An Adaptation of Bankson Language Screening Test in Hindi (BLST-H)

Project under AIISH Research Fund (ARF)
(2016-2017)

Principal investigator: **Dr. Brajesh Priyadarshi**

Co- Investigator: **Dr. S.P. Goswami**

Department of Speech Language Pathology
All India Institute of Speech and Hearing
Manasagangothri, Mysore-570006

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Principal investigator

Dr. Brajesh Priyadarshi
Reader in Linguistics,
Department of SLP & Head, Department of Material Development

Co- Investigator

Dr. S.P. Goswami,
Professor & Head, Department of Speech Language Pathology

Research Officer

Ms. Shilpa Nanjappa
SLP- Grade I
Department of Speech Language Pathology

All India Institute of Speech and Hearing
Manasagangothri, Mysore-570006

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CHAPTER I

INTRODUCTION

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1.1.Language and its components

Language encompasses conventional symbols consisted of various forms for thought and for communication. It is a complex process wherein every “normal” child is capable of acquiring any language to which they are exposed. Hence, when human interaction happens there are factors that are related which includes broader understanding of nonverbal cues, motivation, and socio-cultural roles (Owens, 1988). In the process of learning language, an individual must focus over learning the language components that are universal and defines the aspects of language in one’s communication. Additionally, there are several other features that may be exceptional to a number of languages. An individual grows by achieving the series of speech and language milestones; but if these are not achieved at the critical period, the language ability can be affected and leads to language impairment.

In Noam Chomsky’s view, humans are born with a unique mental organ that indeed is a "special gift" to the human species. Additionally, the mental organ or mind is surrounded with particular rules, constraints, and other structures that can be summarized by linguistic analysis. Thus, the relationship among individual sounds, meaningful sound units, and the combination of these units is specified by the rules of language, and these rules are described by at least five parameters which are phonology, morphology, syntax, semantics and pragmatics (Owens, 1988).

Before the general discussion on the basic components of language, it is important to enlighten the essential skills of human language that are tied with reception and expression development; wherein, it utilizes the basic structural components of language. These basic components of language are categorized in three interrelated domains: Form, content and use (Bloom & Lahey, 1978). Form refers to the arrangement and organization of sounds, words and sentences. It includes phonology, morphology, and syntax. Content

refers to the meaning within language. This includes semantics because it is a system of meanings. Use, precisely defines about how information being conveyed with the foundation of language in an individual. Thus, the study of these aspects provides a detail on the language use at particular social and conversational settings and these refer to pragmatics. Precisely, it is nowhere wrong to mention, the proficiency under each of these domains that in turn will be an achievement for the language development in a child. A child starts exploring the use of words in more and more complex structures until that parallels with the adult speech syntactically (Bloom & Lahey, 1978).

There is an impact of semantics, syntax, phonology, morphology and pragmatics on the series of language development. In the process of language development there are different stages occurring since from infants and thereafter it continues. Therefore, understanding the milestones of language is a must topic to be researched. As known under language acquisition, there are variable stages that occur in sequences and several researchers such as, Skinner in 1957, Piaget in 1971, Bruner in 1974 and 1983, Macwhinney in 1987, Tomasello in 2003, and so on has contributed their views on the topic of developmental pattern by introducing different models, theories and studies. Considering these entitled researches, it leads towards a necessity for gaining knowledge on the typical language development, which further contributes the next step towards the assessment and therapeutic management of children with language delay. Thus, for treating the children with communication disorders has been the role of Speech Language Pathologist (SLPs), where they are leading a role in providing them a better quality of life.

In fact, the professionals who are working as a team in providing treatment for children with communication disorder should have knowledge to differentiate these children from Typically Developing Children (TDC) population. Nelson (1973) has categorized the language disorders in to central (Specific Learning Impairment (SLI),

Mental Retardation (MR), Autism, Attention Deficit Hyperactive Disorders (ADHD)), peripheral (Hearing, physical and visual impairment), environmental and emotional factors (behavioral problems, emotional development problems). Hence, the evidences provided by several researchers (Skinner in 1957, Piaget in 1971, Bruner in 1974 and 1983) in the form of theories and models on language acquisition has directed many other researchers to develop language tools, which further assists an examiner in profiling the responses of a child in terms of their linguistic skills (word knowledge, rules of grammar and so on) and maintaining records of an individual's milestones with respect to their age. Thus, it is helpful in ruling out an individual with atypical language development. There are various test materials which are developed considerably to assess the linguistic skills among children, and these are varied according to age range, languages, language tasks, number of language components which are considered in a test material. An assessment tool is necessary for any Speech Language Pathologists (SLP). Considerably, the assessments are broadly of two kinds screening and diagnostic. Both equally act as a foundation towards the diagnostic and therapeutic management.

