Code-switching and Code-mixing in Bilinguals and Multilinguals

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MAY, 2014.

DEDICATED

TO

MY FAMILY AND

TO MY BELOVED ONES

CERTIFICATE

This is to certify that this dissertation entitled "**Code-switching and Code-mixing in Bilinguals and Multilinguals**" is a bonafide work submitted in part fulfillment for the Degree of Master of Science (Speech Language Pathology) of the student (Registration No.: 12SLP019). This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any of the University for the award of any other Diploma or Degree.

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This is to certify that this dissertation entitled "**Code-switching and Code-mixing in Bilinguals and Multilinguals**" has been prepared under my supervision and guidance. It is also certified that this has not been submitted earlier in other University for the award of any Diploma or Degree.

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Declaration

This dissertation entitled "**Code-switching and Code-mixing in Bilinguals and Multilinguals"** is the result of my own study under the guidance of Dr. Shyamala, K. C., Professor and HOD 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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LIST OF CONTENTS

CHAPTER I

INTRODUCTION

Haugen and Weireich early studies are language contact in the early fifties. Communication is a process in which individual exchanges information, thoughts, opinions and news (Shames Wiig & Secord, 1998) . In the world people communicate efficiently using different languages. Some use single language, while others use more than one language for exchange of ideas. The ability to speak or write fluently in two languages is referred as bilingualism (Canadian Encyclopedia, 2009).

Communication is multimodal. The process of communication is enhanced by the use of facial expressions, gestures, eye gaze along with the speech. Language is an essential part of human interaction and transmission of information. Owens (2006) defines language as a social tool and it is a socially shared code system, using these arbitrary symbols concepts can be represented. There are specific rules for combination of those symbols. In the world people communicate efficiently using different languages. Most of the people use a single language within their community. However, still many people are capable of using more than one language for exchange of ideas. This is referred to as bilingualism or multilingualism which is defined as the ability to speak or write fluently in two languages (Canadian Encyclopedia, 2009).

Bilingualism is a sociolinguistic phenomenon that has got greater attention of scholars because of its importance in communication, political and demographic considerations that

have led many socialists to categorize languages as major and minor in multi-linguistic settings and according to Indian statistical review on languages, 2005, "India is a multilingual country with over 1652 languages spoken".

A   Bilingual is one who can easily make use of two languages as a means of communication and switch from one language to the other whenever necessary (Oskar, 1971).Multilingualism has been defined as " the presence and the use of two or more languages within modern nation state"(Asher & Simpson , 1994)

A great number of people are multilingual and use more than two languages in their everyday life. The languages they use have different statuses as majority/minority languages in their communities and some languages are used primarily in the private domains while the others are used primarily in the public domains, such as works or school. To be bilingual or Multilingual is a normal and unremarkable necessity for the majority in the world today.(Edwards,1994)There is a growing need for individual multilingualism as a result of increasing communications among different parts of the world and the need to be competent in languages of wider communication.

Developing communicative competence in two or more languages gives individuals opportunities to express their feelings and thoughts and shape their identity. It also helps them satisfy their individual and social needs in the different contexts of the languages used. Code-switching and code-mixing are well known traits in the speech pattern of the Bilingual and Multilingual in any human society the world over .In many situations of languages in contact,

constituents of one language can be found with the constituents of another language in a number of linguistic phenomena, namely lexical borrowing, transferring, interference, codeswitching and codemixing, etc. (Annamalai 1989).

The phenomena of code-switching and code-mixing of languages have long intrigued scholars who have examined what triggers such occurrences (Muysken, 2000; Wei, 2005). Bhatia and Ritchie (1996) statistically revealed that there is a great increase in bilingualism all over the world. This increase in bilingualism has led to a great increase in the studies of bilingualism in the west. In bilingual and multilingual communities, changes in verbal and nonverbal behavior that accompany a change in language are commonly taken for granted and do not elicit much interest. In reality, language boundaries can become quite unclear in contexts where code-switching and code-mixing exist (Auer, 1998). Bilingualism and multilingualism, in recent times, has largely become the rule and not the exception due to the global expansion. With increasing globalization, however, multilinguals are becoming more prevalent. Census of India (2001) reports that 19.44 percent are bilinguals and 7.22 percent are trilinguals.

Language experts across the globe have investigated in their experiments the causes, functions, characteristics and effects of code-switching and code-mixing. Such investigations on the causes of the phenomena, for instance, have revealed sociolinguistic and psycholinguistic factors. One is bilingualism or language contact that status, integrity, self-pride, comfortability and prestige (Akere, 1977; Bokamba, 1989; Hymes, 1962; Kachru, 1989; Kamwangamalu, 1989). Other causes include modernisation, westernization, efficiency,

professionalism and social advancement (Kachru, 1989; Kamwangamalu, 1989). According to these scholars, some of the functions of code-switching and code-mixing are intra-group identity (Gumperz, 1982); poetic creativity (Kachru, 1989) and the expression of modernisation (Kamwangamalu, 1989).

The study of the prevalence of this phenomenon in the Telugu speech community for the Hindi/English languages is what this study sets out to indicate. The main body of the paper is divided into four sections. The first contains the definition of concepts. It is in the second that the previous investigations of scholars on code-switching and code-mixing are examined. The entire procedure for the current research constitutes the third section, while the fourth one contains the conclusion.

1.1.Need for the study

In India, Telugu is a South-Central Dravidian language primarily spoken in the state of Andhra Pradesh. Telugu is the third most spoken language in India, after Hindi and Bengali. Over 74 million have Telugu as their mother tongue, and it is considered one of the twenty-two most spoken languages in India (Census of India, 2001). Speech and Language Pathologist's in India have always recognized that clinical assessment and training involves clients using bilingual/multilingual capacity. Questions regarding the need for monolingual or bilingual based work with client are having communication disorders have been asked for several years. In the recent years interest have been shown in the research to study the performance of normal and communication disorder individuals who are bilingual/Multilingual.

Keeping this trend in view, Chengappa, Krupa and Bhat (2002) compared language mixing and switching in Malayalam-English bilingual aphasics and results showed that there was an increase in code switching behaviour but the quality of switches did not differ when compared with those in normal subjects.

Bhat and Chengappa (2005) compared code switching in normal's and bilingual aphasics in Kannada and English languages using Matrix language frame (MLF) model. Results were that there was only a slight increase in the quantity of code switching and no qualitative differences in the type of code switching among controls and aphasics.

From the review of literature it is clear that India being a multilingual country; only limited studies have been carried out in Indian context on code mixing and code switching in bilingual and Multilingual adults. In the present era, the phenomenon of code mixing and code switching becomes apparent in a person's language to meet up his/her every day necessities and sustain the relationship with the new society and its people. Code mixing and code switching are used when individuals speaking in diverse languages come in contact with one another and communication between them is carried either through one or combination of these languages. Therefore, the present study was aimed at analyzing the linguistic forms, extent and type of code switching and code mixing in Telugu-English bilingual and Telugu-English-Hindi Multilingual adults.

1.2. Aim of the study

To investigate code-mixing and code-switching in typical Telugu-English Bilinguals and in Telugu-English- Hindi Multilingual adults.

1.3. Objectives of the study

i. To study in detail the nature and level of code-mixing and code-switching using Matrix language frame model (Myers-Scotton, 1993).

ii. To compare the type and extent of code-switching and Code-mixing across the Bilinguals (Telugu-English) and Multilinguals. (Telugu-English-Hindi).

iii. To identify the effect of order of elicitation of code-mixing and code-switching in Bilinguals and Multinguals in different context.

For Bilinguals:

- In narrative discourse:
  - ✓ Bilingual context
  - ✓ Monolingual Telugu
  - ✓ Monolingual English
- For conversational discourse
  - ✓ Bilingual context
  - ✓ Monolingual English context
  - ✓ Monolingual Telugu context

For Multilinguals:

- In narrative discourse:

  - Multilingual context

  - Monolingual Telugu

  - Monolingual English

  - Monolingual Hindi

- In conversation discourse:

  - Multilingual context

  - Monolingual Telugu

  - Monolingual English

  - Monolingual Hindi

   Present study was undertaken to verify the following hypotheses

1.4. Hypothesis

i. There is a significant difference in the performance of Bilingual and multilingual adults on code mixing and code switching task across different constituents i.e., Matrix language islands (ML Islands), Matrix language shifts (ML shifts), Matrix language + Embedded language (ML+EL), revisions, borrowed forms, Embedded language (EL Islands) in different stimulus condition(i.e narration /conversation and language)

ii. There is a significant difference between the order of elicitation of constituent across context and stimuli in bilinguals and multilingual.

CHAPTER II

REVIEW OF LITERATURE

All living organisms communicate in one way or the other. Travis (1971) defines communication as "the process by which the individual interacts with his or her environment and with himself or herself". Communication includes all means by which information is transmitted between a sender and a receiver. Humans are unique among animals because they have developed a system of symbolic communication called as language. Language may be written, spoken or signed. Although all forms of communication involve language, effective use of language for communication is not restricted to spoken words. Humans have developed additional modalities for the expression of language. Normal communication encompasses verbal and nonverbal elements that are used for a variety of purposes. Communication is successful when information is accurately transmitted from a sender to a receiver.

Language has been defined by American Speech-Language-Hearing Association (Committee on Language, 1983) as a "complex and dynamic system of conventional symbols that is used in various modes for thought and communication. Language evolves within specific historical, social, and cultural contexts. Language, as rule-governed behavior, is described by at least five parameters. Language learning and use are determined by the intervention of biological cognitive, psychosocial and environmental factors".

For the purpose of study, linguists have identified language as having many subsystems (phonology, morphology, syntax and semantics as well as pragmatics) which have

to do with sound, grammar, meaning, vocabulary and knowing the right way to say something on a particular occasion in order to accomplish a specific purpose (Jacobson, 1987). The speaker who knows all these is said to have acquired communicative competence in that language (Hymes, 1972). Language acquisition progresses across these components with increasing quantity (e.g., sounds, words and sentences length) and gradual refinement, and understanding of the subtle and more complex points of usage (e.g., using "taught" rather than "teached") as the child grows.

"Language is the most powerful, permanent means of communication. Non-linguistic symbols such as expressive gestures, signals of various kinds, traffic lights, road-signs, flags, Morse and other codes, the sign language and Braille alphabet so forth are also means of communication. Language is the best means of self-expression. Through language, humans express their thoughts, desires, emotions and feelings and also they store knowledge, transmit messages and experience from one person to another. Most of the activities in the world are carried on through language. In the normal course of events, language development like cognitive development, motor development, continues beyond the point where the individual has assumed the external appearance of an adult" (Erikson, 1959).

Bilingualism/Multilingualism is the choice to utilize two or more languages by the similar individuals. Initially most people are monolingual in nature. When needs arise, for improving their knowledge, and for purposes of communication, use of more than one language is essential to each and every one. Thus, individuals, societies as well as nations can be bilingual/Multilingal.

Humans possess a capacity to learn aspects of more than one language. Bhatia and Ritchie (1996) reported that there are thirty times as many languages as there are countries in the world. Statistics reveal that there is a great increase in bilingualism, all over the world. This increase in bilingualism has led to a great increase in the studies of bilingualism in the west.

Our world is becoming increasingly multilingual. These trends mean that many children are being raised as bilinguals. Sometimes bilingualism is a necessity, as a child's parents may not be fluent in the majority (dominant) language spoken in the community. Therefore, the child may learn one language at home and another at school. But sometimes bilingualism is a choice, and parents may wish to expose their child to another language, even if they do not speak a second language themselves. This could be due to the many benefits of being bilingual.

2.1. Bilingualism and Multilingualism:

A Bilingual is one who can easily make use of two languages as a means of communication and switch from one language to the other whenever necessary (Oskar, 1971). Multilingualism has been defined as "the presence and the use of two or more languages within modern nation state" (Asher & Simpsom, 1994).

There is different language processing if there are two languages in mind. Children who know two languages are different from monolingual children in many ways.

The term "bilingualism" is defined differently by different people. bilinguals could be defined as "individuals who have "native-like control of two languages" Bloomfield, (1933) cited in Bhatia & William (2002), it also means, a person has knowledge on more than one

language to whatever degree while Haugen (1953) defines bilinguals as individuals who are fluent in one language but who "can produce complete meaningful utterances in other language". This definition allows even early stage second language (L2) learners to be classified as bilinguals.

The term Bilingualism is the alternate use of two or more languages by the same individual .However; 'use' is not a single dimension but the expression of one or more dimensions of bilingualism. The notion of 'use' means that the bilingual individual has the capacity to call on either languages ,and this implies that he must have a minimal competence in both languages (Weinreich,1953) and (Mackey,1962).

Bilingualism is also defined as 'having or using two languages particularly as spoken with the fluency characteristics of a native speaker (Webster's dictionary, 1961). McNamara (1967) refers to bilingual as a person who possesses minimal competence in any one of the four language skills: listening comprehension, speaking, reading and writing in a language other than the mother tongue. Grosjean (1989) proposed that bilinguals rarely use both the languages equally in every domain of their social environment. Rather, they use each of them for different purposes, in different contexts and with different communication partners. Therefore, it is evident that they are able to use each of these languages depending on their needs in the complex social interactions. Since demands and purposes of interactions vary, bilinguals are able to shift on a continuum which ranges from only monolingual to a truly bilingual mode.

Mohanty (1994) limits the definition of bilingualism to its social communication dimension and reports "bilingual persons or communities are those with an ability to meet the

communicative demands of the self and the society in their normal functioning in two or more language in their interaction with the other speakers of any or all of these languages". Bilingual acquisition is defined as the acquisition of two languages during the period of primary language development, extending from birth onward. Bilingual acquisition can entail the acquisition of more than two languages (see Cenoz and Jessner, 2000) as well. Bilingualism to equal mastery of two languages, later ones have accepted much greater variation in the competence (Bhatia & Ritchie, 2004). Bilingualism is defined as the capability to speak or write confidently in two languages (Canadian Encyclopedia, 2009). Grosjean (2010) considers bilinguals as those who use two or more languages (or dialects) in their everyday lives.

According to Debot (1992) 50% of world's populations are bilinguals and according to Reich (1986) 80% of Indian populations are bilingual/multilingual. Statistics of bilingualism in different countries eg: Canada has 11.9 % of the population speaks a language other than English or French at home. In Toronto, 31% of the population speaks other language than English or French at home . 21% of school-age children in United States (between ages 5-17) use language other than English at home. This number is seems to increase in the coming years.

It is estimated that worldwide there are more number of people use English as second language than native language and more than monolinguals children bilingual/multilinguals are seen. It is rare to find an individual who is equally proficient in both languages. Most bilinguals have a "dominant language", a language of greater proficiency. The dominant language is often influenced by the majority language of the society in which the individual

lives. An individual's dominant language can change with age, circumstance, education, social network, employment, and many other factors.

Numerous stylistic factors have also been found to influence the code switching process in normal bilinguals speakers(Gumperz,1982; Valdes-Fallis,1978).Valdes-Fallis in 1978 suggested that stylistic switching is dependent on the speakers' personal preference for one language or the other, if situation in question permits either of two or more codes.

The speaking process is very complex; every day individual normally produces one or two million word or two to three per second in fluent conversation. Linguists, Psychologists, and Neurologists conducted researches on the process of speech production and perception, mainly focusing first on the monolingual speakers and then on bilingual and multilingual speakers. Research attempted to understand the speaking process, both of monolinguals and Bilinguals/multilinguals.

Levelt´s (1989) monolingual Model of Language Production explains that speech production is a stepwise process in which it consists of three main components, first is the conceptualizer, then formulator, and next is the articulator. It goes from the conceptual/syntactic level to the phonological/articulatory domain, at the beginning of articulation. Green´s Inhibitory Control Model, explain in relation to the human brain, "the subsystems mediating the comprehension and production of language are separable and that different functional systems underlie different languages" . De Bot´s (2000) adapted previous model into a bilingual production and is the first to postulate a bilingual language production model. Next a significant contribution is by Grosjean´s to studies in bilingual speech processing .

Fernandes-Boëchat´s Multilingual Role Model is based on her Cognitive Chain-Reaction Theory in Foreign Language Learning, and discusses its relation to other studies in TLA. Language that is currently being acquired, or learned is considered as L3, and any other language(s) that the speaker has acquired, or learned after L1 is considered as L2 . Studies in TLA are mainly based on the fact that L2 and L3 proficiency differs. There is a growing awareness that TLA is not a mere extension of Second Language Acquisition (SLA), and researchers recognizes the fact that trilingualism demands models of its own, rather than considering Second Language Acquisition models to explain third language acquisition process. (Grosjean, 2001;Williams & Hammarberg, 1998).

2.2. Types of Bilingualism

Baetens-Beardsmore (1999) attempted to classify bilingualism by using topologies or descriptive labels.

a) **Ambilingualism:** Ambilinguals exhibit in both languages equally without the influence of one language on the other in all domains of activity.

b) **Equilingualism**: Equilinguals exhibit approximately the same in both languages.. But the equilingual is evidently different from monolingual speakers.

c) **Functional Bilingualism**: It is the capability to achieve a limited set of behavior in a second language.

d) **Receptive/Passive Bilingualism**: It is the capability to understand a second language in either its verbal or written form, or both.

e) **Productive/Active Bilingualism:** Active bilingual is able to speak and/or write a second language in adding to comprehending that language.

f) **Natural/Primary Bilingualism:** The achievement of a second language occurs in the absence of regular training or specific instruction.

g) **Academic/Secondary Bilingualism**: The acquisition of a second language takes place by means of formal training.

h) **Incipient Bilingualism**: The initial separating of the patterns of a second language takes place either at the decoding and encoding level.

The two main types of bilingualism, simultaneous and consecutive. (Mclaughlin 1978) Bilingualism is called simultaneous when children have acquired the second language after having knowledge of the first, whilst the other type, consecutive, means that children come into contact with the other language when they went on holiday abroad. Another definition is offered by mclaughlin who uses the term "simultaneous" for all bilingual subjects who have begun having steady contact with two languages before the age of three and the term "consecutive" is refers to all those who have their first contact with a second language after that age. (Taeschner 1983: 3)

Bilingual acquisition can take place in different ways. The classification of different types of Bilingualism given by Thirumalai and Shyamala (1986).

Compound bilingualism: compound bilinguals learn both languages in same context or learn the second language through translation (Weinreich, 1953).

Coordinate bilingualism: coordinate bilinguals have acquired two languages in different contexts and they are able to keep both languages apart by deriving the different meaning from words in two languages (Weinreich, 1953).

Simultaneous bilingualism: simultaneous bilinguals get all opportunities to learn two languages simultaneously in an entirely natural way.

Successive bilingualism: successive bilinguals establish one language fully or partially first, and then a second language is established.

Dominant bilingualism: dominant bilingualism is one who knows one language better than the other language (Peal & Lambert, 1962).

Non-dominant bilingualism: non-dominant bilinguals know and use both languages equally well.

