narration. In the current study only picture description task was done to analyze the CM and CS behaviors. Analyzing CM and CS behaviors during various other activities such as conversation and class room interaction will help to understand the social and pragmatic functions of code mixing and code switching.

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APPENDIX