1.2.Language tests

There is a rapid requirement for assessing the linguistic skills in the younger population. This has been improvised over the years in parallel to the awareness/acknowledgement of delayed speech and language development in a child. There is a prerequisite to demarcate the children as early as possible. Assessment as a whole includes two forms, which are screening and diagnostic. Wherein, both the forms have an equal importance in terms of identification, classification, and diagnosis of any case with speech and language disorder. Thus, several assessment tools have been developed. The assessment tools are developed in both western and Indian context. These are detailed and listed in the later chapters.

1.2.1. Diagnostic and screening assessment tools developed in western countries

Including both diagnostic and screening tools there are various tools which have been developed; such as Picture vocabulary test by Ammons and Ammons (1958), Lera (1958) developed The Michigan Picture Language Inventory (MPLI), McCarthy and Kirk (1961) developed The Illinois Test of Psycholinguistic Abilities (ITPA), Dunn (1965) introduced Peabody Picture Vocabulary Test (PPVT), Test of Auditory Comprehension of Language (TACL) by Carrow (1973), Assessment of Childs Language Comprehension (ACLC) by Foster, Giddan and Stark (1972), Denver Development Screening Test by Frankenbrg, Dodds and Fundal (1970), Test of Syntactic Abilities (TSA) by Quingley, Steinkamp, Power and Jomen (1978) , Test for Reception of Grammar (TROG) by Bishop (1989), Test of Language Development (TOLD) by Hammill and Newcomer (1997), Bzoch and League (1970) developed Receptive Expressive Emergent Language Scale (REELS), Denver Developmental Screening Test (DDST) (Frankenburg, Dodds, & Fandal, 1969), Northwestern Syntax screening test (Lee, 1971), The Language Assessment, Remediation, and Screening Procedure (LARSP) (Crystal, Fletcher & Garman, 1976), The oral Language Sentence Imitation Screening Test (OLSIST) (Zachman, Huisingh, Jorgensen & Barrett, 1977), Fluharty Preshool Speech and Language Screening Test (Fluharty, 1978), Test of Early Language Development (TELD) (Hresko, Reid & Hammill, 1981), Developmental Indicators for Assessment of Learning-revised (DIALR) (Mardell & Goldenberg, 1990), Bankson Language Test (Bankson, 1990), The Wilson syntax screening test (Wilson, 2000) and so on. The details of these screening tools are discussed in later chapters.

1.2.2. Diagnostic and screening assessment tools developed in India

India is a multicultural and multilingual country. The languages utilized by Indian citizens are categorized with different grammatical structures and forms as compared with English. The same rule of language has been incorporated in plenty of test tools. In Indian context, the test batteries as in both for diagnostics and screening purposes are available such as A syntax Screening test in Tamil (SST) by Sudha (1981), in 1981 by Basavaraj a language test named Test for Acquisition of Syntax in Kannada (STAS- K) was developed and a parallel version was developed in Malayalam STAS-M (Thomas, Basavaraj & Goswami, 2012) and Telugu STAS-T (Gopikishore, Basavaraj & Goswami, 2012), Hindi STAS-H by Basavaraj, Goswami & Priyadarshi, 2009. A Language Test in Kannada by Kathyayini (1984), Three Dimensional Language Test (3D- LAT) by Geetha (1986), Linguistic Profile Test (LPT), Karnath in 1980 and in Telugu by Suhasini, 1987 and in Hindi by Sharma, 1995, adaptation of LPT in Tamil (Sunanda , 2017), A Screening Picture Vocabulary Test (KPVT) by Sreedevi, 1988 and in Tamil (TPVT) by Bhuvaneshwari (1993), Malayalam Language Test (Rukmini, 1994), Test of Pragmatics in Tamil by Priya (1994), Kannada Language Test (KLT) by Shyamala (2003), Comprehensive Language Assessment Tool for children (CLAT- C) by Navitha and Shyamala (2009), Language Assessment Remediation and Screening Procedure (LARSP): An adaptation and standardization in Hindi (Priyadarshi & Shyamala, 2013). The available Indian cognitive tools that assess the cognitive linguistic abilities and evaluates the perceptual skills among children are, Cognitive Linguistic Assessment Protocol in Kannada (Kamath & Prema, 2001), Cognitive Linguistic Assessment Protocol (CLAP) by Anuroopa and Shyamala (2006), Cognitive Linguistic Assessment Protocol for Children with Learning Disability (Kavya & Shyamala, 2007), Cognitive Linguistic Assessment Protocol in Malayalam: an adaptation of CLAP- Kannada (Lakshmi, 2010), CLAP-Hindi (Kumar & Priyadarshi,

2012). But they do have few limitations such as few of the tests consider only the comprehension skills to screen the child language milestone; few are developed with limited age range consideration, language restricted.