Second language acquisition: acquisition of second language in the natural setting without formal instructions

Second language learning: second language learning takes place in an artificial linguistic environment that involves a formal learning situation with consistent feedback, error correction and the rule language.

2.3. Factors influencing bilingualism and multilingualism:

Usually, the languages of bilinguals/multilinguals are not completely balanced but speakers have one dominant or preferred language. However, dominance is not static and can change. It is determined b various factors such as how often speakers use a language (quantity of exposure and variety of context), how proficient they are and language in the environment. Emotional, social and personal aspects also play a role in the bilingual's language choice and competence.

Bilingualism can be distinguished as natural or primary and artificial or secondary based on the context of acquisition. The social status of the language and the attitude towards the

language are also important factors that influence bilingualism. The other factors influencing bilingualism are the order of acquisition, duration and frequency of exposure to the languages.

2.4. Code-Switching and Code-Mixing:

It is well known that Code switching, Code mixing and code borrowings are some of the important phenomena of bilingualism. These are terms that have been used interchangeably to describe when a speaker uses a word, phrase or sentence from one language while communicating in the other (Langdon, 2008). Definitions vary, but both utilize the term "code" which was adopted by linguists from the field of communication technology (Gardner-chloros, 2009) referring to "a mechanism for the unambiguous transduction of signals between systems", analogous to what switching of language signifies a system used by bilingual speaker-hearer in everyday communication. Therefore, term "code" is frequently used nowadays by the linguists as an "umbrella term for languages, dialects, styles etc". (Gardner-Chloros, 2009).

A speaker who speaks more than one language, exhibit code switching and code mixing during communication. This incident takes place when bilinguals substitute a word or phrase from one language to another language. Some linguists suggest that people code switch as an approach in order to be better understood and to enhance the listener's comprehension. From this one can understand that the code-switching among bilinguals has traditionally been received as a strategy to compensate less proficiency of language. Language contact takes place when there is better group communications between people who are living in neighborhood and have conventionally verbalize dissimilar languages. But it is also initiated by the increase of languages of influence and status. Several scholars have

attempted to define code-switching and code-mixing . In the beginning, code switching and code mixing were defined by Haugen (1956) and Gumperz (1982) as interchanging the use of two languages.

Bloom and Gumperz (1972) categorize two types of code switching. In the "Situational code switching" the narrator will change their code depending on the suitable situation at that time where as in "metaphorical code switching" the speakers will change their code in order to achieve a particular communicative result. Code switching is the use of two languages simultaneously or interchangeably (valdes-Feillis, 1977).

The formal categorization, according to Poplack (1980), defines three types of code switching:

- Tag-Switching
- Inter-Sentential Switching
- Intra-Sentential Switching

Tag-Switching refers to insertion of tags such as "you know" and "I mean" in sentences that are completely in the other language. According to Romanine (1995), tags are "subject to minimal syntactic restrictions", therefore the insertion into a monolingual utterance does not violate syntactic rules. This implies that inter-sentential and intra-sentential switching reflects higher language proficiency, unlike in the case of tag switching.

Inter-sentential switching "involves switches from one language to other between sentences: a whole sentence (or more than one sentence) is produced entirely in one language before there is a switch to the other languages" (Myers-Scotton, 1993).

On the other hand, intra-sentential switching occurs "within the same sentence or sentence fragment" (Myers-Scotton 1993).

While Bokamba (1989) defines both concepts , Code-switching is the mixing of words, phrases and sentences from two distinct grammatical (sub) systems across sentence boundaries within the same speech event… code-mixing is the embedding of various linguistic units such as affixes (bound morphemes), words (unbound morphemes), phrases and clauses from a co-operative activity where the participants, in order to infer what is intended, must reconcile what they hear with what they understand.."Code switching is not a display of deficient language knowledge: a grammatical mixing of two languages. Instead it is a phenomenon through which its users express a range of meanings.

There are several factors crucial to understanding of code switching like the community in which it takes place or mode of the bilingual speaker. Some communities accept code switching within a single context as the norm for communicative interactions whereas others maintain a strict distinction between the languages (Heller 1995). Further, Code switching is the alternative use by bilinguals of two or more languages in the same conversation (Milory L, Muysken.1995).

The ability to switch linguistic codes, particularly within single utterances requires a great deal of linguistic competence (Muysken, 1995). Code switching is a linguistic practice constrained by grammatical principles and shaped by environmental, social and personal influences including age, length of time in a country, educational background and social networks (Milory, & Wei, 1995).According to Bhatia and Ritchie (1996), code switching is defined as the mixing of different linguistic units (words, phrases, clauses and sentences)

mainly from two participating grammatical structure across sentence boundaries within a speech event. Code mixing is defined as the mixing of diverse linguistic units (morphemes, words, modifiers, phrases, clauses, and sentences) mostly from two participating grammatical structure within a sentence.

Code-switching can be used to accomplish two things: (a) to fill a linguistic/ conceptual gap or (b) for additional numerous communicative purposes (Gysels, 1992). The phenomenon of language mixing revealed reduced linguistic capacity of a multilingual. Mixing is the rule governed behavior and there are various factors that could trigger a multilingual to mix languages.

Studies of these behaviors in persons with brain disorder have indicated that language mixing is a commonly observed recovery patterns especially among the bilingual persons with aphasia characterized by irregular language use at the word or sentence level (Paradis, 1995). Earlier investigations into code mixing and code switching suggested that these phenomena are different in normal bi/multilingual and are indicative of linguistic deficits in bi/multilingual aphasics who use it as a facilitating strategy to enhance communication. Further, instances of code switching and code mixing might increase as a compensation for the linguistic disability resulting from various brain disorders like aphasia. Thus, the degree of code switching and code mixing could serve as an indication of the aphasia stage.

Wardhaugh (1992) refers, "Conversational code-mixing involves the purposeful mixing of two languages without an associated topic change.Very often the expression code mixing is used synonymously with code switching and means basically intra-sentential code switching. However, recent research has given new meaning to this term. Maschler (1998)

defines code mixing or a mixed code as "using two languages such that a third, new code emerges, in which elements from the two languages are incorporated into structurally definable patterns." In other words, code mixing hypothesis states that when two code switched languages constitute the appearance of a third code, it has structural characteristics special to that new code. The formal categorization, according to Muysken (2000), defines three types of code mixing:

- Insertion
- Alternation
- congruent lexicalization

Insertion occurs when lexical items from one language are incorporated into another. The notion of insertion, according to Muysken (2000) correspond to what Clyne (1991) terms as "transference" and Myer-Scotton as "embedding".

Alternation occurs when structures of two languages are alternated indistinctively both at the grammatical and lexical level Muysken (2000).

The third and last category in code mixing is congruent lexicalization, which refers to the situation where two languages share grammatical structures which can be filled lexically with elements from either language Muysken (2000).

Language mode is the state of activation of bilingual's languages and language processing mechanisms at a given time (Grosjean, 2000). Fischer (1972) suggests that language or code choice in communities where bilingualism or multilingualism is the norm should be analyzed in the context where the speech is produced.

Fischer (1972) notes that three contextual factors should be taken into account: 1) the relationship amongst speakers; 2) the setting where the talk takes place and; 3) the topic being discussed. In this respect, Myers-Scotton (1992) notes that not only contextual factors play a role in the code choice, but factors such as social identity and educational background also affect the speaker's choices of code.

2.5. Reasons for code-switching

Valdes-Fallis (1976) found that code switching does not simply occur because the informant lacked equivalent expression in the base language chosen. Switching patterns were seen to be influenced by the particular proficiency of the speakers and their performance for the one or the other language or the blend of the two. Scotton and Ury (1977) suggested two main reasons for code switching. They are the avoidance of a definition of an interaction and the redefinition of a situation. There are more immediate reasons for code switching in the bilingual individual such as personal, contextual and stylistic.

Personal reasons

Personal reasons for code switching can be related to proficiency, personal preference or emotional involvement in one or the other language. If speaker has one clearly dominant language, he or she will usually try to use it. In this case, proficiency is closely related to personal preference.

Contextual and stylistic reasons

Contextual reasons for code switching are changes in the setting, participant constellation or the topic. Children and adults usually switch languages if a change in the context requires a switch. Setting is an important factor for appropriate language choice but it is relatively less

important as it does not change suddenly. If bilingual speakers switch languages for emphasis, elaboration, clarification, attention attraction and other similar reasons, it is for stylistic or pragmatic purposes.

Some studies on bilingual speech production considered the use of L1 content or function words in L2 speech. The use of L1 form is considered as the compensatory strategy (Poulisse & Bongaerts, 1994, Poulisse, 1997).   Perecman (1984) investigated language mixing in a trilingual male with a history of brain trauma who demonstrated language mixing and unsolicited spontaneous translation in conversational speech. Perecman (1984) observed that these behaviours were atypical of neurologically intact multi-lingual's and indicative of a language deficit. Grosjean (1985) commenting on Perecman (1984) argued that both language mixing (including utterance level mixing) and spontaneous translation are also found in normal polyglots, and thus may not always reflect language deficits in aphasics. Only a good assessment of the patient's language and speech before and after the injury will determine if these behaviours do indeed reflect deficits. Bilingual speakers make an attempt involuntarily to reduce the mental effort and can make things easier to monitor and direct the operations by reducing the language- specific options available to them. He also said that the cognitive motivation is quite powerful and thus, it will dominate the social and communicative restriction on the discourse, leading to unintentional choices (Yaron Matras, 2000).

Also, language experts across the globe have investigated in their experiments the causes, functions, characteristics and effects of code-switching and code-mixing. Such investigations on the causes of the phenomena, for instance, have revealed sociolinguistic and psycholinguistic factors. Some of the functions of code-switching and code-mixing are intra-group identity (Gumperz, 1982); poetic creativity (Kachru, 1989) and the expression of

modernisation (Kamwangamalu, 1989). One of the major characteristics of both phenomena is their imposition as the norm of language use in the most bilingual communities (Kamwangamalu, 1989). Among their effects, however, are undermining of certain traditional values (Kachru, 1989), innovations in the structure of one of the other of the languages code-switched and code-mixed (Kamwangamalu, 1989) and making one language to be more dominant than the other, thereby causing the individual to switch always to the dominant language (Cheng & Butler, 1989).

2.6. Matrix language frame model (Myers-Scotton 1993)

Myers-scotton's (1993) Matrix language frame model(MLF) proposed a comprehensive hypothesis about code mixing and code switching. Unlike the proposals considered until this point, this model is grounded in research on linguistic performance research on sentence production. This is an alternative model to predict acceptable intrasentencial code switching based on the linguistic function served by each language in a bilingual interaction .This model identifies grammatical relationships and constraints related to the domain and subordinate role of each language,rather than specific rule. The seven constrains given in MLF model are Matrix language Islands(ML island),Matrix Language+Embedded Language(ML+EL),Embedded Language Islands(EL islands),Barrowed forms, Matrix Language Shift(ML shift),Revisions, Embedded Language insertions(ELin) .

I) **Matrix language (ML) islands** are constituents formed with only morphemes from the matrix language. The dominant language then functions as the Matrix Language (Chan, 1998). The Matrix Language determines the overall structure of the code-mixed utterances. The Matrix Language is sometimes called as the Host Code and the Embedded Language is called as the Guest Code (Chan, 1998).

Example-Swahili language: *nimemaliza kutengeneza vitanda* (I have finished fixing the beds)

II) **Embedded language (EL) islands** are constituents formed with only EL morphemes within the ML structure. The embedded language is the one which the speaker learns as his or her second language. This second language functions as the Embedded Language (Chan 1998). These are parallel ML islands.

Example - Swahili language: *ah si-vyo, kawaida hu-wa kwa gazeti. Kama* **last year** *i-li-ku-w-a gazeti* **under public service commission.**

III) **ML + EL constituents** are miscellaneous utterances. This consists of morphemes from both the ML and the EL. The prototypical ML+EL constituent contain a singly occurring EL lexeme in a frame of any number of ML morphemes. This follows morpheme order principles.

Example- Swahili language: *leo si ku* come (today I didn't come)

Swahili language: *Na* books *z-angu* (with my books)

Hindi language: idea /*bura:/ /nahi:/ /h*əI/ (it's not a bad idea)

MLF model has total of seven categories. Four categories of the MLF have their foundation in the hierarchical connection between ML and EL. Matrix language creates the phrase structure of a statement and code-mixing results from the placing of lexical constituents from both the matrix language and another language (the embedded language) into the proper gap of the phrase structure (Chan, 1998). The three supplementary constituent classes like borrowed forms, embedded language (EL) insertions and revisions were supplemented later by Munoz, Marquardt and Copeland (1998) to relate the type of utterances seen in the persons with aphasia.

IV) Borrowed forms: A word from one language integrated into the morphosyntactic structure of the second language and is extensively accepted by the monolingual speaker of that language is known as borrowed form. Language borrowing depends on the type of contact that exists between two languages. Contact might be geographical, social or technical. Borrowing is more commonly found at the higher levels of language, first in vocabulary, and then in syntactic patterns. Morphological patterns are rarely borrowed and phonological patterns are very less borrowed. Commonly loan words retain the phonemic shape of the donor language. Loan shifts / loan translations reproduce the morphemes of the donor language using native material. (As cited in language information service-LIS, India)

       Eg.   'Catwalk' - /ma:ρδZα:λα nǝdǝkǝ/

                  'Violin' - /ϖα:φYλι:vǝμY/

In borrowed words, phonological and morphological modifications are brought about in the borrowed items according to the structure of the borrowing language.

       Eg-   'Road' – /ro:dd Y/

                  'Peppermint' – /π{ππǝρμεντY/

'Torch' – /ta:ρτΣY/

'Schools' – /sku:ll Y/

V) Embedded language (EL) insertions: Many embedded language lexemes without any syntactic structure is placed into the syntactic structure of any number of Matrix language morphemes.

VI) Revisions: lexical insertions that do not give the sense of the statement including speech errors, restatement, circumlocutions and are sign of word finding problem.

Numerous studies have been taken up to deal with code switching and code mixing. Since In a Sociolinguistic point of view, George Barker's (1947) studied the issues of language choice and code switching among Mexican Americans in Tucson, Arizona. Barker proposed that younger people were more appropriate to utilize various languages in a single interaction than were their elders.

Gumperz (1964), collected code switching data from three linguistically and socially dissimilar situations like Slovenian/German, hindi/English and Spanish/English. He came to an opposite view about relation between code switching and conversational situation. He disagreed that in many cases it is the choice of code itself in a particular context that determines the situation. The syntactic constraints affecting code switching, according to him are-

a) The length of the phrase: the shorter the phrase less likely to switch

b) Sequential unity: discontinued sequences cannot be switched.

c) Semantic and pragmatic unity: natural units cannot be broken as conjunctions and go with the phrase they run alongside.

d) The total number of switches within any message sub unit cannot be more than one.

In all the above languages pairs, it has been found that pronoun-verb sequences are more unitary and cannot be switched when compared with noun-verb sequences. In addition this study has the same opinion with previous studies in the conclusion that switching does not indicate an imperfect knowledge of grammatical system.

McNamara (1967), discussed about bilingualism from a psychological point of view, stated that switching takes a noticeable time and that differences in switching time do not appear to be related to the degree of bilingualism. It was observed that in normal discourse, bilingual switched without pausing for a word or phrase so forth. He also suggested that such a bilingual has a capacity to reposition the L2 system, the selection of words and the syntactic organization more or less mechanically producing in L1 material that has already been prepared for production.

Clyne, (1967),who declared that switching might be trained by internal and external factors such as the environment, the presence of speech partner to communicate in other language. He explained that the code switching is activated in a different way which is preceded by hesitation, pause or a prompt word that indicates activation. According to him, triggering can be trained due to individual emotional factors and even phonological factors such as phonemic similarity in the two languages.

Kolers (1968) took a diverse view and assumed that the categorization takes place in short term memory is not a word in a particular language instead it is a concept or meaning. His

hypothesis was based on results of the experiment in which bilingual French/English participants were tested in reading and talking tasks. Passages were prepared in unilingual, alternating and mixed language forms. The participants were tested for comprehension, to read aloud, to make precise, and to speak freely in these forms. Results indicated that comprehension was found to be affected by the linguistic form of a message, but other tasks decreased by 20-40% when test was uttered. He suggested that, encoding and decoding of two languages are asymmetrical operations.

Verma (1969) studied linguistic analysis of registral features and concluded that language varieties are constrained by the mode of discourse that is situationally conditioned with register and style providing a two dimensional matrix within which it is possible to operate in a bilingual situation.

valdes-fallis (1976), found that the code switching occurs because of the proficiency of the speakers and their performance in the one or the other language and not because of the lacked equivalent expression in the base language chosen. Her study presented two conclusions.

a) The bilingual has a binary collection of symbolic procedures, of which he takes full advantage to highlight and produce his speech.

b) The reliability of the pattern shows the extent to which two languages are combined into a kind of super system with a bilingual vocabulary and a phonic system that is not identical with that of their preference for one or the other of two languages.

Another study by Vaid,(1980) discussed the variety and purpose of code mixing evident in Indian films with reference to mixing of Hindi and English. Results suggested that English is mixed with Hindi most commonly by the young, educated and the westernized

user, context of usage determines code mixing. There are typical contexts like greetings, office setting, educational setting and social gathering where English is mixed more frequently.

Pathak (1982) conducted a study on code mixing in Hindi- English bilinguals and concluded that code switching follows definite processes and strategies. He also said that in the conversation certain structural types like unit insertion, unit hybridization, clause insertion, idioms and collocations insertion, inflectional attachment and reduplication were seen to occur frequently.

Poulisse & Bongaerts (1994) examined the use of L1 content words (nouns, verbs, numerals, adjectives, and most adverbs) and L1 functional words (preposition, determiners, conjunctions, and pronoun). They carried it out on 45 Dutch learners of English. The authors found that Dutch learners of English used more of L1 content words than L1 function words in their L2 speech.

Junque, Vendrell, Vendrell-Beret and Tobena (1989) and Paradis (1995) suggest that mixing of languages is frequently observed on recovery pattern among bilingual aphasics characterized by alternating language use at the word or sentence level, spontaneous translation, unexpected language switches, and / or linguistic interference characterized by alternating language use at the word or sentence level, spontaneous translation, unexpected language switches, and / or linguistic interference.

Hyltenstam (1995) analyzed samples of language mixing from 31 cases of bilingual aphasia reported in literature using Poplack's syntactic constraints and the MLF (matrix language frame, Myers-Scotton 1993) model. He found that it is reasonable to believe that the code switching of aphasic speakers is structured according to same conversational

constraints as in normal speakers. Munoz, Marquardt and Copeland (1998) pointed to methodological shortfalls that comprised data interpretation such as little information about pre morbid language use, presence of bilingual interlocutors, limited samples and lack of controls.