The above mentioned test batteries are the combined list of screening and diagnostic tools. After examining the above mentioned tests, it can be concluded that there are hardly any assessment tool, which deliberates the current growth of language milestones; and also, some of these tools were developed decades ago and presently the significance of these tests have been reduced due to early achievement of language milestones by today's children. Secondly, screening tools considering specifically an Indian context are scarce and the remaining tools developed according to the Indian context, are definitely applicable to diagnose an individual with language disorder; but they have their own limitations in assessing the wide aspects of language, few are for limited age range children, and less informative. The test which have been listed in the earlier section are basically language based tests; and if noticed there are negligible number of screening materials which could evaluate the language impaired individuals on the basis of their psycholinguistic and perceptual abilities. This put forth a requirement of a screening test material having both the parameters. This test material can be beneficial in terms of its simplicity, time consumption, informative, acceptability, reliability, validity, and appropriateness.

1.3. Significance of implementing screening test material

A screening tests is not a diagnostic tool to diagnose or evaluate a disorder, in fact it provides a quick reference to make a plan for further testing depending on its finding, helps in prevention of later language and learning problems and other associated problems, setting up rehabilitation strategies. Additionally, it has to be a tool with quick assessment,

scoring, and in time as possible. These qualities in a test material would serve to ensure that the screening is as evident and reasonable with limited time intense and easy to administer. Subsequently it is indeed to emphasize on the language components been assessed to analyze in depth and screen a child language age. Keeping these facts in mind, the present study was conducted focusing on the development of a screening tool, which is capable of targeting the individual's psycholinguistic abilities along with his/her perceptual abilities and hence can support in demarcating the individuals with normal or abnormal language milestones. One such screening tool developed in western context is Bankson Language Screening Test (BLST) (Bankson, 1977). Thus, keeping this tool as a source the present study focused on the adaption of BLST in Indian context to overcome the insufficiency of standard tools to asses various linguistic as well as the perceptual skills among early school goers.

1.4. Bankson Language Screening Test (Bankson, 1977)

There are important tests, which are available in Foreign and Indian languages and are used to assess various components of language in children. Most of these tests are useful in their own ways. However, these available tests assess only few components of language. Some of these tests focus upon *morphological rules*, some focus upon *syntactic rules* and some focus upon *semantic knowledge*; concentrating upon different languages. Along with these language components even the ability of categorization and discrimination skills are parallelly developed supporting the language development. Hence, the assessment of perceptual skill is equally required; and if a clinician has to assess the visual or auditory perceptions, examiner has to go for other tests.

BLST is capable of assessing all the above mentioned parameters, which qualifies it to be termed as a comprehensive tool to assess the psycholinguistic and perceptual skills in

children of 4-8 years age. However, in foreign language, some studies have been done using BLST; no such study has been reported in Indian languages; moreover, in Hindi language. To discuss on the topic of features of BLST (Bankson, 1977), it quantitatively defines an individual's growth in their psycholinguistic and perceptual skills. There are total five tasks namely, *semantic knowledge, morphological rules, syntactic rules, visual and auditory perception* and it could be surveyed in children in a relatively shorter period of time. It is particularly valuable for determining those language areas that are in requirement of further detailed analysis by a standardized diagnostic language test. BLST sufficiently provides a strong base to recommend further testing.

1.5. Need for the study

In the multilingual country like India, it is imperative to develop and validate tests in all languages. The availability of such tools in different languages and more so in Hindi language, will help in promoting the slogan 'Education for all'. In addition, these tools can effectively serve for children whose activity and participation is restricted due to language disorder; in early stages of schooling. The BLST has been utilized in various foreign languages but no such adaptations have been made in any Indian languages; thus preventing the use of this widely accepted test on Indian individuals with language disorders. With the availability of variety of such tools, speech and language pathologists and other professionals can obtain the complete profile of a language-disordered child, to make or confirm diagnosis so that directives for therapeutic intervention can be determined early. There is a scarcity of standard tool to asses various linguistic as well as the perceptual skills in Hindi speaking children. As the development of linguistic and perceptual skills are individualized processes and varies with language, dialect and

instruction, an urgent need is being felt to obtain normative data on such tests in Hindi for Indian population.

Additionally, most of the Hindi speaking children start to learn Hindi at home. However, their sequential acquisition of linguistic and perceptual skills remains unexplored. The present study is aimed at the adaptation of BLST in Hindi language. This test will assist better in making the clinician/practitioner's assessment choices more comprehensive and meaningful. The test will also help in the assessment of linguistic and perceptual skill deficits in children with language disorders.

1.6. Aims and Objective

The aim of the present study is to adapt BLST in Hindi language. Further, it is also aimed at achieving the following objectives:

1) To find the sequential acquisition of psycholinguistic and perceptual skills among Hindi speaking typically developing children (TDC) in the age range of 4 to 8 years.
2) Additionally, to find the gender effect during the period of acquisition among 4 to 8 years TDC.

REVIEW OF LITERATURE

CONTENTS

The human brain utilizes language as a representative device to accumulate information and to accomplish many cognitive processes, such as reasoning, hypothesizing, and planning. Additionally it serves a purpose of maintaining and establishing a social association and plays a significant role for all the successful communication in the entire lifespan. The communication can occur in the variable modalities, which could be in the form of visual, auditory, tactile, speech and so on. Among these modalities the major focus of the present research is to study the variable components of language in a child's speech in terms of both comprehension and expression. It is well known fact that, language is a crucial way used by individuals to communicate ideas, discover new information, and create and sustain social relationships. Language initiates from birth and it certainly changes at different stages of language acquisition. The growth of language in a child is 'mysterious' (Gleitman & Wanner, 1982) and 'magic' (Bloom, 1983). It makes a child to express their feelings, ideas and requirements in a socially accepted manner. The effort for language learning continues throughout our life span.

In a language there are different areas wherein, some are concerned exclusively with sounds; while others are found at different levels, such as word structure or sentence structure and so on. All the patterns in language that explicitly involves sound structure make up the phonology of a language; the patterns that involve sentence structure constitute the syntax which talks about how words combine into phrases, clauses and sentences, and morphology, that includes the study of all the pieces of words (roots, prefixes, suffixes, etc). The morphology and syntax of a language are together integrated to refer as morphosyntax or grammar (Genetti, 2014). A critical aspect of language that interacts with all of these levels is semantics, which is a study of words called lexical semantics and the study of how meanings combine in clauses and sentences called propositional semantics (Genetti, 2014). Children development of both receptive and

expressive language influences other domains of development (MacWhinney & Bornstein, 2003) particularly intellectual functioning and later literacy.

2.1. Influences on learning and development of language

Children are naturally disposed to communicate wherein the learning takes place through the interactions and experiences. This enables them to establish and maintain social relationships with others, to express and share their thoughts and feelings, to represent and to understand the world around them. During the stages of development, a child subsequently develops from uttering words and phrases to interacting with his/her surroundings by formulating his/her own intended meanings to communicate (Foster-Cohen, 2009).

Learning a language is crucially dependent on factors within learners. People do not learn a language, which is not available to them either in visual, auditory or in some other forms. As per the psychology and philosophy theoretical views *'A child learns and develops as a resultant of genetic inheritance or due to the influence of the environment that is nature or nurture'*. Therefore, it is nowhere wrong to state nature and nurture play a vital role in the language development (French & Murphy, 2005) and these further impacts on the social, emotional and cognitive development.

Since 1896 to 1934, Vygotsky has hypothesized language and communication at the heart of personal and intellectual development. Vygotsky believed that both cognitive and social development worked collectively and erect on each other and that learning directs development. Vygotsky developed the concept of the Zone of Proximal Development (ZPD) with a prominence on the importance of interaction among adults and peers in progressing children's knowledge. The ZPD is the space between the most difficult things a child can do alone to what a child can do with help. An adult or capable peer can act as a

scaffold to the child wherein adults observe children carefully to assess what is within each child's ZPD and plans curriculum that supports child's holistic development and emerging capabilities. Adults encourage conversations through questioning, humour and discussion.

Cognitive theory is the resultant of extensive research on the role of mental processing in learning. The cognitive view in language acquisition is completely credited to the work of Chomsky (1965), who proposed that language is not learned as a form of behaviour, it is acquired with a set of grammatical rules. Chomsky also hypothesized that the use of a Language Acquisition Device (LAD) by the children can enable them to create syntactically appropriate utterances prior to imitation and repetition. Chomsky's theory is often associated with the critical period hypothesis (CPH) that describes that a certain skill or knowledge is learnt at a certain time according to our genetic process schedule. If these qualities are not acquired at the specific time, it will be difficult or even impossible to acquire them later; thus, leading to delay in growth.

According to Piaget (1971), language is an extension of the biological organisation. This follows a series of accommodation of intellectual developmental stages (sensorimotor, preoperational and so on) during a child's learning process. Going with the Piaget's view, learning is neither intrinsic (coming from child) nor extrinsic (imposed by the environment) but it is through the child's interactions with the environment. This will be detail discussed in later sections. Egan (1997) offers a summary of the human formation of language. Some level of language development occurs naturally by children being brought up in a language-using environment, but fuller development of language and its associated intellectual capacities requires deliberate teaching.