In order to overcome these, Munoz, Marquardt and Copeland (1998), compared the code switching patterns of aphasic and neurologically normal bilingual speakers of English and Spanish using Matrix language frame (MLF) model. Communicative difficulties resulting from code switching with monolinguals and ungrammatical switches were noticed only in speech of bilingual aphasic subjects. Individuals in both the groups also exhibited the use of a second language in the monolingual context and spontaneous translation, behaviours considered inappropriate earlier by Grosjean (1985) and Junque, Vendrell, Vendrell-Beret and Tobena (1989).They concluded that the patterns of code switching in bilingual aphasics suggest that they are adapting normally occurring code switching patterns to enhance their communicative effectiveness. Yaron (2000) attempted to study the fusion and the cognitive basis for bilingual discourse markers. He concluded that, there is a strong cognitive drive in bilingual speakers that dominate the society and the level of communication on discourse resulting in involuntary code switching.

Beezjanovis-shogren (2002) had analysed code switching and code mixing among bilingual children: two case studies of Serbian-English language interaction. Their goal is to analyse the code choice and the motivation behind such pattern in order to see whether there are differences in linguistic behaviour to occur. The result was that the most common

motivation behind their code choice is solidarity-establishing "we code", referential, directive, and reactive to positive/negative face and power. Code switching and code mixing patterns reveals that subject 1 who acquired second language (L2) simultaneously is more prone to code switch in certain situations. Subject 2 who acquired second language (L2) consecutively and therefore adopted the syntax of L1 language, uses more code mixing during conversational interactions. This showed close connection of the linguistic behaviour with the linguistic environment exposing essential mechanisms of children's ability to adjust their language skills to their conversational needs.

Smith (2002) studied the code switching patterns across age and gender. Results revealed that, younger male and females significantly differed from the older males and females in the rate of lexical insertion. He attributed this difference to the greater exposure of children to English in school

Chengappa, Krupa and Bhat (2002) compared language mixing and switching in Malayalam-English bilingual aphasics and results showed that there was an increase in code switching behaviour but the quality of switches did not differ when compared with those in normal subjects.

With reference to earlier studies by Perecman (1984); Munoz, Marquardt and Copeland (1998) and Krupa (2002) that specifically discuss code switching in bilingual aphasics, subjects were age, gender matched normal Malayalam – English Bilinguals. Analysis was done using Matrix Language Frame Model. Author found ML islands were in the native language in all the normal participants and 3 of the 6 persons with aphasia. EL insertions were noticed in 1 person with aphasia. EL islands were formed by 2 normal participants and 1 person with

aphasia in monolingual Malayalam situation and 3 persons with aphasia in Monolingual English situation. ML+EL constituents were formed by 4 of the normal participants and 5 persons with aphasia. Revisions and ML shifts were apparent in the language of all subjects.2 of the normal participants and 4 of the aphasics

It was found that persons with aphasia showed repeated construction of EL, insertions, and ML shifts. Thus the results disagree with the idea that code switching remains unaltered by person with aphasia. Hence it supports the belief that language mixing is pathological. In normal Kannada-English bilingual participants, code switching is common and there is plenty of borrowed English words in list of Kannada speakers (Bhat & Chengappa 2003).

Bhat and Chengappa (2004) compared code switching in normals and bilingual aphasics in Kannada and English languages using Matrix language frame (MLF) model. Results were , aphasics showed increase in the quantity of code switching as revealed by increased instances of ML+EL constituent, EL shifts, ML shifts, lexical-semantic and morphological code switching.All the subjects produced code-switches that maintained grammatical integrity of base language and thus could be accounted for by MLF model. There was only a slight increase in the quantity of code switching and no qualitative differences in the type of code switching among controls and aphasics.

Neeraja (2004) compared the code switching behavior exhibited by Tamil-English bilingual persons with stuttering and normal fluency. She found that there is an increase in frequency of occurrence in code switching in utterances of stuttering individuals when compared to normal fluent individuals.

Ayeomoni, (2006) studied code switching and code mixing: style of language use in

childhood in Yoruba speech community. Results showed that code switching and code mixing correlate positively with the educational attainment of individuals. As shown also, both phenomena have merits as well as demerits in the speech repertoire of their users.

A study conducted by Kumar (2006) on code mixing and code switching among Hindi-English bilingual persons with aphasia. He reported that ML Island was noticed in the native language for all the participants. In ELI were more in persons with aphasia compare to normal's.Aphasics hand more ML+EL constituents both in monolingual Hindi and monolingual English context and it was similar in case of bilingual contexts.

According to Irani (2007), there are many communities with high technology professions as university professors, physicians, specialists, dentists, and engineers. Hence, it can be concluded based on results that the environmental demands may play a key role in code switching and mixing. Fereshten Rezaeian (2009) showed that no difference in the rate of code switching in younger and elder group because of the fact that community tradition, life style, culture and length of residence common for both groups. Geetha in 2010 studied code mixing and code switching in Tamil proverbs across age and social variables. Results shows borrowed proverbs are used by the younger generation in Tamil language because of the fact that, younger generation students have learned these borrowed proverbs in school as part of their peer communication. These participants employed the borrowed lexical items of the native language like cycle, bullet, aero plane, full, figure so forth.

Bhattacharjee, Rahman and Chengappa (2009) studied socio-Linguistic constraints of code switching in Hindi-English-Kannada trilingual's. This study was taken up to consider the

language transfer function in normal multilingual with L1 as Hindi, , L2 as English, L3 as Kannada. They found that code-switching is a unique feature of bilingual-multilingual speech production. To varying degrees, every person who is a speaker of two or more languages makes mixed use of the elements of distinct languages and changes code according to his or her proficiency and needs. However proficient a multilingual may be in language comprehension and production, from time to time it seems rather unaccomplishable to separate completely the underlying structure and actual manifestation of one language from that of the other.

To see the effect of gender in code switching and code mixing while texting messages Rida Rabbani (2012) conducted study in undergraduate students. English and Urdu text messages were taken. Data was analyzed and established the mean values. Results indicated that there was no difference in the gender in code switching and code mixing while texting messages.

Pandey and Kumaraswamy (2012) compared code mixing and code switching in Bhojpuri-English bilingual and the results indicate that code mixing and code switching were not evident for reading task among typically developing bilinguals. Code mixing was more evident in familiar topics among typically developing bilinguals.

Studies have been done in Malayalam- English bilinguals, kannada- English bilinguals Telugu- English bilinguals and Bengali-Hindi. Studies were conducted in aphasic individuals like kannada- English bilingual persons with aphasia and Hindi-English bilingual persons with aphasia There was no study done in Indian context, reporting code switching and code mixing in Telugu Multinguals. The present study is trying to provide some evidence about

code switching and code mixing in Telugu-English-Hindi Multilinguals by conducting this study.

CHAPTER III

METHODOLOGY

3.1.Participants:

A total of 20 subjects will be participating in the study. In that 10 Telugu Bilinguals (Telugu & English) and 10 Telugu Multilinguals (Telugu, English & Hindi). Each group will have 5 females and 5 males in the age range of 20-30 years.   .

3.2.Ethical procedure:

 Participants will be selected by ethical procedure. They will be explained the purpose and procedure of the study and an informed consent will be obtained from them.

3.3.Inclusion Criteria:

- Participants' selection criteria for Bilingual adults follow.

- All the participants should have Telugu as their mother tongue.

- Telugu will be their first language in the early childhood and English is learnt as part of their higher education

- In Multilinguals, English would be used as a part of second language and Hindi as third language at schooling and/or learnt through different sociolinguistic influence.

- No history of any neurological, communicative or sensory impairment.

3.4. Questionnaire/instrument:

Bilingual and Multilingual typical adults will be assessed for second language proficiency in Telugu Bilinguals (Telugu-English) and second and third language proficiency in Telugu Multilinguals(Telugu-English-Hindi) using International Second Language Proficiency Rating questionnaire (ISLPR;Ingram 1985).

3.5. Stimuli and data collection:

Two different types of stimuli will be used for the study which includes narration task and conversation task. A quite room is selected for recording purpose. The subjects will be seated comfortably on the chair at a distance of 1 feet from the recorder held in the hand. Each subject's speech will be recorded using a standard digital recorder. The investigator will build up rapport with the participant by speaking to them before the actual recording start to create an informal atmosphere to facilitate spontaneous code-switching and code-mixing in Bilingual and Multilingual context.

1. In a narration each participant will be instructed to narrate a task orally on a given topic. Verbal instructions will be provided to narrate on a topic for duration of 10 minutes in different contexts as follows,

    For Telugu Multilinguals:

    Monolingual Telugu only

    Monolingual English only

    Monolingual Hindi only

Multilingual context (with Telugu, English, Hindi)

For Telugu Bilinguals:

Monolingual Telugu only

Monolingual English only

Bilingual context (Telugu-English)

2. The task of general conversation includes subjects name, place and hobbies, about family, friends, routine activities, personal experiences, their school, college life etc. All the participants will be instructed to speak in 3 different conditions for Bilinguals and 4 different context for Multilinguals.

For Telugu Multilinguals:

Monolingual Telugu only

Monolingual English only

Monolingual Hindi only

Multilingual context (with Telugu, English and Hindi)

For Telugu Bilinguals:

Monolingual Telugu only

Monolingual English only

Bilingual context (Telugu-English)

The recording will be carried out in a single sitting and the procedure is same for all the participants.

3.6. Data analysis

3.6.1. Transcription

Later Orthographic transcriptions have been carried out. Recordings were transcriped using standard IPA symbols for further analysis. The accuracy of analysis was checked by the three speech language pathologist for interrater reliability.

3.6.2. Analysis :

a) **Qualitative analysis**: qualitative analysis of the data was derived from the results of statistical analysis. This was used to find the differences in the language proficiency levels across all participants of bilinguals and multilinguals.

b) **Quantitative analysis:**

The recorded and transcribed samples were subjected to linguistic analysis using Matrix language frame model (Myers-Scotton 1993) to find the presence, nature and extent of code switching and code switching across bilinguals and multilinguals. The seven constituents given in Matrix Language Frame Model (Myers- Scotton, 1992) were identified and counted in two context (monolingual Telugu and bilingual) across two stimuli for bilinguals and in three context (monolingual Telugu ,monolingual Hindi and multilingual) across two stimuli for multilinguals. The scores were considered in terms of percentage for all the constituents in different contexts for bilingual and multilinguals.

For example- Frequency of occurrence of MLI (%) =

$$\frac{\text{Number of MLI forms existed in sample}}{\text{Total number of words in the sample}} \text{ X 100}$$

In this task, the investigator ignored the repeated forms of the same constituents within the sample and counted such constituents only once. Hence accurate occurrences of the constituents were taken as appropriateness by ignoring total occurrence of the particular constituents.

For example:

Constituent	Total	Appropriateness
ML+EL constituents	20	15

3.7. Statistical analysis

Statistical analysis was carried out using SPSS (Statistical Package for the Social Sciences) version 17.0. Individual scores of all the constituents from each participant in two different contexts (monolingual Telugu and bilingual) for bilinguals and in three context (monolingual Telugu ,monolingual Hindi and multilingual) for multilinguals across for two stimuli (narration and conversation) obtained were subjected to statistical analysis.

CHAPTER IV

RESULTS

The Aim of the study was to investigate code-mixing and code-switching in typical Telugu-English Bilinguals and in Telugu-English- Hindi Multilingual adults.

Objectives of the study were to explain in detail the nature and level of code-mixing and code-switching using Matrix language frame model (Myers-Scotton, 1993). To compare the type and extent of code-switching and Code-mixing across the Bilinguals (Telugu-English) and Multilingual(Telugu-English-Hindi).To identify the effect of order of elicitation of code-mixing and code-switching in Bilinguals and Multinguals in different context. In narrative discourse, contexts like Bilingual, Monolingual Telugu ,Monolingual English and Telugu + English context . Whereas in conversational discourse, Bilingual context, Monolingual English context, and Monolingual Telugu context and Telugu + English context.

In narrative discourse, contexts like Multilingual, Monolingual Telugu ,Monolingual English Monolingual Hindi and Telugu + English + Hindi context . Whereas in conversational discourse, Multilingual context, Monolingual English context, Monolingual Telugu ,Monolingual Hindi context and Telugu + English + Hindi context.

Present study was undertaken to verify the following hypotheses: There was no significant difference in the performance of adults on code mixing and code switching task across two stimuli (Narration and conversation) for different constituents i.e., Matrix language islands (ML Islands), Matrix language shifts (ML shifts), Matrix language + Embedded language (ML+EL), revisions, borrowed forms, Embedded language (EL Islands).

There was no significant difference between the order of elicitation in two different contexts i.e. for narrative discourse, in bilingual context, monolingual Telugu context and monolingual English contexts; for conversational discourse, in bilingual context, monolingual English and monolingual Telugu contexts.

There was no significant difference between the order of elicitation in three different contexts i.e. for narrative discourse, in Multilingual context, monolingual Telugu context , monolingual English contexts, and monolingual Hindi contexts for conversational discourse, in Multilingual context, monolingual English , monolingual Telugu contexts and monolingual Hindi contexts.

4.1. Qualitative analysis:

All the participants had minimal vocational proficiency in English and Hindi .Native like proficiency in Telugu. All the participants had education up to graduation level. Table1 gives the demographic details and description of Bilingual participants and Table2 gives the demographic details and description of multilingual participants.

Participants S.NO	Age	Gender	Education level	Occupation	Native language	Language of education
1	20	Female	Graduation	Student	Telugu	T/E
2	21	Female	Graduation	Student	Telugu	T/E
3	21	Female	Graduation	Student	Telugu	T/E
4	25	Female	postgraduation	Student	Telugu	T/E
5	23	Female	Graduation	Student	Telugu	T/E
6	21	Male	Graduation	Student	Telugu	T/E

Table1: *Demographic details of bilingual participants.*

7	22	Male	Graduation	Student	Telugu	T/E
8	23	Male	Graduation	Student	Telugu	T/E
9	25	Male	Postgraduation	Student	Telugu	T/E
10	22	Male	Graduation	Student	Telugu	T/E

[1] *T/E = Telugu / English

Table2: *Demographic details of multilingual participants.*

Participant S.NO	Age	Gender	Education level	Occupation	Native language	Language of education
1	25	Female	Postgraduation	Student	Telugu	T/E/H
2	23	Female	Graduation	Engineer	Telugu	T/E/H
3	21	Female	Graduation	Student	Telugu	T/E/H
4	23	Female	Graduation	Student	Telugu	T/E/H
5	25	Female	Postgraduation	Student	Telugu	T/E/H
6	23	Male	Graduation	Student	Telugu	T/E/H
7	21	Male	Graduation	Student	Telugu	T/E/H
8	24	Male	Postgraduation	Student	Telugu	T/E/H
9	23	Male	Graduation	Student	Telugu	T/E/H
10	23	Male	Graduation	Student	Telugu	T/E/H

T/E/H = Telugu / English/Hindi

4.1.1. Proficiency of the language:

Participants were asked to self rate their proficiency level in each of the two languages for Bilinguals and in three languages for Multilinguals knew in understanding, speaking, reading and writing. The overall scores were calculated across languages for both groups which are given in Table 3 . The values indicated that Bilingual participants rated themselves to be proficient in L1 than L2 and Multilingual participants rated themselves as proficient in L1 and L2 than L3.Among L1 and L2 Multilinguals rated themselves to be proficient in L1 than L2.

Table 3: shows mean median and standard deviation for bilinguals across 4 skills

Context	gender		SPEAKING.T	SPEAKING.E	LISTENING.T	LISTENING.E
bilingual	male	Median	5.000	3.500	5.000	3.500
	female	Median	5.000	4.000	5.000	4.000
	total	Median	5.000	4.000	5.000	4.000

Context	gender		READING.T	READING.E	WRITING.T	WRITING.E
bilingual	male	Median	5.000	3.500	5.000	3.000
	female	Median	4.500	3.500	4.500	3.000
	total	Median	4.750	3.500	4.750	3.000

Table 4: shows mean median and standard deviation for multilinguals across 4 skills

Context	gender		SPEAKING.T	SPEAKING.E	SPEAKING.H	LISTENING.T	LISTENING.E	LISTENING.H
multilinguals	male	Median	5.000	4.500	4.500	5.000	4.000	4.500
	female	Median	5.000	4.500	3.500	5.000	4.500	3.500
	total	Median	5.000	4.500	4.000	5.000	4.250	4.000

Context	gender		READING.T	READING.E	READING.H	WRITING.T	WRITING.E	WRITING.H
multilinguals	male	Median	5.000	4.000	3.000	5.000	4.000	3.000
	female	Median	3.500	4.500	3.000	3.500	4.500	3.000
	total	Median	5.000	4.000	3.000	5.000	4.000	3.000

4.1.2. Non-parametric test:

It was computed to compare the proficiency ratings among three languages (bilingual and multilingual).

*Wilcoxon-*signed rank test: If there was a significant difference between languages across 4 skills listening, speaking, reading and writing, the qualitative data was subjected to Wilcoxon-signed rank test pair wise analysis.

Table 5: show significant difference between 4 skills in bilinguals

Test Statistics[a,b]

	Z	Asymp. Sig. (2-tailed)
SPEAKING.E - SPEAKING.T	-2.836[c]	.005
LISTENING.E - LISTENING.T	-2.836[c]	.005
READING.E - READING.T	-2.871[c]	.004
WRITING.E - WRITING.T	-2.842[c]	.004

T:Telugu (L1), E:English(L3) and H: Hindi (L3).

Referring to table there is a significant difference (p<0.05) between English and Telugu across 4 skills in bilinguals. Because L1 is mother tongue and L2 is learned through the formal school education. The performance of the subjects is better in Telugu across 4 skills when compared to English. That the reason there is significant difference seen.

Table 6: show significant difference between 4 skills in Multilinguals

Test Statistics[a,b]

	Z	Asymp. Sig. (2-tailed)
SPEAKING.E - SPEAKING.T	-2.810[c]	.005
SPEAKING.H - SPEAKING.T	-2.842[c]	.004
SPEAKING.H - SPEAKING.E	-2.081[c]	.037
LISTENING.E - LISTENING.T	-2.739[c]	.006
LISTENING.H - LISTENING.T	-2.836[c]	.005
LISTENING.H - LISTENING.E	-1.561[c]	.119
READING.E - READING.T	-.908[c]	.364
READING.H - READING.T	-2.687[c]	.007
READING.H - READING.E	-2.850[c]	.004
WRITING.E - WRITING.T	-1.101[c]	.271
WRITING.H - WRITING.T	-2.754[c]	.006
WRITING.H - WRITING.E	-2.831[c]	.005

T:Telugu (L1), E:English(L3) and H: Hindi (L3).

Referring to table: there is a significant difference across all the languages in speaking skill languages

i.e **speaking . E – speaking .T**

   speaking . H – speaking .T

   speaking . H – speaking .E

Because L1 is mother tongue and L2 is learned through the formal school education and Hindi as 2nd language in formal school education and through exposure from the society. So there is variation in proficiency level across languages in speaking skill. Speaking of Telugu starts first at home which is mother tongue and next English at school and then Hindi which is learnt as second language at school because of this reason there is significant difference ($p < 0.05$) in the all above conditions.