As per Guasti in 2004, the knowledge of language was described with four hypotheses wherein, the first hypothesis was language is learned by imitation, which was disagreed by other researchers namely Gleitman and Gleitman in 1977, Guasti, Thornton and Wexler in 1995, and Thornton in 1990; by demonstrating that children go beyond their linguistic input and try to utter those things which they would have never heard. Hence, this facts point towards the conclusion that imitation does not play a crucial role in language acquisition. The second hypothesis was language is learnt through reinforcement; according to the researchers view, when children attempt to repeat other's utterances they often followed by a response from its surrounding through encouragement or an effort to keep the communication going (Lightbown & Spada 2006). Despite of this strategy the concepts of human acquiring language nor be comprehensively explained neither categorize linguistic competence (Chomsky, 1959; Lightbown & Spada, 2006). Following, the third hypothesis the language is learnt through association procedures called connectionism. It is a mental phenomenon that can be described by interconnected networks of simple and uniform units. Connectionism seeks to construct highly simplified models of the brain starting from the neuron and the synapse. As per them, language maintenance is organized in a neural network of nodes and learning occurs when those nodes are interconnecting in a new way. The ability to develop unlimited interconnections is what allows us to continue learning. In the last hypothesis, it was postulated that the language is learnt due to the innate mechanism. The importance of Universal Grammar (UG) is highlighted, which is said to be endowed at birth and that are responsible for the course of language acquisition.

Thus, whenever the first encounter of the infant with the external world happens, there have triple dimensions, which are cognitive development, grammatical development, and socialization. There is a parallel development of these triple dimensions, which indeed utilized in legitimate ways when required as growth progress (Shabina, 2013).

1) *Cognitive factor* is namely the first feeding ground for the acquisition of concepts that form the content of thinking. When a child moves around, he/she grows by seeing, hearing, tasting and manipulating greater number of things. This occurs earlier than the first integrated utterance, additionally the child initiates to express with their language and the mind of the child invariably finds development.

2) *Grammatical factor* lays the foundation of further language experiences. The child's cognitive family finds appropriate progress along with a level of knowledge. This knowledge is not only intellectual but also grammatical. As the child's verbal and non-verbal experiences (grammatical and cognitive experiences) develop, they obtain better mastery of their language.

3) *Sociological factor* is the third dimension, which characterizes the first social experience of the infant. Both understanding of the world around, and comprehension and production of language immensely contribute to the process of socialization in the child. The child's interpersonal unity with the members of their society finds intense as they acquire greater command over their language and deeper understanding of what goes on around them.

Discussing the current evidences on learning and development of language, Genetti in 2014 stated that first language acquisition has a foundation of three components and those are biological, cognitive and social. Language acquisition has a strong *biological* basis, which talks about the sensitive period, and role of left hemisphere in a human brain specialized for language. Secondly, critical *cognitive* foundations that refers to the role of

mental process in oneself. *Social* component is a third essential foundation wherein, a child needs to experience language use in interaction with others in order to acquire language adequately.

Going through the various evidences on the influential factors of language development it can be postulated that there are two completely different influential factors while language learning. In the formal, *nativist approach* and in the functional, *discourse-based approach* (Genetti, 2014). While nativist theory assumes that children need innate linguistic knowledge to acquire grammar. Discourse based theory or usage based theory assumes that children learn language from every day social interaction and the innate endowment of the child is considered to be human cognition, which has evolved along with human culture, social interaction, and communication, and therefore include cognitive mechanisms necessary for learning and using language. Language acquisition mechanisms that have been proposed include learning processes that are not necessarily specific to grammar or language, but rather comprise cognitive process and the formation of mental representations based on specific illustration of language use.

2.2. Evidences on the course of language acquisition

Researchers have assembled plenty of methodologies to uncover the mechanisms underlying the course of language acquisition. From 1877 until 1930, the main way that linguists could study the development of language was through the 'diary study'. Wherein, the parents or observers record the speech of their child on daily basis. Most of the diary studies were on syntax, and little researches were made on phonological development. A second period of study was carried out from 1930 until 1957. Wherein, the practice was of collecting large bodies of data on the abilities of children at a certain age period. Instead of data on a single child, short samples of speech from large numbers of children across

different ages were taken. Such methods were the first systematic attempts to study development. The change was towards linguistic analysis. Instead of just looking at the utterances of the child, the attempt was made to understand what the rules were occupied that produced as output (Matthews, 1996).

According to Matthews, 1996 the child's linguistic development begins from the very first day after birth. Linguistic development continues after the age of 5 in the development of more complicated structures. Further development is in the area of cognition. Thus, cognitive capacities are observed at the puberty stage. Introspection about the structure of language is not possible until after the age of five. This growth of variable skills that occurs at a particular period forms to be broader area of research. The following section highlights the stages of linguistic development.

2.2.1. General stages of linguistic development

As revealed earlier, the growth of language happens from the very first day after birth, the growth occurs in variable stages or period, which is equally important in a child's growth. In fact at each stage of linguistic development, a child perceives one or the other language which encounters normal language development. This section uncovers the list of stages of linguistic development as listed by Matthews, 1996.

2.2.1.1. The pre- linguistic period

From birth to about 1 month, the child produces sounds, which are stimulated by their physical state. They are still able to convey several different kinds of information. Temporal characteristics of crying patterns convey the information that enables babies to make their needs known. The levels of development at this period is listed in Table 2.1

Table 2.1: *Levels of development in pre linguistic period*

0;1 months onwards	The growth begins with a mother child bonding wherein; a child makes a cooing sound in response to pleasant sociable communications. Early interactions between mother and child will directly show its impact on the child language learning at later stages of linguistic development.
0;6 – 0;9 months	Continues with emergence of babbling or echolalia stage, baby reproduces vowels and some consonants. The baby is therefore no longer restricted to the simple vocal patterns and start training themselves with linguistic skills. Parents provide a social outline for their child with scaffolding.
0;9 months	This period is often called the Jargon period where the strings of utterances are produced, which have the intonations but lacks in meaningful sounds. At this period a child appears to understand what is being instructed and they could follow the simple instructions. Further, they achieve another useful skill called turn taking
1:0 year	At this stage, the mother continues to build repertoire by expanding and rephrasing the babies babbles into words. Hence, babies learn to use words while naming people or objects consistently. They often condense the meaning of words and create variations in the meaning of the word by intonation, context, gesture and volume. Resulting in a richer form of expression.

2.2.1.2. The holophrastic period

This period is also termed as single word phrase stage. Starts at around the age 1:0 year and ends at about 1:6 years. The only verbal means of communicating is through the use of single word sentences. The child will be able to convey in excess of one meaning by a single word, and this are the words called holo-phrases. At this holophrastic stage pronunciation improves additional to the vocabulary which consists of a large percentage of noun and object words. There are some relational words but they do not form a large part in a language of a child until the telegraphic period. The kinds of relational words which are used are normally like ’up’, ’no’, or ’more’. At this stage they may start to infer many more facts about the content of sentences and the meanings of words which imply an increased comprehension of adult speech.

Graham and Kilbreath (2007) stated that children around 14 months are able to use gesture along with words and at 22 months they rely on speech words like to indicate negations, possessions. In a child at the age of 1:6 year has a growth in vocabulary at an exceptional rate. The words are accumulated at a rate of around 15 words per day. From 1:6 to 1:9 years the vocabulary expands from around 20 words to 200 words. Most of the vocabulary at this stage consists of naming nouns particularly of objects in their environment. According to Nelson in 1973, the acquisition of noun is before than the acquisition of other grammatical classes.

2.2.1.3. The telegraphic period

This is the period during which function words are added to the multiword sentences. The words that are used to convey the meaning are more. This is termed as telegraphic because of using short and incomplete function words. It occurs between the ages of 1:6 to 3:0 years. The kinds of words that are likely to be omitted are article, prepositions, pronouns and auxiliary verbs. Young children inclined to follow the same approach even in their imitations of adult speech. The reasons encountered for such strategies were assumed to be due to the limitations in a child's memory capacity but as researchers noticed that children were capable of producing 3, 4 or even 5 words in their telegraphic sentences hence, rejected the assumptions.

Brown (1973) analyzed the telegraphic speech of children from several countries and enlisted the semantic grammar, as depicted in Table 2.2, its showing an analysis of the semantic relationships (meaning) in a child earliest sentences. In telegraphic speech a child generates short sentences by choosing to omit the words that do not contribute much towards the content of the sentence.

Table 2.2: *Common categories of meaning (semantic relations) expressed in children's earliest sentences*

Semantic Relation	Examples
Agent + Action	mommy go; mommy sit
Action + Object	drive bus; eat apple
Agent + Object	Daddy sock; baby toy
Action+ Location	go playground; sit chair
Entity + Location	cup plate; toy floor
Possessor + Possessed	my doll; daddy dress
Entity + Attribute	box small; pencil big
Demonstrative + Entity	that car; this phone

As per Yule (1996) the progress in linking words together to an utterance leads to form a sentence which are with a right order of the elements but in spite of this growth this could not be considered as a sentence yet (Crystal 1997). There is an improvement towards the pronunciation that resembles of adult language. There is a parallel growth occurring along the child age and their vocabulary by using a higher level of vocabulary, an increased consciousness of the correct grammar, understanding underlying meaning and so on (Yule 1996). Valian (2006) showed that even 2-year-old children can distinguish past from present when it is expressed in a copula verb; that is, they can correctly differentiate 'the bear was on the chair' and 'the bear is on the chair'. Children also distinguish the future tense from both past and present tenses by the age of three years (Weist, Atanassova, Wysocka & Pawlak 1999, Wagner 2001).