Referring to table: there is a significant difference between in listing skill across all the languages

i.e **listening . E – listening .T**

   listening . H – listening(.T

Because L1 is mother tongue and L2 is learned through the formal school education and Hindi is learnt as a 2nd language in school and through exposure from the society. Initially individual get exposed to L1 (Telugu) at home than the other languages from school and the society. So there is variation in proficiency level of each language that results in significant difference ($p<0.05$) between the above two conditions in listening skill. But there is no significant difference ($p>0.05$) found between **listening. H– Listening .E** as both are learnt as second language.

Referring to table: there is a significant difference between in reading skill across all the languages

i.e   **reading . H – reading .T**

   reading . H – reading .E

Because L1 is mother tongue and L2 is learned through the formal school education and Hindi as 2nd language in school . Reading Hindi starts at later stage as it is a second language when compared to Telugu and English at school .So there is variation in proficiency level of each language that results in significant difference ($p<0.05$)between the above two conditions in this reading skill. But there is no significant difference ($p>0.05$) found between **reading. E – reading .T** as the individual start learning to read in both the languages(English and Telugu) at the same time in formal school education.

Referring to table: there is a significant difference between in writing skill across all the languages

i.e   **writing . H – writing .T**

writing . H – writing .E

Because L1 is mother tongue and L2 is learned through the formal school education and Hindi as 2nd language in school . Writing Hindi starts at later stage as it is a second language when compared to Telugu and English at school .So there is variation in proficiency level of each language that results in significant difference (p<0.05)between the above two conditions in reading skill. But there is no significant difference (p>0.05) found between **writing . E – writing .T** as the individual start learning to write in both the languages(English and Telugu) at the same time in formal school education.

4.1.3. Mann-whitney U test:

This was carried to compare group difference if any i.e(bilinguals vs multilinguals)

Table 7: shows means of bilingual and multilingual across 4 skills irrespective of gender

Ranks

	context	N	Mean Rank	Sum of Ranks
	bilingual	10	10.50	105.00
SPEAKING.T	multilingual	10	10.50	105.00
	Total	20		
	bilingual	10	7.45	74.50
SPEAKING.E	multilingual	10	13.55	135.50
	Total	20		
	bilingual	0[a]	.00	.00
SPEAKING.H	multilingual	10	5.50	55.00
	Total	10		
LISTENING.T	bilingual	10	10.50	105.00
	multilingual	10	10.50	105.00

		N	Mean Rank	Sum of Ranks
	Total	20		
	bilingual	10	8.60	86.00
LISTENING.E	multilingual	10	12.40	124.00
	Total	20		
	bilingual	0ᵃ	.00	.00
LISTENING.H	multilingual	10	5.50	55.00
	Total	10		
	bilingual	10	10.75	107.50
READING.T	multilingual	10	10.25	102.50
	Total	20		
	bilingual	10	6.45	64.50
READING.E	multilingual	10	14.55	145.50
	Total	20		
	bilingual	0ᵃ	.00	.00
READING.H	multilingual	10	5.50	55.00
	Total	10		
	bilingual	10	10.75	107.50
WRITING.T	multilingual	10	10.25	102.50
	Total	20		
	bilingual	10	6.65	66.50
WRITING.E	multilingual	10	14.35	143.50
	Total	20		
WRITING.H	bilingual	0ᵃ	.00	.00
	multilingual	10	5.50	55.00

Total	10	

Table 8: shows comparison of bilingual vs multilingual across 4 skills irrespective of gende

Test Statistics[a]

	Z	Asymp. Sig. (2-tailed)
SPEAKING.T	.000	1.000
SPEAKING.E	-2.496	.013
LISTENING.T	.000	1.000
LISTENING.E	-1.545	.122
READING.T	-.211	.833
READING.E	-3.178	.001
WRITING.T	-.210	.833
WRITING.E	-3.029	.002

Referring to the above table there is significant difference (p<0.05) between 4 skills in English language across multilingual and bilinguals. It is because the bilinguals are more proficient in English which is the second language .In multilinguals they learn both the languages (English and Hindi) at a time, so their proficiencies varies. Maximum bilinguals use English after Telugu where as multilinguals use English and Hindi as second language after Telugu. That the reason significant difference seen across bilinguals and multilinguals.

4.2. Quantitative analysis:

Non-parametric test was carried out.

4.2.1.Mann-Whitney Test

Table1:*Shows the mean of all the constituents across different stimuli and context*

Ranks

	Context	N	Mean Rank	Sum of Ranks
N.L1.MLI	Bilingual	10	11.50	115.00
	multilingual	10	9.50	95.00
	Total	20		
N.L1.L2.MLI	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
N.L3.MLI	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.L2.L3.MLI	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.MLI	Bilingual	10	8.90	89.00
	multilingual	10	12.10	121.00
	Total	20		
C.L1.L2.MLI	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
C.L3.MLI	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.L2.L3.MLI	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.MLnEL	Bilingual	10	13.00	130.00
	multilingual	10	8.00	80.00

	Total	20		
N.L1.L2.MLnEL	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
N.L3.MLnEL	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.L2.L3.MLnEL	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.MLnEL	Bilingual	10	10.60	106.00
	multilingual	10	10.40	104.00
	Total	20		
C.L1.L2.MLnEL	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
C.L3.MLnEL	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.L2.L3.MLnEL	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.ELI	Bilingual	10	12.15	121.50
	multilingual	10	8.85	88.50
	Total	20		
N.L1.L2.ELI	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
N.L3.ELI	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.L2.L3.ELI	Bilingual	0ª	.00	.00

		N	Mean Rank	Sum of Ranks
	multilingual	10	5.50	55.00
	Total	10		
C.L1.ELI	Bilingual	10	9.85	98.50
	multilingual	10	11.15	111.50
	Total	20		
C.L1.L2.ELI	Bilingual	10	5.50	55.00
	multilingual	0[a]	.00	.00
	Total	10		
C.L3.ELI	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.L2.L3.ELI	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.BF	Bilingual	10	11.30	113.00
	multilingual	10	9.70	97.00
	Total	20		
N.L1.L2.BF	Bilingual	10	5.50	55.00
	multilingual	0[a]	.00	.00
	Total	10		
N.L3.BF	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.L2.L3.BF	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.BF	Bilingual	10	11.50	115.00
	multilingual	10	9.50	95.00
	Total	20		
C.L1.L2.BF	Bilingual	10	5.50	55.00
	multilingual	0[a]	.00	.00
	Total	10		

C.L3.BF	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.L2.L3.BF	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.MLS	Bilingual	10	11.00	110.00
	multilingual	10	10.00	100.00
	Total	20		
N.L1.L2.MLS	Bilingual	10	5.50	55.00
	multilingual	0[a]	.00	.00
	Total	10		
N.L3.MLS	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.L2.L3.MLS	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.MLS	Bilingual	10	11.00	110.00
	multilingual	10	10.00	100.00
	Total	20		
C.L1.L2.MLS	Bilingual	10	5.50	55.00
	multilingual	0[a]	.00	.00
	Total	10		
C.L3.MLS	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.L2.L3.MLS	Bilingual	0[a]	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.R	Bilingual	10	11.05	110.50
	multilingual	10	9.95	99.50

		N	Mean Rank	Sum of Ranks
	Total	20		
N.L1.L2.R	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
N.L3.R	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.L2.L3.R	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.R	Bilingual	10	11.00	110.00
	multilingual	10	10.00	100.00
	Total	20		
C.L1.L2.R	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
C.L3.R	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
C.L1.L2.L3.R	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.ELin	Bilingual	10	10.50	105.00
	multilingual	10	10.50	105.00
	Total	20		
N.L1.L2.ELin	Bilingual	10	5.50	55.00
	multilingual	0ª	.00	.00
	Total	10		
N.L3.ELin	Bilingual	0ª	.00	.00
	multilingual	10	5.50	55.00
	Total	10		
N.L1.L2.L3.ELin	Bilingual	0ª	.00	.00

	multilingual	10	5.50	55.00
	Total	10		
C.L1.ELin	Bilingual	10	10.50	105.00
	multilingual	10	10.50	105.00
	Total	20		
C.L1.L2.ELin	Bilingual	10	5.50	55.00
	multilingual	0[a]	.00	.00
	Total	10		

a. Mann-Whitney Test cannot be performed on empty groups.

Table2: *Shows the p value of all the constituents across different stimuli and context*

	N.L1.MLI	C.L1.MLI	N.L1.ML+EL	C.L1.ML+EL	N.L1.ELI	C.L1.ELI
Z	-.756	-1.209	-1.890	-.076	-1.275	-.492
Asymp. Sig. (2-tailed)	.450	.226	.059	.940	.202	.623
Exact Sig. [2*(1-tailed Sig.)]	.481[a]	.247[a]	.063[a]	.971[a]	.218[a]	.631[a]

	N.L1.BF	C.L1.BF	N.L1.MLS	C.L1.MLS	N.L1.R	C.L1.R
Z	-.606	-.756	-1.000	-1.000	-.416	-.378
Asymp. Sig. (2-tailed)	.545	.450	.317	.317	.677	.705
Exact Sig. [2*(1-tailed Sig.)]	.579[a]	.481[a]	.739[a]	.739[a]	.684[a]	.739[a]

	N.L1.ELin	C.L1.ELin
Z	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]

NOTE: full form of grouping variables:

   *MLI : Matrix Language Island ,ML+EL   : Matrix language + Embedded language

   ELI : Embedded Language Island ,BF : Borrowed form, MLS : Matrix language shift .

   R : Revision ,ELin : Embedded language insertions

Referring to the above table 2: Comparing the means of all constituents in different stimuli conditions across bilinguals and multilinguals context.

Findings suggests that across all the stimulus condition there is significant difference only in **SN L1 ML+EL** i.e. ML+EL of L1 narration with (p=0.05)

4.2.2. Mann-Whitney Test

Table 3: Test for comparison of male vs. female irrespective of context

Ranks

	gender	N	Mean Rank	Sum of Ranks
N.L1.MLI	male	10	10.10	101.00
	female	10	10.90	109.00
	Total	20		
N.L1.L2.MLI	male	5	5.40	27.00
	female	5	5.60	28.00
	Total	10		
N.L3.MLI	male	5	3.60	18.00
	female	5	7.40	37.00
	Total	10		
N.L1.L2.L3.MLI	male	5	3.40	17.00
	female	5	7.60	38.00
	Total	10		
C.L1.MLI	male	10	9.00	90.00
	female	10	12.00	120.00
	Total	20		
C.L1.L2.MLI	male	5	6.00	30.00
	female	5	5.00	25.00
	Total	10		
C.L3.MLI	male	5	3.00	15.00
	female	5	8.00	40.00
	Total	10		
C.L1.L2.L3.MLI	male	5	3.60	18.00
	female	5	7.40	37.00
	Total	10		
N.L1.MLnEL	male	10	13.40	134.00
	female	10	7.60	76.00
	Total	20		

N.L1.L2.MLnEL	male	5	5.80	29.00
	female	5	5.20	26.00
	Total	10		
N.L3.MLnEL	male	5	7.00	35.00
	female	5	4.00	20.00
	Total	10		
N.L1.L2.L3.MLnEL	male	5	3.00	15.00
	female	5	8.00	40.00
	Total	10		
C.L1.MLnEL	male	10	12.65	126.50
	female	10	8.35	83.50
	Total	20		
C.L1.L2.MLnEL	male	5	6.40	32.00
	female	5	4.60	23.00
	Total	10		
C.L3.MLnEL	male	5	5.00	25.00
	female	5	6.00	30.00
	Total	10		
C.L1.L2.L3.MLnEL	male	5	3.80	19.00
	female	5	7.20	36.00
	Total	10		
N.L1.ELI	male	10	12.40	124.00
	female	10	8.60	86.00
	Total	20		
N.L1.L2.ELI	male	5	6.00	30.00
	female	5	5.00	25.00
	Total	10		
N.L3.ELI	male	5	7.00	35.00
	female	5	4.00	20.00
	Total	10		
N.L1.L2.L3.ELI	male	5	5.20	26.00
	female	5	5.80	29.00

		N	Mean Rank	Sum of Ranks
	Total	10		
C.L1.ELI	male	10	13.40	134.00
	female	10	7.60	76.00
	Total	20		
C.L1.L2.ELI	male	5	6.00	30.00
	female	5	5.00	25.00
	Total	10		
C.L3.ELI	male	5	6.60	33.00
	female	5	4.40	22.00
	Total	10		
C.L1.L2.L3.ELI	male	5	5.60	28.00
	female	5	5.40	27.00
	Total	10		
N.L1.BF	male	10	13.85	138.50
	female	10	7.15	71.50
	Total	20		
N.L1.L2.BF	male	5	5.80	29.00
	female	5	5.20	26.00
	Total	10		
N.L3.BF	male	5	6.40	32.00
	female	5	4.60	23.00
	Total	10		
N.L1.L2.L3.BF	male	5	5.30	26.50
	female	5	5.70	28.50
	Total	10		
C.L1.BF	male	10	11.70	117.00
	female	10	9.30	93.00
	Total	20		
C.L1.L2.BF	male	5	3.60	18.00
	female	5	7.40	37.00
	Total	10		
C.L3.BF	male	5	5.20	26.00

		N	Mean Rank	Sum of Ranks
	female	5	5.80	29.00
	Total	10		
C.L1.L2.L3.BF	male	5	7.60	38.00
	female	5	3.40	17.00
	Total	10		
N.L1.MLS	male	10	11.00	110.00
	female	10	10.00	100.00
	Total	20		
N.L1.L2.MLS	male	5	5.00	25.00
	female	5	6.00	30.00
	Total	10		
N.L3.MLS	male	5	5.40	27.00
	female	5	5.60	28.00
	Total	10		
N.L1.L2.L3.MLS	male	5	4.50	22.50
	female	5	6.50	32.50
	Total	10		
C.L1.MLS	male	10	11.00	110.00
	female	10	10.00	100.00
	Total	20		
C.L1.L2.MLS	male	5	6.10	30.50
	female	5	4.90	24.50
	Total	10		
C.L3.MLS	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
C.L1.L2.L3.MLS	male	5	4.80	24.00
	female	5	6.20	31.00
	Total	10		
N.L1.R	male	10	9.45	94.50
	female	10	11.55	115.50
	Total	20		

		N	Mean Rank	Sum of Ranks
N.L1.L2.R	male	5	4.80	24.00
	female	5	6.20	31.00
	Total	10		
N.L3.R	male	5	6.40	32.00
	female	5	4.60	23.00
	Total	10		
N.L1.L2.L3.R	male	5	7.40	37.00
	female	5	3.60	18.00
	Total	10		
C.L1.R	male	10	9.05	90.50
	female	10	11.95	119.50
	Total	20		
C.L1.L2.R	male	5	4.80	24.00
	female	5	6.20	31.00
	Total	10		
C.L3.R	male	5	6.10	30.50
	female	5	4.90	24.50
	Total	10		
C.L1.L2.L3.R	male	5	6.50	32.50
	female	5	4.50	22.50
	Total	10		
N.L1.ELin	male	10	10.50	105.00
	female	10	10.50	105.00
	Total	20		
N.L1.L2.ELin	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
N.L3.ELin	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
N.L1.L2.L3.ELin	male	5	5.50	27.50
	female	5	5.50	27.50

		Total	10		
C.L1.ELin	male		10	10.50	105.00
	female		10	10.50	105.00
	Total		20		
C.L1.L2.ELin	male		5	5.50	27.50
	female		5	5.50	27.50
	Total		10		

Table 4: shows p value for comparison of male vs. female irrespective of context

	N.L1.MLI	N.L1.L2.MLI	N.L3.MLI	N.L1.L2.L3.MLI	C.L1.MLI
Z	-.302	-.104	-1.984	-2.193	-1.134
Asymp. Sig. (2-tailed)	.762	.917	.047	.028	.257
Exact Sig. [2*(1-tailed Sig.)]	.796[a]	1.000[a]	.056[a]	.032[a]	.280[a]

	C.L1.L2.MLI	C.L3.MLI	C.L1.L2.L3.MLI	N.L1.ML+EL	N.L1.L2.ML+EL
Z	-.522	-2.611	-1.984	-2.192	-.313
Asymp. Sig. (2-tailed)	.602	.009	.047	.028	.754
Exact Sig. [2*(1-tailed Sig.)]	.690[a]	.008[a]	.056[a]	.029[a]	.841[a]

	N.L3.MLnEL	N.L1.L2.L3.MLnEL	C.L1.MLnEL	C.L1.L2.MLnEL	C.L3.MLnEL
Z	-1.567	-2.611	-1.626	-.940	-.522
Asymp. Sig. (2-tailed)	.117	.009	.104	.347	.602
Exact Sig. [2*(1-tailed Sig.)]	.151[a]	.008[a]	.105[a]	.421[a]	.690[a]

	C.L1.L2.L3.MLnEL	N.L1.ELI	N.L1.L2.ELI	N.L3.ELI	N.L1.L2.L3.ELI
Z	-1.776	-1.468	-.522	-1.567	-.313
Asymp. Sig. (2-tailed)	.076	.142	.602	.117	.754
Exact Sig. [2*(1-tailed Sig.)]	.095[a]	.165[a]	.690[a]	.151[a]	.841[a]

	C.L1.ELI	C.L1.L2.ELI	C.L3.ELI	C.L1.L2.L3.ELI	N.L1.BF	N.L1.L2.BF
Z	-2.194	-.522	-1.149	-.104	-2.537	-.314
Asymp. Sig. (2-tailed)	.028	.602	.251	.917	.011	.753
Exact Sig. [2*(1-tailed Sig.)]	.029[a]	.690[a]	.310[a]	1.000[a]	.009[a]	.841[a]

	C.L1.ELI	C.L1.L2.ELI	C.L3.ELI	C.L1.L2.L3.ELI	N.L1.BF	N.L1.L2.BF
Z	-2.194	-.522	-1.149	-.104	-2.537	-.314
Asymp. Sig. (2-tailed)	.028	.602	.251	.917	.011	.753
Exact Sig. [2*(1-tailed Sig.)]	.029[a]	.690[a]	.310[a]	1.000[a]	.009[a]	.841[a]

	N.L3.BF	N.L1.L2.L3.BF	C.L1.BF	C.L1.L2.BF	C.L3.BF
Z	-.940	-.210	-.907	-1.984	-.313
Asymp. Sig. (2-tailed)	.347	.834	.364	.047	.754
Exact Sig. [2*(1-tailed Sig.)]	.421[a]	.841[a]	.393[a]	.056[a]	.841[a]