2.2.1.4. The complex period

This is the period of appearing grammatical markers. The preschool period from 2 – 5 years embarks a period of rapid growth in all areas of language. Typically developing children acquire their language skills with two word utterances at two years of age, and continues to produce lengthy sentences that contain information about the past and the future by five years of age. At around 24 months, a child's vocabulary consists of

approximately 200 – 300 words and grows to be 2000 words by 5 years of age. They master most sounds by 4 years of age. By 3-4 years, children are seen to develop pre-suppositional knowledge and are able to adjust their views accordingly (Owens, 2009).

It also seems that children in the post-telegraphic phase employ processing strategies that are designed to maximize their chances of finding the new grammatical morphemes. They will pay more attention to the ending of words. Thus, they find suffixes easier to learn than prefixes. They will also tend to look for regularities in the language. Growth happens towards the grammatical morphemes, certain of the transformational rules that children use to convert declarative statements into questions. In English, people learn to transform declaratives into wh-questions by placing a wh-word such as who, what, when, where, why and how at the beginning of the sentence, then inverting the order of the subject and the auxiliary verb.

The strategy for producing negations is very similar to the rule for wh-questions. At the initial stage negating word such as /no/ or /not/ are placed at the beginning of the sentence. Followed with a second stage wherein they modify the negative markers and place within the sentence next to the word stem. Eventually at the third stage the child combines negative markers with auxiliary verbs to negate affirmative sentences in much the same way as adults do.

Preschoolers express variety of sentence forms such as negative sentences which are acquired first followed by interrogative and imperative sentences. Preschoolers understand what and where questions first followed by who and what questions where as questions with why, how and when are acquired later (Deepa, Shyamala, and Deepthi, 2013). By the age of 5 or 6 years the language is very much like that of an adult. Children acquire a working knowledge of the principles of grammar. Child starts to appreciate relational contrasts such as big/little, tall/short, in/on, before/after, here/there and I/you and

so on. The brief description of language acquisition in complex period is depicted in Table 2.3.

Table 2.3: *The growth of syntax, morphology and semantics skills during complex period*

Age (in months)	Syntax and morphology	Semantics
28	Mastery of present progressive morphemes (*-ing*)	Overgeneralization of new words Interpretation of new words
32-36	MLU: 2.85-3.16 wherein 25% consists of single verbs and 25 % of all utterances consists of single nouns	Comprehension of 900 words Expression of 500 words Producing simple questions
36	MLU: 4-5 words Expression of compound sentences using with, and	Expression of they, them and us pronouns, Fast mapping of new words
40	Expresses pronouns consistently, adverbs of time	Vocabulary of 1000-1500 words
44	Expresses articles, past tenses	Comprehends kinship terms, narrows the meaning of words using syntactic information
48	MLU: 4- 7 words Irregular third person verbs Contractible and uncontractible auxiliaries	Overextension of new words, Production of reflexive pronouns (himself, herself, itself)
52	Expresses subordination and coordination in sentences irregular plural forms	Expresses what do, what does, and what did questions
56 – 60	MLU: 5-8 words	Vocabulary of 1,500-2000 words and comprehends 2500-2800 words Express deitic terms (this, that, here, there)

(Sources: Matthews, 1996; Brown, 1973; Fisher, 2002; Volterra, Caselli, Capirci, Pizutto, 2005)

Bellugi (1967) found that syntactic structures follow a developmental pattern. Children first use the negative sentences modality in which the word *no* appears in the beginning of the sentences; followed by next to the main verb. By age of 4 years negation is used in auxiliary form which approximates adult syntactic form (Brown, 1973; Hlit & Howard, 2005). Justice and Ezell (2002) compared the syntactic structures of toddlers and

preschoolers. It was noticed that preschoolers were significantly advanced in using complex sentences. Their syntactic constructions shift from simple declarative 'subject + verb + object + adverb (*Mohan playing the game outside)* to subject + verb + complement + adverb (*Mohan is playing now)* then to subject + auxiliary + verb + adverb (*I am playing now).*

Befi- Lopes, Rodrigues, and Puglisi (2009) studied about the number of morpheme acquisition in typically developing healthy children for the age range of 3-6.11 years. Total 64 children participated in this study. The study was conducted by evaluating the morpheme number processing. Two tasks were conducted, comprehension and expression of singular and plural. Results showed that there was an increase of correct answers with increase in age. The production of the plural form received the lower scores, but presented a significant enhancement from 3 to 5 years. The plural productively was 37.5% at 3.0 years, 57.9% at 4 years, 80% at 5 years, and 88.2% at 6 years. For singular production, majority of children produced from the age of 3 years. The ability improved with development of age and was considered productive after 5 years.