	C.L1.L2.L3.BF	N.L1.MLS	N.L1.L2.MLS	N.L3.MLS	N.L1.L2.L3.MLS
Z	-2.193	-1.000	-.643	-.149	-1.491
Asymp. Sig. (2-tailed)	.028	.317	.521	.881	.136
Exact Sig. [2*(1-tailed Sig.)]	.032[a]	.739[a]	.690[a]	1.000[a]	.310[a]

	C.L1.L2.L3.BF	N.L1.MLS	N.L1.L2.MLS	N.L3.MLS	N.L1.L2.L3.MLS
Z	-2.193	-1.000	-.643	-.149	-1.491
Asymp. Sig. (2-tailed)	.028	.317	.521	.881	.136
Exact Sig. [2*(1-tailed Sig.)]	.032[a]	.739[a]	.690[a]	1.000[a]	.310[a]

	C.L1.MLS	C.L1.L2.MLS	C.L3.MLS	C.L1.L2.L3.MLS	N.L1.R
Z	-1.000	-.647	.000	-.900	-.794
Asymp. Sig. (2-tailed)	.317	.518	1.000	.368	.427
Exact Sig. [2*(1-tailed Sig.)]	.739[a]	.548[a]	1.000[a]	.548[a]	.436[a]

	N.L1.L2.R	N.L3.R	N.L1.L2.L3.R	C.L1.R	C.L1.L2.R	C.L3.R
Z	-.731	-.943	-1.984	-1.097	-.731	-.629
Asymp. Sig. (2-tailed)	.465	.346	.047	.273	.465	.530
Exact Sig. [2*(1-tailed Sig.)]	.548[a]	.421[a]	.056[a]	.280[a]	.548[a]	.548[a]

	C.L1.L2.L3.R	N.L1.ELin	N.L1.L2.ELin	N.L3.ELin	N.L1.L2.L3.ELin
Z	-1.051	.000	.000	.000	.000
Asymp. Sig. (2-tailed)	.293	1.000	1.000	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	.310[a]	1.000[a]	1.000[a]	1.000[a]	1.000[a]

	C.L1.ELin	C.L1.L2.ELin
Z	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]

Referring to table 4: comparing all the stimulus conditions across male and female

Findings suggests that there is significant difference found in following stimulus conditions $(p<0.05)$

1. **N L3 MLI,**
2. **N L1+L2+L3 MLI,**
3. **C L1 MLI,**
4. **C L1+L2+L3 MLI**
5. **N LI ML+EL,**
6. **N L1+L2+L3 ML+EL ,**
7. **C L1 ELI,**
8. **N L1 BF,**
9. **C L1 L2 BF,**
10. **C L1 L2 L3 BF,**

11. N L1 L2 L3 R,

- **N refers to narration, C refers to conversation, L1 –first language, L2 -second language, L3- third language. MLI – Matrix Language Island, ML+EL – Matrix Language + embedded language , ELI- Embedded Language island ,BF – Borrowed forms and R- Revisions.**

4.2.3. Mann-Whitney Test (Bilingual vs multilinguals in males)

Table 5: shows mean of all the constituents across different stimuli condition and context for males

Ranks[b]

	context	N	Mean Rank	Sum of Ranks
N.L1.MLI	bilingual	5	5.80	29.00
	multilingual	5	5.20	26.00
	Total	10		
N.L1.L2.MLI	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.MLI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.MLI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.MLI	bilingual	5	5.40	27.00
	multilingual	5	5.60	28.00
	Total	10		
C.L1.L2.MLI	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.MLI	bilingual	0[a]	.00	.00

	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.MLI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.MLnEL	bilingual	5	7.60	38.00
	multilingual	5	3.40	17.00
	Total	10		
N.L1.L2.MLnEL	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.MLnEL	bilingual	5	4.40	22.00
	multilingual	5	6.60	33.00
	Total	10		
C.L1.L2.MLnEL	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.ELI	bilingual	5	6.20	31.00
	multilingual	5	4.80	24.00
	Total	10		

N.L1.L2.ELI	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.ELI	bilingual	5	4.40	22.00
	multilingual	5	6.60	33.00
	Total	10		
C.L1.L2.ELI	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.BF	bilingual	5	5.40	27.00
	multilingual	5	5.60	28.00
	Total	10		
N.L1.L2.BF	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.BF	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.BF	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00

	Total	5		
C.L1.BF	bilingual	5	5.40	27.00
	multilingual	5	5.60	28.00
	Total	10		
C.L1.L2.BF	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.BF	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.BF	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.MLS	bilingual	5	6.00	30.00
	multilingual	5	5.00	25.00
	Total	10		
N.L1.L2.MLS	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.MLS	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.MLS	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.MLS	bilingual	5	6.00	30.00
	multilingual	5	5.00	25.00
	Total	10		
C.L1.L2.MLS	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.MLS	bilingual	0[a]	.00	.00

		N	Mean Rank	Sum of Ranks
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.MLS	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.R	bilingual	5	5.80	29.00
	multilingual	5	5.20	26.00
	Total	10		
N.L1.L2.R	bilingual	5	3.00	15.00
	multilingual	0ᵃ	.00	.00
	Total	5		
N.L3.R	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.R	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.R	bilingual	5	5.40	27.00
	multilingual	5	5.60	28.00
	Total	10		
C.L1.L2.R	bilingual	5	3.00	15.00
	multilingual	0ᵃ	.00	.00
	Total	5		
C.L3.R	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.R	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.ELin	bilingual	5	5.50	27.50
	multilingual	5	5.50	27.50
	Total	10		

N.L1.L2.ELin	bilingual	5	3.00	15.00
	multilingual	0ª	.00	.00
	Total	5		
N.L3.ELin	bilingual	0ª	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.ELin	bilingual	0ª	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.ELin	bilingual	5	5.50	27.50
	multilingual	5	5.50	27.50
	Total	10		
C.L1.L2.ELin	bilingual	5	3.00	15.00
	multilingual	0ª	.00	.00
	Total	5		

a. Mann-Whitney Test cannot be performed on empty groups.

b. gender = male

Table 6: shows P value of all the constituents across different stimuli condition and context for

male

	N.L1.MLI	C.L1.MLI	N.L1.ML+EL	C.L1.ML+EL	N.L1.ELI	C.L1.ELI
Z	-.313	-.104	-2.193	-1.149	-.736	-1.152
Asymp. Sig. (2-tailed)	.754	.917	.028	.251	.462	.249
Exact Sig. [2*(1-tailed Sig.)]	.841ª	1.000ª	.032ª	.310ª	.548ª	.310ª

	N.L1.BF	C.L1.BF	N.L1.MLS	C.L1.MLS	N.L1.R	C.L1.R
Z	-.104	-.104	-1.000	-1.000	-.313	-.105
Asymp. Sig. (2-tailed)	.917	.917	.317	.317	.754	.917
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]	.690[a]	.690[a]	.841[a]	1.000[a]

	N.L1.ELin	C.L1.ELin
Z	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]

Referring to table 6: comparing different stimulus conditions across bilingual males and multilingual males

Findings suggests that there is significant difference only in **N L1 ML+EL** with (p<0.05)

4.2.4. Mann-Whitney Test (Bilingual vs multilinguals in females)

Table 7: shows mean of all the constituents across different stimuli condition and context for females

Ranksᵇ

	context	N	Mean Rank	Sum of Ranks
N.L1.MLI	bilingual	5	5.80	29.00
	multilingual	5	5.20	26.00
	Total	10		
N.L1.L2.MLI	bilingual	5	3.00	15.00
	multilingual	0ᵃ	.00	.00
	Total	5		
N.L3.MLI	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.MLI	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.MLI	bilingual	5	3.80	19.00
	multilingual	5	7.20	36.00
	Total	10		
C.L1.L2.MLI	bilingual	5	3.00	15.00
	multilingual	0ᵃ	.00	.00
	Total	5		
C.L3.MLI	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.MLI	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.MLnEL	bilingual	5	6.40	32.00

	multilingual	5	4.60	23.00
	Total	10		
N.L1.L2.MLnEL	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.MLnEL	bilingual	5	6.80	34.00
	multilingual	5	4.20	21.00
	Total	10		
C.L1.L2.MLnEL	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.MLnEL	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.ELI	bilingual	5	6.60	33.00
	multilingual	5	4.40	22.00
	Total	10		
N.L1.L2.ELI	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		

N.L1.L2.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.ELI	bilingual	5	5.90	29.50
	multilingual	5	5.10	25.50
	Total	10		
C.L1.L2.ELI	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.ELI	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.BF	bilingual	5	6.40	32.00
	multilingual	5	4.60	23.00
	Total	10		
N.L1.L2.BF	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.BF	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.BF	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.BF	bilingual	5	6.60	33.00
	multilingual	5	4.40	22.00
	Total	10		
C.L1.L2.BF	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00

		N	Mean Rank	Sum of Ranks
	Total	5		
C.L3.BF	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.BF	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.MLS	bilingual	5	5.50	27.50
	multilingual	5	5.50	27.50
	Total	10		
N.L1.L2.MLS	bilingual	5	3.00	15.00
	multilingual	0ᵃ	.00	.00
	Total	5		
N.L3.MLS	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.MLS	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.MLS	bilingual	5	5.50	27.50
	multilingual	5	5.50	27.50
	Total	10		
C.L1.L2.MLS	bilingual	5	3.00	15.00
	multilingual	0ᵃ	.00	.00
	Total	5		
C.L3.MLS	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.MLS	bilingual	0ᵃ	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.R	bilingual	5	5.60	28.00

		N	Mean Rank	Sum of Ranks
	multilingual	5	5.40	27.00
	Total	10		
N.L1.L2.R	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.R	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.L2.L3.R	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.R	bilingual	5	5.40	27.00
	multilingual	5	5.60	28.00
	Total	10		
C.L1.L2.R	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
C.L3.R	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.L2.L3.R	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
N.L1.ELin	bilingual	5	5.50	27.50
	multilingual	5	5.50	27.50
	Total	10		
N.L1.L2.ELin	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		
N.L3.ELin	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		

N.L1.L2.L3.ELin	bilingual	0[a]	.00	.00
	multilingual	5	3.00	15.00
	Total	5		
C.L1.ELin	bilingual	5	5.50	27.50
	multilingual	5	5.50	27.50
	Total	10		
C.L1.L2.ELin	bilingual	5	3.00	15.00
	multilingual	0[a]	.00	.00
	Total	5		

a. Mann-Whitney Test cannot be performed on empty groups.

b. gender = female

Table 8: shows P value of all the constituents across different stimuli condition and context for mal

	N.L1.MLI	C.L1.MLI	N.L1.ML+EL	C.L1.ML+EL	N.L1.ELI	C.L1.ELI
Z	-.313	-1.776	-.940	-1.358	-1.226	-.419
Asymp. Sig. (2-tailed)	.754	.076	.347	.175	.220	.675
Exact Sig. [2*(1-tailed Sig.)]	.841[a]	.095[a]	.421[a]	.222[a]	.310[a]	.690[a]

	N.L1.BF	C.L1.BF	N.L1.MLS	C.L1.MLS	N.L1.R	C.L1.R
Z	-.952	-1.149	.000	.000	-.104	-.104
Asymp. Sig. (2-tailed)	.341	.251	1.000	1.000	.917	.917
Exact Sig. [2*(1-tailed Sig.)]	.421[a]	.310[a]	1.000[a]	1.000[a]	1.000[a]	1.000[a]

	N.L1.ELin	C.L1.ELin
Z	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]

Referring to table 8: compare different stimuli conditions across bilingual females and multilingual females

Findings suggests that there is no significant difference in any of the stimulus conditions across bilingual females and multilingual females with (p>0.05)

4.2.5. Mann-Whitney Test (male vs female in Bilingual context)

Table 9: shows mean of all the constituents across different stimuli condition and gender for bilinguals

Ranksᵃ

	Gender	N	Mean Rank	Sum of Ranks
N.L1.MLI	Male	5	5.00	25.00
	Female	5	6.00	30.00
	Total	10		
N.L1.L2.MLI	Male	5	5.40	27.00
	Female	5	5.60	28.00
	Total	10		
C.L1.MLI	Male	5	5.00	25.00
	Female	5	6.00	30.00
	Total	10		
C.L1.L2.MLI	Male	5	6.00	30.00
	Female	5	5.00	25.00
	Total	10		
N.L1.MLnEL	Male	5	7.40	37.00
	Female	5	3.60	18.00
	Total	10		
N.L1.L2.MLnEL	Male	5	5.80	29.00
	Female	5	5.20	26.00
	Total	10		
C.L1.MLnEL	Male	5	5.50	27.50
	Female	5	5.50	27.50
	Total	10		
C.L1.L2.MLnEL	Male	5	6.40	32.00
	Female	5	4.60	23.00
	Total	10		
N.L1.ELI	Male	5	6.00	30.00

	Female	5	5.00	25.00
	Total	10		
N.L1.L2.ELI	Male	5	6.00	30.00
	Female	5	5.00	25.00
	Total	10		
C.L1.ELI	Male	5	6.60	33.00
	Female	5	4.40	22.00
	Total	10		
C.L1.L2.ELI	Male	5	6.00	30.00
	Female	5	5.00	25.00
	Total	10		
N.L1.BF	Male	5	6.80	34.00
	Female	5	4.20	21.00
	Total	10		
N.L1.L2.BF	Male	5	5.80	29.00
	Female	5	5.20	26.00
	Total	10		
C.L1.BF	Male	5	5.60	28.00
	Female	5	5.40	27.00
	Total	10		
C.L1.L2.BF	Male	5	3.60	18.00
	Female	5	7.40	37.00
	Total	10		
N.L1.MLS	Male	5	6.00	30.00
	Female	5	5.00	25.00
	Total	10		
N.L1.L2.MLS	Male	5	5.00	25.00
	Female	5	6.00	30.00
	Total	10		
C.L1.MLS	Male	5	6.00	30.00
	Female	5	5.00	25.00
	Total	10		

C.L1.L2.MLS	Male	5	6.10	30.50
	Female	5	4.90	24.50
	Total	10		
N.L1.R	Male	5	5.00	25.00
	Female	5	6.00	30.00
	Total	10		
N.L1.L2.R	Male	5	4.80	24.00
	Female	5	6.20	31.00
	Total	10		
C.L1.R	Male	5	4.90	24.50
	Female	5	6.10	30.50
	Total	10		
C.L1.L2.R	Male	5	4.80	24.00
	Female	5	6.20	31.00
	Total	10		
N.L1.ELin	Male	5	5.50	27.50
	Female	5	5.50	27.50
	Total	10		
N.L1.L2.ELin	Male	5	5.50	27.50
	Female	5	5.50	27.50
	Total	10		
C.L1.ELin	Male	5	5.50	27.50
	Female	5	5.50	27.50
	Total	10		
C.L1.L2.ELin	Male	5	5.50	27.50
	Female	5	5.50	27.50
	Total	10		

a. context = bilingual

Table 10: shows p value all the constituents across different stimuli condition and gender for bilinguals

	N.L1.MLI	N.L1.L2.MLI	C.L1.MLI	C.L1.L2.MLI	N.L1.MLnEL
Z	-.522	-.104	-.522	-.522	-1.984
Asymp. Sig. (2-tailed)	.602	.917	.602	.602	.047
Exact Sig. [2*(1-tailed Sig.)]	.690[a]	1.000[a]	.690[a]	.690[a]	.056[a]

	N.L1.L2.MLnEL	C.L1.ML+EL	C.L1.L2.ML+EL	N.L1.ELI	N.L1.L2.ELI
Z	-.313	.000	-.940	-.529	-.522
Asymp. Sig. (2-tailed)	.754	1.000	.347	.597	.602
Exact Sig. [2*(1-tailed Sig.)]	.841[a]	1.000[a]	.421[a]	.690[a]	.690[a]

	C.L1.ELI	C.L1.L2.ELI	N.L1.BF	N.L1.L2.BF	C.L1.BF	C.L1.L2.BF

Z	-1.152	-.522	-1.358	-.314	-.104	-1.984
Asymp. Sig. (2-tailed)	.249	.602	.175	.753	.917	.047
Exact Sig. [2*(1-tailed Sig.)]	.310[a]	.690[a]	.222[a]	.841[a]	1.000[a]	.056[a]

	N.L1.MLS	N.L1.L2.MLS	C.L1.MLS	C.L1.L2.MLS	N.L1.R	N.L1.L2.R
Z	-1.000	-.643	-1.000	-.647	-.522	-.731
Asymp. Sig. (2-tailed)	.317	.521	.317	.518	.602	.465
Exact Sig. [2*(1-tailed Sig.)]	.690[a]	.690[a]	.690[a]	.548[a]	.690[a]	.548[a]

	C.L1.R	C.L1.L2.R	N.L1.ELin	N.L1.L2.ELin
Z	-.631	-.731	.000	.000
Asymp. Sig. (2-tailed)	.528	.465	1.000	1.000

| | Exact Sig. [2*(1-tailed Sig.)] | .548ᵃ | .548ᵃ | 1.000ᵃ | 1.000ᵃ |

	C.L1.ELin	C.L1.L2.ELin
Z	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	1.000ᵃ	1.000ᵃ

Referring to table 10: that compares different stimuli conditions across bilingual males and bilingual females

Findings suggests that there is significant difference in **N L1 ML+EL** and **C L1 +L2 BF** with (p<0.05)

4.2.6. Mann-Whitney Test (male vs female in multilingual context)

Table 11: shows mean of all the constituents across different stimuli condition and gender for multilinguals

Ranksᵃ

	gender	N	Mean Rank	Sum of Ranks
N.L1.MLI	male	5	5.60	28.00

	female	5	5.40	27.00
	Total	10		
N.L3.MLI	male	5	3.60	18.00
	female	5	7.40	37.00
	Total	10		
N.L1.L2.L3.MLI	male	5	3.40	17.00
	female	5	7.60	38.00
	Total	10		
C.L1.MLI	male	5	4.20	21.00
	female	5	6.80	34.00
	Total	10		
C.L3.MLI	male	5	3.00	15.00
	female	5	8.00	40.00
	Total	10		
C.L1.L2.L3.MLI	male	5	3.60	18.00
	female	5	7.40	37.00
	Total	10		
N.L1.MLnEL	male	5	6.80	34.00
	female	5	4.20	21.00
	Total	10		
N.L3.MLnEL	male	5	7.00	35.00
	female	5	4.00	20.00
	Total	10		
N.L1.L2.L3.MLnEL	male	5	3.00	15.00
	female	5	8.00	40.00
	Total	10		
C.L1.MLnEL	male	5	7.20	36.00
	female	5	3.80	19.00
	Total	10		
C.L3.MLnEL	male	5	5.00	25.00
	female	5	6.00	30.00
	Total	10		

C.L1.L2.L3.MLnEL	male	5	3.80	19.00
	female	5	7.20	36.00
	Total	10		
N.L1.ELI	male	5	7.10	35.50
	female	5	3.90	19.50
	Total	10		
N.L3.ELI	male	5	7.00	35.00
	female	5	4.00	20.00
	Total	10		
N.L1.L2.L3.ELI	male	5	5.20	26.00
	female	5	5.80	29.00
	Total	10		
C.L1.ELI	male	5	7.40	37.00
	female	5	3.60	18.00
	Total	10		
C.L3.ELI	male	5	6.60	33.00
	female	5	4.40	22.00
	Total	10		
C.L1.L2.L3.ELI	male	5	5.60	28.00
	female	5	5.40	27.00
	Total	10		
N.L1.BF	male	5	7.50	37.50
	female	5	3.50	17.50
	Total	10		
N.L3.BF	male	5	6.40	32.00
	female	5	4.60	23.00
	Total	10		
N.L1.L2.L3.BF	male	5	5.30	26.50
	female	5	5.70	28.50
	Total	10		
C.L1.BF	male	5	6.60	33.00
	female	5	4.40	22.00

	Total	10		
C.L3.BF	male	5	5.20	26.00
	female	5	5.80	29.00
	Total	10		
C.L1.L2.L3.BF	male	5	7.60	38.00
	female	5	3.40	17.00
	Total	10		
N.L1.MLS	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
N.L3.MLS	male	5	5.40	27.00
	female	5	5.60	28.00
	Total	10		
N.L1.L2.L3.MLS	male	5	4.50	22.50
	female	5	6.50	32.50
	Total	10		
C.L1.MLS	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
C.L3.MLS	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
C.L1.L2.L3.MLS	male	5	4.80	24.00
	female	5	6.20	31.00
	Total	10		
N.L1.R	male	5	5.20	26.00
	female	5	5.80	29.00
	Total	10		
N.L3.R	male	5	6.40	32.00
	female	5	4.60	23.00
	Total	10		
N.L1.L2.L3.R	male	5	7.40	37.00

	female	5	3.60	18.00
	Total	10		
C.L1.R	male	5	5.00	25.00
	female	5	6.00	30.00
	Total	10		
C.L3.R	male	5	6.10	30.50
	female	5	4.90	24.50
	Total	10		
C.L1.L2.L3.R	male	5	6.50	32.50
	female	5	4.50	22.50
	Total	10		
N.L1.ELin	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
N.L3.ELin	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
N.L1.L2.L3.ELin	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		
C.L1.ELin	male	5	5.50	27.50
	female	5	5.50	27.50
	Total	10		

a. context = multilingual

Table 12: shows p value all the constituents across different stimuli condition and gender for multilinguals

Test Statistics[b,c]

	N.L1.MLI	N.L3.MLI	N.L1.L2.L3.MLI	C.L1.MLI	C.L3.MLI	C.L1.L2.L3.MLI
Z	-.104	-1.984	-2.193	-1.358	-2.611	-1.984
Asymp. Sig. (2-tailed)	.917	.047	.028	.175	.009	.047
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	.056[a]	.032[a]	.222[a]	.008[a]	.056[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Test Statistics[b,c]

	N.L1.MLnEL	N.L3.MLnEL	N.L1.L2.L3.MLnEL	C.L1.ML+EL	C.L3.ML+EL
Z	-1.358	-1.567	-2.611	-1.776	-.522
Asymp. Sig. (2-tailed)	.175	.117	.009	.076	.602
Exact Sig. [2*(1-tailed Sig.)]	.222[a]	.151[a]	.008[a]	.095[a]	.690[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Test Statistics[b,c]

	C.L1.L2.L3.MLnEL	N.L1.ELI	N.L3.ELI	N.L1.L2.L3.ELI	C.L1.ELI	C.L3.ELI
Z	-1.776	-1.724	-1.567	-.313	-1.984	-1.149
Asymp. Sig. (2-tailed)	.076	.085	.117	.754	.047	.251

Exact Sig. [2*(1-tailed Sig.)]	.095[a]	.095[a]	.151[a]	.841[a]	.056[a]	.310[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Test Statistics[b,c]

	C.L1.L2.L3.ELI	N.L1.BF	N.L3.BF	N.L1.L2.L3.BF	C.L1.BF	C.L3.BF
Z	-.104	-2.102	-.940	-.210	-1.149	-.313
Asymp. Sig. (2-tailed)	.917	.036	.347	.834	.251	.754
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	.032[a]	.421[a]	.841[a]	.310[a]	.841[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Test Statistics[b,c]

	C.L1.L2.L3.BF	N.L1.MLS	N.L3.MLS	N.L1.L2.L3.MLS	C.L1.MLS
Z	-2.193	.000	-.149	-1.491	.000
Asymp. Sig. (2-tailed)	.028	1.000	.881	.136	1.000
Exact Sig. [2*(1-tailed Sig.)]	.032[a]	1.000[a]	1.000[a]	.310[a]	1.000[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Test Statistics[b,c]

	C.L3.MLS	C.L1.L2.L3.MLS	N.L1.R	N.L3.R	N.L1.L2.L3.R	C.L1.R
Z	.000	-.900	-.313	-.943	-1.984	-.522
Asymp. Sig. (2-tailed)	1.000	.368	.754	.346	.047	.602
Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	.548[a]	.841[a]	.421[a]	.056[a]	.690[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Test Statistics[b,c]

	C.L3.R	C.L1.L2.L3.R	N.L1.ELin	N.L3.ELin
Z	-.629	-1.051	.000	.000
Asymp. Sig. (2-tailed)	.530	.293	1.000	1.000
Exact Sig. [2*(1-tailed Sig.)]	.548[a]	.310[a]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Test Statistics[b,c]

	N.L1.L2.L3.ELin	C.L1.ELin
Z	.000	.000
Asymp. Sig. (2-tailed)	1.000	1.000

Exact Sig. [2*(1-tailed Sig.)]	1.000[a]	1.000[a]

a. Not corrected for ties.

b. context = multilingual

c. Grouping Variable: gender

Referring to table 12: that compares different stimuli conditions across multiilingual males and multilingual females

Findings suggests that there is significant difference in the following stimuli conditions with $(p<0.05)$

1. **N L3 MLI**

2. **N L1+L2+L3 MLI**

3. **C L3 MLI**

4. **C L1+L2+L3 MLI**

5. N L1+L2+L3 ML+EL

6. **C L1 ELI**

7. **N L1 BF**

8. **C L1+L2+L3 BF**

4.2.6. Matrix language islands (MLI):

Matrix language Islands (ML Islands) are constituents consisting entirely of ML morphemes. They are well formed and show internal structural dependency relations i.e. they follow the grammatical structure of a particular language (Myers-Scotton, 1993). ML Islands represent an elongation of an utterance in one language and thus, do not signify any kind of

code mixing or code switching. Increased quantities of ML Islands indirectly point to reduced code mixing and code switching in a particular context.

Table13: *Shows the mean and SD for ML Islands across different stimuli, & context*

context		N.L1.MLI	N.L1.L2.MLI	N.L3.MLI	N.L1.L2.L3.MLI	C.L1.MLI	C.L1.L2.MLI	C.L3.MLI	C.L1.L2.L3.MLI
bilinguals	Mean	12.7170	11.4740			11.8910	11.2720		
	Std. Deviation	1.58946	1.73677			2.09877	1.66544		
multilinguals	Mean	11.8610		11.8580	11.3440	13.5240		11.6400	12.1920
	Std. Deviation	3.26872		1.97093	1.08189	2.59645		1.51573	2.20187

NOTE:

N.L1.MLI - narration Telugu monolingual context, N.L1.L2.MLI- narration bilingual context, N.L3.MLI- narration Hindi monolingual context ,N.L1.L2.L3.MLI - narration multilingual context

C.L1.MLI- conversation Telugu monolingual context , C.L1.L2.MLI- conversation bilingual context C.L3.MLI- conversation Hindi monolingual context ,C.L1.L2.L3.MLI- conversation multilingual context.

1.Mean and SD of MLI

Bilinguals:

From Table 13 it can be observed that the mean score for ML Islands in the narration Telugu monolingual context was 12.71(SD=1.58) and in narration bilingual context participants had a mean of 11.47 (SD=1.73) respectively. Whereas in conversation Telugu monolingual context the participants had a mean value of 11.89 (SD=2.098) and in conversation bilingual context mean values ranges from 11.27 (SD=1.66) respectively

Multinguals:

From Table 13 it can be observed that the mean score for ML Islands in the narration Telugu monolingual context was 11.86(SD=3.26). In narration monolingual Hindi context, participants had a mean of 11.85 (SD=1.97) In narration multilingual context, participants had a mean of 11.34 (SD=1.08) respectively. Where as in the conversation Telugu monolingual context was 13.52 (SD=2.59). In conversation monolingual Hindi context, participants had a mean of 11.64 (SD=1.51). In conversation multilingual context, participants had a mean of 12.19 (SD=2.20) respectively.

ML islands order of elicitation in different context (stimuli +language)

Bilinguals:

Occurrences of ML islands were observed predominantly in narration Telugu monolingual context, followed by conversation Telugu monolingual context and narration bilingual context. Hence, the participants were able to produce more ML islands in Telugu monolingual context during conversation. Least occurrences were observed in conversation bilingual context.

Multilinguals:

Occurrences of ML islands were observed predominantly in conversation Telugu monolingual context, followed by conversation multilingual context and narration Telugu monolingual context followed by narration Hindi monolingual, then in conversation Hindi monolingual. Hence, the participants were able to produce more ML islands in Telugu

monolingual context during conversation. Least occurrences were observed in narration multilingual context.

When comparing ML island across bilingual and monolinguals, only one context could be compared i.e L1 language context (e.g.: look at the table below)

Bilinguals	N L1	N L1+L2			C L1	C L1+L2		
Multilinguals	N L1		N L3	N L1+L2+L3	C L1		C L3	C L1+L2+L3

NOTE: N-narration, C- conversation, L1-Telugu, L2-English, L3-Hindi

Hence findings suggests that there is no significant difference between N L1 ML island across multilinguals and bilinguals with Z = -0.756(p>0.05) and no significant difference between C L1 ML island across multilinguals and bilinguals with Z = -1.209 (p>0.05).

4.2.7. Matrix language and embedded language (ML+EL):

Matrix language + embedded language are constituents where embedded language lexemes are inserted into the syntactic structure of matrix language. They follow the syntactic rules of the matrix language and any lexemes non-congruent rules of matrix language are blocked by a blocking filter as discussed by Myers-Scotton, (1993) and these would appear in embedded language islands. Matrix language + embedded language are thus signifiers of code mixing as they occur intra sententially. This constituent was formed by single lexemes from English.

Table14: *Shows the mean and SD for ML+EL across different stimuli, & context.*

Context		N.L1.ML+EL	N.L1.L2.ML+EL	N.L3.ML+EL	N.L1.L2.L3.ML+EL	C.L1.ML+EL	C.L1.L2.ML+EL	C.L3.ML+EL	C.L1.L2.L3.ML+EL
Bilinguals	Mean	4.1620	6.6750			3.9700	7.4150		
	Std. Deviation	2.11811	2.16129			1.74332	1.85321		
Multilinguals	Mean	2.2820		3.7450	6.8910	3.8520		4.8230	7.7020
	Std. Deviation	1.65867		1.92186	2.25862	3.01634		1.55618	2.30083

NOTE:

N.L1.ML+EL - narration Telugu monolingual context, N.L1.L2.ML+EL- narration bilingual context, N.L3.ML+EL- narration Hindi monolingual context ,N.L1.L2.L3.ML+EL - narration multilingual context

C.L1.ML+EL- conversation Telugu monolingual context , C.L1.L2.ML+EL- conversation bilingual context C.L3.ML+EL- conversation Hindi monolingual context ,C.L1.L2.L3.ML+EL- conversation multilingual context.

2. Mean and SD of ML+EL

Bilinguals:

From Table 14 it can be observed that the mean score for ML+EL in the narration Telugu monolingual context was 4.16(SD=2.11) and in narration bilingual context participants had a mean of 6.67 (SD=2.16) respectively. Whereas in conversation Telugu monolingual context the participants had a mean value of 3.97 (SD=1.74) and in conversation bilingual context mean values ranges from 7.41 (SD=1.85) respectively.

Multinguals:

From Table 14 it can be observed that the mean score for ML+EL in the narration Telugu monolingual context was 2.28(SD=1.65). In narration monolingual Hindi context, participants had a mean of 3.74 (SD=1.92) In narration multilingual context, participants had a mean of 6.89 (SD=2.25) respectively. Where as in the conversation Telugu monolingual context was 3.85 (SD=3.01). In conversation monolingual Hindi context, participants had a mean of 4.82 (SD=1.55). In conversation multilingual context, participants had a mean of 7.70 (SD=2.30) respectively.

ML+EL order of elicitation in different context (stimuli +language)

Bilinguals:

Occurrences of ML+EL were observed predominantly in conversation bilingual context, followed by narration bilingual context and narration Telugu monolingual context. Hence, the participants were able to produce more ML+EL in bilingual context during conversation. Least occurrences were observed in conversation Telugu monolingual context.

Multilinguals:

Occurrences of ML+EL were observed predominantly in conversation multilingual context, followed by narration multilingual context and conversation Hindi monolingual context followed by conversation Telugu monolingual, then in narration Hindi monolingual. Hence, the participants were able to produce more ML+EL in multilingual context during conversation. Least occurrences were observed in narration Telugu monolingual context.

When comparing ML+EL across bilingual and monolinguals, only one context could be compared i.e L1 language context (e.g : look at the table below)

	N	N			C	C		
Bilinguals	L1	L1+L2			L1	L1+L2		
Multilinguals	N L1		N L3	N L1+L2+L3	C L1		C L3	C L1+L2+L3

NOTE: N-narration, C- conversation, L1-Telugu, L2-English, L3-Hindi

Hence findings suggests that there is significant difference between N L1 ML+EL across multilinguals and bilinguals with Z = -1.890, (p=0.05) and no significant difference between C L1 ML+EL island across multilinguals and bilinguals with Z =- -0.076, (p>0.05).

4.2.8. Embedded language islands (ELI):

Embedded language Islands (EL Islands) are formed when syntactic procedures of embedded language are activated and those of matrix language are inhibited. Thus, embedded language lexemes in embedded language Islands show embedded language morphemic order (thus cannot occur in ML + EL as they will be blocked by blocking filter) and include only syntactically relevant EL system morphemes as highlighted by Myers-Scotton (1993). Sometimes a single embedded language lexeme may trigger the formation of EL Island as highlighted in Trigger Hypothesis by Myers-Scotton in 1993. EL Islands are indicators of code mixing as they are produced intra sententially and obey the grammar of less dominant embedded language

Table15: *Shows the mean and SD for ELI across different stimuli, & context.*

Context		N.L1.ELI	N.L1.L2.ELI	N.L3.ELI	N.L1.L2.L3.ELI	C.L1.ELI	C.L1.L2.ELI	C.L3.ELI	C.L1.L2.L3.ELI
Bilingual	Mean	1.3820	3.3180			1.8060	4.8290		

	Std. Deviation	1.31596	1.79652			1.83054	1.79539		
Multilingual	Mean	.6180		2.0510	4.9230	1.7940		2.5610	5.7130
	Std. Deviation	.67593		1.51710	3.45236	1.34878		1.41499	1.70536

NOTE:

N.L1.ELI - narration Telugu monolingual context, N.L1.L2.ELI- narration bilingual context, N.L3.ELI- narration Hindi monolingual context ,N.L1.L2.L3.ELI - narration multilingual context

C.L1.ELI- conversation Telugu monolingual context , C.L1.L2.ELI- conversation bilingual context C.L3.ELI- conversation Hindi monolingual context ,C.L1.L2.L3.ELI- conversation multilingual context.

3. Mean and SD of ELI

Bilinguals:

From Table 15 it can be observed that the mean score for ELI in the narration Telugu monolingual context was 1.38(SD=1.31) and in narration bilingual context participants had a mean of 3.31 (SD=1.79) respectively. Whereas in conversation Telugu monolingual context the participants had a mean value of 1.80 (SD=1.83) and in conversation bilingual context mean values ranges from 4.82 (SD=1.79) respectively.

Multinguals:

From Table 15 it can be observed that the mean score for ELI in the narration Telugu monolingual context was 0.618(SD=0.67). In narration monolingual Hindi context, participants had a mean of 2.05 (SD=1.51) In narration multilingual context, participants had a mean of 4.92

(SD=3.45) respectively. Where as in the conversation Telugu monolingual context was 1.79 (SD=1.34). In conversation monolingual Hindi context, participants had a mean of 2.56 (SD=1.41). In conversation multilingual context, participants had a mean of 5.71 (SD=1.70) respectively.

ELI order of elicitation in different context (stimuli +language)

Bilinguals:

Occurrences of ELI were observed predominantly in conversation bilingual context, followed by narration bilingual context and conversation Telugu monolingual context. Hence, the participants were able to produce more ELI in bilingual context during conversation. Least occurrences were observed in narration Telugu monolingual context.

Multilinguals:

Occurrences of ELI were observed predominantly in conversation multilingual context, followed by narration multilingual context and conversation Hindi monolingual context followed by narration Hindi monolingual, then in conversation Telugu monolingual. Hence, the participants were able to produce more ELI in multilingual context during conversation. Least occurrences were observed in narration Telugu monolingual context.

When comparing ELI across bilingual and monolinguals, only one context could be compared i.e L1 language context (e.g : look at the table below)

Bilinguals	N	N			C	C		
	L1	L1+L2			L1	L1+L2		

Multilinguals	N		N	N	C		C	C
	L1		L3	L1+L2+L3	L1		L3	L1+L2+L3

NOTE: N-narration, C- conversation, L1-Telugu, L2-English, L3-Hindi

Hence findings suggests that there is no significant difference between N L1 ELI across multilinguals and bilinguals with Z = -1.27, (p>0.05) and no significant difference between C L1 ELI across multilinguals and bilinguals with Z =- -0.492, (p>0.05).

4.2.9. Borrowed forms (BF):

These are lexemes from one language integrated into the phonological system of the second language. In general, this is distinguished from lexical insertion that is Matrix Language + Embedded Language by the acceptability. If any lexical insertion was acceptable in monolingual vocabulary by two out of three judges it was taken as borrowed form. So utterances containing borrowed forms were considered as instances of Matrix Language islands without any code mixing and code switching.

Table 16: *Shows the mean and SD for BF across different stimuli, & context.*

Context		N.L1.BF	N.L1.L2.BF	N.L3.BF	N.L1.L2.L3.BF	C.L1.BF	C.L1.L2.BF	C.L3.BF	C.L1.L2.L3.BF
bilinguals	Mean	1.5950	1.6200			2.5590	2.5740		
	Std. Deviation	1.18515	1.09723			1.20714	.82600		
Multilinguals	Mean	1.3370		1.4670	2.5050	1.9420		2.7050	2.3950
	Std. Deviation	1.44317		.98242	2.04336	1.17555		.64590	.97448

NOTE:

N.L1.BF - narration Telugu monolingual context, N.L1.L2.BF- narration bilingual context, N.L3.BF- narration Hindi monolingual context ,N.L1.L2.L3.BF - narration multilingual context

C.L1.BF- conversation Telugu monolingual context , C.L1.L2.BF- conversation bilingual context C.L3.BF- conversation Hindi monolingual context ,C.L1.L2.L3.BF- conversation multilingual context.

4. Mean and SD of BF

Bilinguals:

From Table 16 it can be observed that the mean score for BF in the narration Telugu monolingual context was 1.59(SD=1.18) and in narration bilingual context participants had a mean of 1.62 (SD=1.09) respectively. Whereas in conversation Telugu monolingual context the participants had a mean value of 2.55 (SD=1.20) and in conversation bilingual context mean values ranges from 2.57 (SD=0.82) respectively.

Multinguals:

From Table 16 it can be observed that the mean score for BF in the narration Telugu monolingual context was 1.33(SD=1.44). In narration monolingual Hindi context, participants had a mean of 1.46 (SD=0.98) In narration multilingual context, participants had a mean of 2.50 (SD=2.04) respectively. Where as in the conversation Telugu monolingual context was 1.94 (SD=1.17). In conversation monolingual Hindi context, participants had a mean of 2.70 (SD=0.64). In conversation multilingual context, participants had a mean of 2.39 (SD=0.97) respectively.

BF order of elicitation in different context (stimuli +language)

Bilinguals:

Occurrences of BF were observed predominantly in conversation bilingual context, followed by conversation Telugu monolingual context and narration bilingual context. Hence, the participants were able to produce more BF in bilingual context during conversation. Least occurrences were observed in narration Telugu monolingual context.

Multilinguals:

Occurrences of BF were observed predominantly in conversation Hindi monolingual context, followed by narration multilingual context and conversation multilingual context followed by conversation Telugu monolingual, then in narration Hindi monolingual. Hence, the participants were able to produce more BF in Hindi monolingual context during conversation. Least occurrences were observed in narration Telugu monolingual context.

When comparing BF across bilingual and monolinguals, only one context could be compared i.e L1 language context (e.g : look at the table below)

Bilinguals	N L1	N L1+L2			C L1	C L1+L2		
Multilinguals	N L1		N L3	N L1+L2+L3	C L1		C L3	C L1+L2+L3

NOTE: N-narration, C- conversation, L1-Telugu, L2-English, L3-Hindi

Hence findings suggests that there is no significant difference between N L1 BF across multilinguals and bilinguals with Z = -0.60, (p>0.05) and no significant difference between C LI BF across multilinguals and bilinguals with Z =- -0.756, (p>0.05).

4.2.10. Matrix language shift (MLS):

Matrix language shift (ML shift) is change in the matrix language in consecutive utterances or clausal structures preceded by a pause of two or more seconds or a change in pitch. Thus, it represents change from one language to another and is present only in Bilingual and Trilingual contexts. Hence, it represents code switching, because it has a shift of languages intersentential.

Table17: *Shows the mean and SD for MLS across different stimuli, & context.*

context		N.L1.MLS	N.L1.L2.MLS	N.L3.MLS	N.L1.L2.L3.MLS	C.L1.MLS	C.L1.L2.MLS	C.L3.MLS	C.L1.L2.L3.MLS
bilinguals	Mean	.0370	.3720			.4460	.9300		
	Std. Deviation	.11700	.73991			1.41038	1.38653		
multilinguals	Mean	.0000		.0600	.3260	.0000		.0000	.5250
	Std. Deviation	.00000		.12867	.86666	.00000		.00000	1.02502

NOTE:

N.L1.MLS - narration Telugu monolingual context, N.L1.L2.MLS- narration bilingual context, N.L3.MLS- narration Hindi monolingual context ,N.L1.L2.L3.MLS - narration multilingual context

C.L1.MLS- conversation Telugu monolingual context , C.L1.L2.MLS- conversation bilingual context C.L3.MLS- conversation Hindi monolingual context ,C.L1.L2.L3.MLS- conversation multilingual context.

5. Mean and SD of MLS

Bilinguals:

From Table 17 it can be observed that the mean score for MLS in the narration Telugu monolingual context was 0.03(SD= .117) and in narration bilingual context participants had a mean of 0.37 (SD=0.73) respectively. Whereas in conversation Telugu monolingual context the participants had a mean value of 0.44 (SD=1.41) and in conversation bilingual context mean values ranges from 0.93 (SD=1.38) respectively.

Multinguals:

From Table 17 it can be observed that the mean score for MLS in the narration Telugu monolingual context was 0.00(SD=0.00). In narration monolingual Hindi context, participants had a mean of 0.060 (SD=0.12) In narration multilingual context, participants had a mean of 0.32 (SD=0.86) respectively. Where as in the conversation Telugu monolingual context was 0.00 (SD=0.00). In conversation monolingual Hindi context, participants had a mean of 0.00 (SD=0.00). In conversation multilingual context, participants had a mean of 0.52 (SD=1.02) respectively.

MLS order of elicitation in different context (stimuli +language)

Bilinguals:

Occurrences of MLS were observed predominantly in conversation bilingual context, followed by conversation Telugu monolingual context and narration bilingual context.

Hence, the participants were able to produce more MLS in bilingual context during conversation. Least occurrences were observed in narration Telugu monolingual context.

Multilinguals:

Occurrences of MLS were observed predominantly in conversation multilingual context, followed by narration multilingual context and narration Hindi monolingual context .In other context MLS occurrence is zero .Hence, the participants were able to produce more MLS in multilingual context during conversation. Occurrences were observed to be zero in narration Telugu monolingual context, conversation Telugu monolingual context and conversation Hindi monolingual context.

When comparing MLS across bilingual and monolinguals, only one context could be compared i.e L1 language context (e.g : look at the table below)

Bilinguals	N L1	N L1+L2			C L1	C L1+L2		
Multilinguals	N L1		N L3	N L1+L2+L3	C L1		C L3	C L1+L2+L3

NOTE: N-narration, C- conversation, L1-Telugu, L2-English, L3-Hindi

Hence findings suggests that there is no significant difference between N L1 MLS across multilinguals and bilinguals with Z = -1.000, (p>0.05) and no significant difference between C LI MLS across multilinguals and bilinguals with Z =- -1.000, (p>0.05).

4.2.11. Revisions:

Revisions consists of lexical insertions that do not contribute to the meaning of an utterance, including speech errors, restatements, and circumlocutions and thus, are indicators of word finding problems.

Table18: *Shows the mean and SD for Revisions across different stimuli, & context.*

Context		N.L1.R	N.L1.L2.R	N.L3.R	N.L1.L2.L3.R	C.L1.R	C.L1.L2.R	C.L3.R	C.L1.L2.L3.R
Bilinguals	Mean	.9590	.9300			.7090	.5270		
	Std. Deviation	.36180	.75515			.28065	.23400		
Multilinguals	Mean	.9080		.8320	.7330	.6610		.8730	.4050
	Std. Deviation	.52096		.41419	.23012	.36559		.48383	.25834

NOTE:

N.L1.R - narration Telugu monolingual context, N.L1.L2.R- narration bilingual context, N.L3.R- narration Hindi monolingual context ,N.L1.L2.L3.R - narration multilingual context

C.L1.R- conversation Telugu monolingual context , C.L1.L2.R- conversation bilingual context
C.L3.R- conversation Hindi monolingual context ,C.L1.L2.L3.R- conversation multilingual context.

6. Mean and SD of Revisions

Bilinguals:

From Table 18 it can be observed that the mean score for Revisions in the narration Telugu monolingual context was 0.95(SD= 0.36) and in narration bilingual context participants had a mean of 0.93 (SD=0.75) respectively. Whereas in conversation Telugu monolingual context the participants had a mean value of 0.70 (SD=0.28) and in conversation bilingual context mean values ranges from 0.52 (SD=0.23) respectively.

Multinguals:

From Table 18 it can be observed that the mean score for Revisions in the narration Telugu monolingual context was 0.90(SD=0.52). In narration monolingual Hindi context, participants had a mean of 0.83 (SD=0.41) In narration multilingual context, participants had a mean of 0.73 (SD=0.23) respectively. Where as in the conversation Telugu monolingual context was 0.66 (SD=0.36). In conversation monolingual Hindi context, participants had a mean of 0.87 (SD=0.48). In conversation multilingual context, participants had a mean of 0.40 (SD=0.25) respectively.

Revisions order of elicitation in different context (stimuli +language)

Bilinguals:

Occurrences of Revisions were observed predominantly in narration Telugu monolingual context, followed by narration bilingual context and conversation Telugu monolingual context. Hence, the participants were able to produce more Revisions in Telugu monolingual context during narration. Least occurrences were observed in conversation bilingual context.

Multilinguals:

Occurrences of Revisions were observed predominantly in narration Telugu monolingual context, followed by conversation Hindi monolingual context and narration Hindi monolingual context, then in narration multilingual context followed by conversation Telugu monolingual context.Hence, the participants were able to produce more Revisions in Telugu monolingual context during narration. Least occurrences were observed in conversation Telugu monolingual context.

When comparing Revisions across bilingual and monolinguals, only one context could be compared i.e L1 language context (e.g : look at the table below)

Bilinguals	N L1	N L1+L2			C L1	C L1+L2		
Multilinguals	N L1		N L3	N L1+L2+L3	C L1		C L3	C L1+L2+L3

NOTE: N-narration, C- conversation, L1-Telugu, L2-English, L3-Hindi

Hence findings suggests that there is no significant difference between N L1 Revisions across multilinguals and bilinguals with Z = -0.416, (p>0.05) and no significant difference between C LI Revisions across multilinguals and bilinguals with Z =- -0.378, (p>0.05).

4.2.7. Embedded language insertions (EL insertions):

Table19: *Shows the mean and SD for EL insertions across different stimuli, & context*

context	gender		N.L1.ELin	N.L1.L2.ELin	N.L3.ELin	N.L1.L2.L3.ELin	C.L1.ELin	C.L1.L2.ELin	CL3.ELin	C.L1.L2.L3.ELin
Bilingual	Total	Mean	.0000	.0000			.0000	.0000		
		Std. Deviation	.00000	.00000			.00000	.00000		
Multilinguals	Total	Mean	.0000		.0000	.0000	.0000		.0000	.0000
		Std. Deviation	.00000		.00000	.00000	.00000		.00000	.00000

NOTE:

N.L1.ELin - narration Telugu monolingual context, N.L1.L2.ELin- narration bilingual context, N.L3.ELin- narration Hindi monolingual context ,N.L1.L2.L3.ELin - narration multilingual context

C.L1.ELin- conversation Telugu monolingual context , C.L1.L2.ELin- conversation bilingual context C.L3.ELin- conversation Hindi monolingual context ,C.L1.L2.L3.ELin- conversation multilingual context.

7. Mean and SD of EL insertions

From Table 19 it can be observed that the mean score for EL insertions in all contexts for both

bilingual and multilinguals.

CHAPTER V

DISCUSSION

The present study was aimed at analyzing the linguistic forms, extent and type of code switching and code mixing in Bilinguals and Multilingauls adults. The proficiency levels of the participant were assessed by International Second Language Proficiency Rating questionnaire (ISLPR;Ingram 1985). Two types of stimuli were included in the study (Narration & conversation). All the samples were recorded, transcribed and analyzed by using Matrix Language frame model. The seven constituents given in Matrix Language Frame Model (Myers-Scotton, 1992) namely; Matrix Language Islands (ML islands), Matrix Language +Embedded Language (ML+EL), Embedded Language Islands (EL islands), Borrowed forms, Matrix Language Shift (ML shift), Revisions, embedded language insertions (EL in) were identified. Accordingly, the seven constituents namely; ML Islands, ML+EL, EL Islands, Borrowed forms, ML Shift, revisions , EL insertions were identified and counted in two context (monolingual & bilingual) across two stimuli.

Hypothesis testing:

i. There is a significant difference in the performance of Bilingual and multilingual adults on code mixing and code switching task across different constituents i.e., Matrix language islands (ML Islands), Matrix language shifts (ML shifts), Matrix language + Embedded language (ML+EL), revisions, borrowed forms, Embedded language (EL Islands) in different stimulus condition(i.e narration /conversation and language)

   According to the results obtained, this hypothesis was accepted only for N L1 ML+EL between bilinguals and mutilinguals. There is significant difference for N L1 ML+EL

between bilinguals and multilinguls and no significant difference for other conditions. Between both these groups we could compare only in L1 language (eg: N L1 MLI, C L1 ML1, N L1 ML+EL , CL1 ML+EL and so on) because bilingual have L1,L1+L2 context , where as multilinguals have L1,L3,L1+L2+L3 context . The only similar condition among both groups is only L1. So L1 is compared across all constituent in different context (i.e, N L1 MLI, C L1 ML1, N L1 ML+EL , CL1 ML+EL same way for all the constituents).

More ML+EL are seen in L1 language. L1 is the mother tongue, in present days people mix languages in the daily speaking situation for purpose of communication. There is influence of 2nd language on the mother tongue as the individual get exposed to it every day in the society .so adapt this code switching and code mixing into their language

ii. There is a significant difference between the order of elicitation of constituent across context and stimuli in bilinguals and multilingual.

According to the above results, there is significant difference in order of elicitation for bilinguals and multilinguals.

Matrix language islands (MLI):

Matrix language Islands (ML Islands) are constituents consisting entirely of ML morphemes. They are well formed and show internal structural dependency relations i.e. they follow the grammatical structure of a particular language (Myers-Scotton, 1993). ML Islands represent an elongation of an utterance in one language.

In bilinguals ML Islands occurs more in narration Telugu monolingual .Telugu is the mother tongue and it is the monolingual context where individual stick to the grammatical structure of a particular language .Increased number of MLI indicate that there are less number of code mixing and code switching suggesting individual's proficiency in Telugu.

It occurs least in conversation bilingual context .In bilingual context individual tend to have the contact between both the language i.e. Telugu and English when they are speaking. In present days due to influence of educational background and society there is more influence of second language on the mother tongue. It has become part of the native language where individual use it every day activities for ease of communication

In multilinguals ML islands were observed predominantly in conversation Telugu monolingual context   Telugu is the mother tongue and it is the monolingual context where individual stick to the grammatical structure of a particular language .Increased number of MLI indicate that there are less number of code mixing and code switching suggesting individual's proficiency in Telugu   .These findings suggests that there is no significant difference in occurance of MLI between bilinguals and multilinguals in Telugu monolingual context . Least occurrences of MLI were observed in narration multilingual context because of language contact while speaking(i.e:Telugu+English+Hindi). In present days due to influence of educational background and society there is more influence of second language on the mother tongue. It has become part of the native language. people adapted this context for communication in day to day activities.The findings suggests that there is no significant difference in order of elicitation of MLI between bilinguals and multilinguals in bilibual/ multilingual context .

The study demonstrated the presence of more occurrences of ML islands in monolingual context. These results were in accordance to the views stated by Gumperz (1972). He stated that the switching occur very less in bilinguals, if there are short phrases and breakdown strings. He also said that natural units cannot be broken down when conjunctions go with the phrase alongside. There are more number of ML islands was observed in

monolingual context. Monolingual context provide the individual to produce more phrases of the base language this view received the support from the finding of Hakuta and Pease-Alverez, (1992), Anstrom, (1997), Hasson,(2006), Marian, Blumenfeld and Kaushanskaya,(2007) where these authors stated that interaction with family members posed to be one of the major contributor for attaining proficiency in L1.

Matrix language and embedded language (ML+EL):

Matrix language + embedded language are constituents where embedded language lexemes are inserted into the syntactic structure of matrix language. They follow the syntactic rules of the matrix language and any lexemes non-congruent rules of matrix language are blocked by a blocking filter as discussed by Myers-Scotton, (1993) and these would appear in embedded language islands. Matrix language + embedded language are thus signifiers of code mixing as they occur intra sententially. This constituent was formed by single lexemes from English.

In bilinguals occurrences of ML+EL were observed predominantly in conversation bilingual context. In bilingual context individual have the contact between both the language i.e. Telugu and English when they are speaking. In present days due to influence of educational background and society there is more influence of second language on the mother tongue. When speaking individual stick to the grammatical structure of native language(L1) but use second language words in that grammatical structure .This context has become part of the native language where individual use it every day activities for ease of communication .ML+EL occurrences were observed least in conversation Telugu monolingual context because monolingual context provide the individual to produce more phrases of the base language.

In multilinguals Occurrences of ML+EL were observed predominantly in conversation multilingual context because of the language and it if a free choice of communication. Individual has to be conscious to use only base language due to the interaction between the languages and influence of second language on the first language .These findings suggests that there is no significant difference in the order of elicitation of ML+EL between bilinguals and multilinguals in bilingual/multilingual context. . Least occurrences were observed in narration Telugu monolingual context because monolingual context provide the individual to produce more phrases of the base language. These findings suggests that there is no significant difference in the order of elicitation of ML+EL between bilinguals and multilinguals in monolingual context.

ML+El islands were more in bilingual context than in monolingual context. Single words were inserted more frequently than the entire clauses. A probable reason can be that single words such as nouns, verbs, and adjectives exist in both the languages and these are considered "categorical equivalents" by speakers of the languages involved (Muysken 1995).Gollan and Acenas (2004) proved that bilinguals have more tip-of-the-tongue states, caused by hesitant production and selection method due to cross lingual interference. Hence, the bilingual participants share the common grammaticality in both languages. Another supporting view point given by Heredia and Alterribe (2001) that language shift from L1 to L2 of same lexical categories, more accessibility in L2 because of the continuous exposure and usage.

Embedded language islands (ELI):

Embedded language Islands (EL Islands) are formed when syntactic procedures of embedded language are activated and those of matrix language are inhibited. Thus, embedded language

lexemes in embedded language Islands show embedded language morphemic order (thus cannot occur in ML + EL as they will be blocked by blocking filter) and include only syntactically relevant EL system morphemes as highlighted by Myers-Scotton (1993). Sometimes a single embedded language lexeme may trigger the formation of EL Island as highlighted in Trigger Hypothesis by Myers-Scotton in 1993. EL Islands are indicators of code mixing as they are produced intra sententially and obey the grammar of less dominant embedded language

In bilinguals occurrences of ELI were observed predominantly in conversation bilingual context because of language contact .Syntactic procedures of embedded language are activated in matrix language. Least occurrences were observed in narration Telugu monolingual context where syntactic structure stick to the base language in monolingual context.

In multilinguals occurrences of ELI were observed predominantly in conversation multilingual context as individual do not stick to the base. These findings suggests that there is no significant difference in the order of elicitation of ELI between bilinguals and multilinguals in bilingual/multilingual context. Least occurrences were observed in narration Telugu monolingual context because base language is used so the influence of second language is less. This finding suggests that there is no significant difference in the order of elicitation of ELI between bilinguals and multilinguals in monolingual Telugu context. In bilingual context, Gollan and Acenas (2004) showed that bilinguals have more tip-of-the-tongue states than monolingual speakers which are caused by hesitant production and selection processes due to cross lingual interference. Hence, it can be concluded that

formation of EL islands (for example, thirty five years back) is due to the trigger reaction to complete the utterance in English.

Borrowed forms (BF):

These are lexemes from one language integrated into the phonological system of the second language. In general, this is distinguished from lexical insertion that is Matrix Language + Embedded Language by the acceptability. If any lexical insertion was acceptable in monolingual vocabulary by two out of three judges it was taken as borrowed form. So utterances containing borrowed forms were considered as instances of Matrix Language islands without any code mixing and code switching. In bilinguals occurrences of BF were observed predominantly in conversation bilingual context. Least occurrences were observed in narration Telugu monolingual context. In multilinguals Occurrences of BF were observed predominantly in conversation Hindi monolingual context, least occurrences were observed in narration Telugu monolingual context. As borrowed forms are not code switched forms, these can appear irrespective of the stimuli. These participants employed the borrowed lexical items of the native language like cycle, bullet, aero plane, full, figure so forth.. Grosjean (1982) noted that when one culture is influenced by another culture by technologically, politically and socioeconomically, the language which is using also gets influenced. In the present study, more borrowed forms occurred in the form of nouns and adjective, because nouns were easy to borrow from English

Matrix language shift (MLS):

Matrix language shift (ML shift) is change in the matrix language in consecutive utterances or clausal structures preceded by a pause of two or more seconds or a change in pitch. Thus, it represents change from one language to another and is present only in Bilingual and

Trilingual contexts. Hence, it represents code switching, because it has a shift of languages intersentential

In bilinguals occurrences of MLS were observed predominantly in conversation bilingual context and least occurrences were observed in narration Telugu monolingual context .In multilinguals occurrences of MLS were observed predominantly in conversation multilingual context and narration Hindi monolingual context occurrences were observed to be zero in narration Telugu monolingual context, conversation Telugu monolingual context and conversation Hindi monolingual context. McNamara (1967) confirmed that switching takes evident time and that variation in switching time is not linked to the level of bilingualS

Revisions

Revisions consists of lexical insertions that do not contribute to the meaning of an utterance, including speech errors, restatements, and circumlocutions and thus, are indicators of word finding problems. In bilinguals Occurrences of Revisions were observed predominantly in narration Telugu monolingual context Least occurrences were observed in conversation bilingual context .In adults one cannot observe the variable like , stimuli, context, and order of elicitation in revisions since adults make appropriate word morphemes and sentence structure to mix in to other languages. Either through verbal cues (mixing and switching words) or nonverbal cues (pauses, ML shifts) .

CHAPTER VI

SUMMARY AND CONCLUSION

The phenomenon of code mixing and code switching becomes apparent in a person's language in present day activities to meet up every day needs . Code mixing and code switching are used when individuals when languages come in contact with one another when they are speaking. Therefore, the present study was aimed at analyzing the linguistic forms, extent and type of code switching and code mixing in bilingual (Telugu-English) and

multilinguals (Telugu-English-Hindi) adults. Objectives of the study were to study in detail the nature and level of code-mixing and code-switching using Matrix language frame model (Myers-Scotton, 1993). To compare the type and extent of code-switching and Code-mixing across the Bilinguals (Telugu-English) and Multilinguals. (Telugu-English-Hindi).To identify the effect of order of elicitation of code-mixing and code-switching in Bilinguals and Multinguals in different context. A total of 20 subjects were considered in the study. In that 10 Telugu Bilinguals (Telugu & English) and 10 Telugu Multilinguals (Telugu, English & Hindi). Each group will have 5 females and 5 males in the age range of 20-30 years.

 All were native speakers of Telugu language. The proficiency levels of the participant were assessed byInternational Second Language Proficiency Rating questionnaire (ISLPR;Ingram 1985).Two types of stimuli were included in the study (Narration & conversation). All the samples were recorded, transcribed and analyzed by using Matrix Language frame model. The seven constituents given in Matrix Language Frame Model (Myers- Scotton, 1992) namely; Matrix Language Islands (ML islands), Matrix Language +Embedded Language (ML+EL), Embedded Language Islands (EL islands), Borrowed forms, Matrix Language Shift (ML shift), Revisions, embedded language insertions (EL in) were identified. Accordingly, the seven constituents namely; ML Islands, ML+EL, EL Islands, Borrowed forms, ML Shift, revisions , EL insertions were identified and counted in two context (bilingual and multilingual) across two stimuli. The scores were considered in terms of percentage for all the constituents in two different contexts (bilingual and multilingual). The scores were tabulated and subjected to statistical analysis using Statistical packages for the social sciences (SPSS-17 version).

        The results indicated that all participants used code mixing and code switching to fill the lexical gaps in different discourse functions (narration and conversation). The variations in code

mixing and switching in terms of both frequency and type were observed. Code switching are observed both bilingual and multilingual context but when compared there is significant different across stimulus condition and order of elicitation is also seen for each constituent across bilinguals and monolinguals. Stimuli also played an important role in code switching and mixing. More number of switching and mixing constituents observed in conversation.

Implications of the study:

a. Importance of language variables in intervention purpose in Indian context

b. Theoretical understanding of bilingual/multilingual language processing in bilingual adults.

c. Language specific issues related to the nature, degree and extent of code switching and code mixing in cross lingual studies.

d. Clinical considerations of conversational discourse as stimuli consideration of age, cognition and linguistic demands while assessing the bilingual/multilingual persons with adult language disorders.

Future directions:

- One can study the comparison of code mixing and code switching between bilingual and multilingual persons with aphasia.

- Future studies can be focused on cross linguistic comparison of code switching and code mixing across different languages to know the extent and type of switching and mixing.

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Stimuli:

1. Narrative discourse (3 times recording) for bilinguals

- ✓ 1st condition- bilingual context (their daily speaking language)

- ✓ 2nd condition- monolingual Telugu context.

- ✓ 3rd condition- monolingual English context.

Topic for narration – instructed the participant to narrate on the following topics .

- ✓ Festivals :bilingual context , Shopping: Telugu context and Education: English context
  for duration of 5 minutes)

2. Narrative discourse (4 times recording) for Multilinguals

- ✓ 1st condition- multilingual context (their daily speaking language)

- ✓ 2nd condition- monolingual Telugu context.

- ✓ 3rd condition- monolingual English context.

- ✓ 4th condition- monolingual Hindi context.

Topic for narration – instructed the participant to narrate on the following topics.

- ✓ Festivals : multilingual context , Shopping: Telugu context , Education: English context
  and Hobbies: Hindi context for duration of 5 minutes)

- Hints were given for each topic before narration.

3. Conversation (3 times recording) for Bilinguals

- ✓ 1st condition- bilingual context. (their daily speaking language)
- ✓ 2nd condition- monolingual English context.
- ✓ 3rd condition- monolingual Telugu context.

4. Conversation (4 times recording) for Multilinguals

- ✓ 1st condition- multilingual context (their daily speaking language)
- ✓ 2nd condition- monolingual Telugu context.
- ✓ 3rd condition- monolingual English context.
- ✓ 4th condition- monolingual Hindi context

General conversation- (minimum of 3 -4 minutes).

Instructed the participant's to answer in sentences/ phrases without yes-no answers kind of response.

1. Name?
2. Occupation?
3. Qualification?
4. How many family members? What are they doing?
5. School/college name & where did studied? How was it?
6. School/college life incidence (i.e. any memorable events/bad experience)?
7. How many Best friends do u have? What are they doing?
8. What are your hobbies? If yes, why?

9. What is your favorite tourist place? Why?

10. What do you do in the early morning after get up?

11. What do you do in the evening time?

12. Do you have a habit of watching movies? If yes, what kind of movies?

13. What are your future plans?

Appendix 2

International second language proficiency rating (ISLPR, Wylie, 2006)

Name: Date:

Circle the number beside the paragraph which you believe most closely describes your level of proficiency

in Indonesian in Speaking, Listening, Reading and Writing.

SPEAKING

0	Zero Proficiency	I can't communicate anything at all in spoken Indonesian.
0+	Formulaic proficiency	I can communicate by using a limited range of simple stock Indonesian phrases I have learned.
1-	Minimum 'creative' proficiency	I communicate mainly with simple stock Indonesian phrases. I can be 'creative' (ie. say new things I have **not** learned as stock phrases) but any creative language consists of no more than, for example, a subject and verb with perhaps also an object or adverb, and I make many mistakes that most people have great trouble understanding unless the context makes it very
1	Basic transactional proficiency	I can communicate my basic needs and basic factual information in situations or on topics that are very familiar (eg I can conduct basic shopping transactions and outline such things as how long and where I have learned Indonesian). I can maintain a very simple conversation (satisfying minimum courtesy requirements) with a simple series of exchanges, using complete, though very simple sentences (generally consisting of a single clause). I make a lot of
1+	Transactional Proficiency	I speak Indonesian well enough to take part in simple social conversations in face-to- face situations with a background speaker. My language is 'creative' enough (see above) to allow me to interact as an individual, and complex enough to convey my simple opinions about familiar matters. I make a lot of mistakes and I often have great trouble coming up with the vocabulary and structures I need. I make mistakes in grammar, particularly when I am trying to

2		I speak Indonesian well enough to take part in face-to-face conversations with a number of background speakers and in telephone conversations describing familiar things and relating familiar events, and conveying my opinions fairly precisely 'off the cuff'. I use a range of complex sentences (eg with an 'if and 'because'). I often have trouble coming up with the vocabulary I need. I get frustrated in conversations about complex or abstract issues, because I can't express the things I want to, and I worry that other people may think I am ignorant. I use a variety of constructions with clauses but I make mistakes in grammar, particularly when I am trying to express more complex ideas (e.g. with an 'unless' clause). Beyond basic courtesy
	Basic social proficiency	
2+	Social proficiency	I am midway between the description above and the one below.
3		I can speak Indonesian well enough to substantiate my own and discuss other people's opinions effectively in conversations or unprepared monologues, although I can't pursue my 'argument' to great depths. I make mistakes, though these rarely confuse or amuse the listener. In familiar situations I can generally tailor what I say and how I say it to considerations such as the formality of the occasion and whether the person I am talking to is older or younger than
	Basic vocational proficiency	
3+	Basic vocational proficiency plus	I am midway between the description above and the one below.
4	Vocational proficiency	I can operate effectively in complex in-depth discussions or monologues in social and academic or work situations. My language is mostly accurate, fluent and appropriate to the situation. Someone might think I was a background speaker for a few moments, but they wouldn't be fooled
4+	Advanced vocationa	I am midway between the description above and the one below.
5	Native-like proficiency	I speak the language just as well as similarly educated background speakers do. There is nothing about the way I speak that suggests that I am not a background speaker.

LISTENING

0 I can't understand anything at all when I hear Indonesian spoken, however familiar the topic may be, and however slowly and carefully the other person may speak.

0+ I understand a limited range of short, simple things that I have often heard in Indonesian (e.g. basic personal questions, my own language teacher's basic classroom or tutorial instructions).

1- I understand a range of short, simple things that I have often heard in Indonesian. I can also understand some 'novel' (i.e. new to me) things in face-to-face situations, provided they are very short and simple (generally consisting of a single clause) and very predictable (e.g. answers to my own questions where the range of possible answers is very limited) and provided the other person uses gestures, and slow, careful speech, and is willing to re-word things in Indonesian to help me.

1 I understand very simple conversations in face-to-face situations with a background speaker of Indonesian, provided the topics are very familiar or have direct relevance to me (e.g. how long and where I have studied the language) and provided the other person uses simple sentences, speaks slowly and repeats or re-words things in Indonesian to help me.

1+ I understand simple conversations in face-to-face situations with a background speaker of Indonesian provided the topics are familiar or of particular interest to me. I can follow some complex sentences (e.g. with an 'if' or 'because' clause) provided the other person is willing to speak slowly and carefully. I understand just isolated bits of very simple news stories on Indonesian TV or radio.

2 I understand when I am participating in conversations with background speakers of Indonesian (face-to-face or on the telephone) about topics that are familiar or of interest to me. If I am **not** a participant in a

conversation (e.g. when I overhear people talking on a bus), I generally understand very little. I can get the main ideas of very simple news stories on Indonesian TV and radio on general (e.g. human-interest) topics, provided the newsreader is speaking relatively slowly.

2+ I am midway between the description above and the one below.

3 I understand almost everything when I am participating in social conversations with background speakers of Indonesian on fairly complex and abstract topics (e.g. the extent to which a government should subsidise sporting activities). I can generally follow a conversation I overhear between background speakers (e.g. on a bus) even though I can't understand some things that they say. I can use the telephone for most purposes and I understand most TV and radio news stories.

3+ I am midway between the description above and the one below.

4 I understand most things in the language, even things as difficult as complex radio documentaries with fast speech. However I tend to miss subtle plays on words or references to 'deep' aspects of the culture. I have difficulty with some accents.

4+ I am midway between the description above and the one below.

5 I understand the spoken Indonesian language just as well as similarly educated background speakers do. I understand subtleties and cultural references just as well as they do, and cope just as well when people speak very fast, mumble or have a heavy, unfamiliar accent, or when there is severe interference from background noises.

READING

0 I can't understand anything at all when I read the language, however familiar the topic, and however simple the text

0+ I recognise and understand a limited range of short, simple texts that I have often seen (eg the names of major cities, titles of familiar textbook, common street signs).

1- I recognise and understand a range of short, simple texts that I have often seen. I can get the essential information in some very simple 'novel' (ie. new to me) texts on very familiar topics provided they are very short (generally consisting of a single clause).

1 I get the essential information in short, very simple 'novel' texts (eg. notices and or advertisements for familiar events or products). I can follow short, very simple instructions (eg consisting of a set of several single-clause sentences) about things I am familiar with. I am lost with longer, more complicated text on less familiar topics.

1+ I get the essential information in simple texts on familiar topics where the meaning is clearly spelled out or where they are fairly predictable (eg circulars about routine events or simple personal notes addressed to me). If the notes are handwritten, the style of handwriting must be one I am familiar with, and the writing neat. I can understand some complex sentences (eg with an 'if' or 'because' clause.). I can follow short, very simple instructions (eg consisting of a set of several single-clause sentences) about things I am familiar with. I am lost with longer, more complicated texts on less familiar topics.

2 I get the essential information in simple texts on familiar topics (eg short, simple human interest stories from a daily paper and personal letters to me about everyday events). Handwriting must be in a standard style and neat. I may need to use a dictionary to help with unfamiliar key items.

2+ I am midway between the description above and the one below.

3 I get the essential information from straightforward texts such as general news stories in the daily paper and semi-technical texts in familiar fields (eg middle school text books in a subject I am interested in). I don't need a dictionary unless I want a full understanding of these (eg to do a translation). I can read short popular novels for enjoyment, although I need a lot more time than a similarly educated background speaker.

3+ I am midway between the description above and the one below.

4 I generally understand quite complex texts (eg editorials in an 'intellectual' newspaper and very detailed articles in my own field of interest) although I miss subtle plays on word or references to 'deep' aspects of culture. I read these texts nearly as fast as a similarly educated background speaker does. I cope with most forms of print and handwriting

4+ I am midway between the description above and the one below.

5 I understand the written language just as well as similarly educated background speakers do. I understand subtleties and cultural references and cope with non-standard or untidy handwriting just as well as they do.

WRITING

0 I can't communicate anything at all in written Indonesian.

0+ I can communicate by using a limited range of simple stock Indonesian phrases I have learned.

1- I communicate mainly with simple, stock Indonesian phrases I have memorised. I can be 'creative' (see SPEAKING) but any creative language consists of just, for example, a subject and verb with perhaps also an object or adverb. Even using a dictionary I make so many mistakes that most readers have great trouble working out what I want to convey unless the context makes it very predictable. I'm usually concentrating so much on the basic vocabulary that I can't worry about grammatical accuracy.

1 I can communicate my basic needs and basic factual information about very familiar things to a background speaker who is sympathetic and/or experienced in communicating with beginning learners of Indonesian. I can use complete, though very simple, sentences (generally consisting of a single clause). When I need to use more than one sentence to convey a message, I can't make links between the ideas in these sentences through language (with words such as 'however' or 'therefore') so I rely on the reader's knowledge of the context and ability to 'read between the lines'. Even using a dictionary I make a lot of mistakes, but I generally get my meaning across if the reader has good will and patience.

1+ I can write Indonesian well enough to conduct simple social correspondence with background speaking friends and to describe myself to a stranger such as a member of the community who has volunteered to be a language partner. My language is 'creative' enough (see SPEAKING) to allow me to interact as an individual, and complex enough to convey my simple opinions about familiar matters. Even if I use a dictionary, however, I make a lot of mistakes, particularly when I try to express more complex things (e.g. with

an 'if' clause) but I generally get my ideas across.

2   I can write Indonesian well enough to describe familiar things, relate familiar matters and to convey my opinions about them fairly precisely 'off the cuff'. I use a range of complex sentences (eg, with 'if' and 'because'). Even using a dictionary I make a lot of mistakes but I generally get my ideas across. I have limited ability to tailor my language as outlined below.

2+ I am midway between the description above and the one below.

3   I can write Indonesian well enough to substantiate my own opinion and to discuss other peoples' opinions, though I can't pursue my 'argument' in great depth. Readers generally follow the development of my reasoning, though it may seem quite 'second-language' in its organisation. Even when I use a dictionary I make mistakes, but these rarely confuse or amuse the reader. In familiar situations I can tailor what I write and how I write it to considerations such as the intended audience, my purpose in writing, and the type of text.

3+ I am midway between the description above and the one below.

4   I can write texts as complex as a major project report or a senior school history assignment. My language is mostly accurate and appropriate. Someone might think I was a background speaker after reading a few sentences but they wouldn't be fooled for long.

4+ I am midway between the description above and the one below.

5   I write the language just as well as similarly educated background speakers do. If I make any

mistakes, they are the sorts of mistakes that such background speakers make

Appendix 3

Definition of Matrix language frame constituents (Myers-Scotton), 1993; Munoz et al. 1999)

Constituents	Definitions
ML Islands	Well-formed constituents consisting entirely of ML morphemes demonstrating syntactic structure of ML.
ML Shift	Change in ML, in consecutive utterances of clausal structures.
EL Islands	Well-formed constituents consisting of at least two EL morphemes showing syntactic structure of EL which has been inserted into ML.
ML + EL	A single big EL lexeme (not a borrowed form inserted into the syntactic frame of any number ML morphemes
Borrowed Form	A lexeme from one language incorporated into the morpho-syntactic structure of the second language and is widely accepted by monolingual speakers of that language.

Revisions	Lexical insertions that do not contribute to the meaning of the utterance including speech errors, restatements, circumlocutions and are indicators of word finding problems.

Key: ML-Matrix language, EL- Embedded language.