Prepositions start appearing in a child language by the age of two years (Tomasello, 1987). It has been noted that children in the age of 3 – 3.6 years have confusion in understanding post positions. However, by 5 years they develop the skill of using it correctly and efficiently in their communicative utterances.

2.2.1.5. The intuitive linguistic period

Although most of the language has been learned in the period up to age of 5 years; there are still many linguistic skills to be learnt and this growth happens from the 6 years and above age. Children use larger words with complex sentences with a further

development in the capacity of thinking about language itself in a way, which was previously impossible. This is the so called “linguistic intuitive” period.

There is later syntactic development after age of 5 years, personal pronouns are still not used properly and they are refined from the age of 5 to 8 years. After 6 years children tends to produce “tag” questions. Tag questions are placed at the end of declarative sentences, e.g. *“she will go, won’t she?”* Children are able to express and interpret passive sentences in an enhanced way (Mclanughlin, 1998).

Children associate words thematically during preschool and beginning of the school age but there will be taxonomic shift in the later school years wherein they organize words taxonomically based on super ordinate and subordinate classifications. A study on conceptual development among eight groups of 12 children in the age range of 3–15 years and 6 months using picture pairings was carried out, and it was found that 3-year-old children were able to explain 92% of thematically paired items and 25% of taxonomically paired items. Hence, the development of conceptual preference for complementary and taxonomic relationships evolves from a thematic to a taxonomic type of organization, and it has been reported that preschool-age children have a conceptual preference for thematic over taxonomic relations (Greenfield & Scott, 1986). Children form mental representations of their experiences and events that indicate an interaction between actions and objects (Nelson, 1986). A developmental progression was noticeable in the categorization ability of children (Thompson, 1941; Reichard, Schneider, & Rapaport , 1944). Considering such progression, in most of the studies it is stated that the association of concepts develops thematically first and then progresses toward taxonomic relations (Obsborne & Calhoun, 1998; Thompson, 1941; Nanjappa, Sebastian, & Deepa, 2016).

Most of the complex syntactic skills are achieved during school years wherein they start developing advances in grammar structure, which include skills like complex verb phrases and this advance, is related to the complexity of their caregivers' syntax (Vasilyeva, Waterfall & Huttenlocher, 2008). Children metalinguistic skills improve dramatically during school years and they do not exhibit until 6 – 7 years of age. During toddler and preschool period children correct words, makes or substitute words, reject difficult words and modify their language based on the listener. Children at this stage have word awareness wherein they understand words are flexible in their meanings and change according to the context and situations. Hence, ambiguity within a word and sentences will emerge in the school age (McLaughlin, 1998).

2.2.2. Evidences in Indian literature

There are few evidences available and documented in the Indian literature, which further indicates the growth of an individual in terms of their linguistic and cognitive skills. Many studies, on the language components and its effect have revealed reliable results that quick processing in their expression and understanding happens with respect to an individual's age. Many studies have been carried out to investigate the acquisition of language by investigating the growth of language components across ages in both typical and non-typical population. The evidences are discussed in the below paragraphs.

Geetha (1986) conducted a study with an objective of obtaining normative data for language acquisition using informant interview approach. This was done among 90 children who are in the age range of 9 months to 36 months. Three items were assessed namely, reception, expression and cognition. In results, a parallel relation between scores and age was found, overall the performance of all the age group across genders were not

significantly different but only at the age of 22 – 28 months the rate of development in language was higher than the boys.

A Screening Picture Vocabulary Test in Kannada was developed by Sreedevi (1988). The aim was to develop a screening tool which assess the vocabulary age of 120 children, who are in the age range of 3 to 4 years, 4 to 5 years, and 5 to 6 years. The task given was to name the 30 picture plates. In results, there was an evident statistical significance across age groups, and found a developmental trend in their vocabulary size as a function of age. Furthermore, they studied the gender effect, where it was found that at the age of 3 to 5 the performance of males were better than the girls and at later stages it was vice versa.

Similar test in Tamil was conducted by Sunanda (2017) by implementing the major components (phonology, syntax and semantics) of language as LPT (Karanth, 1980). The aim was to establish the normative data of language acquisition among children of 6 to 15 years. In results, syntax section was having the lowest scores until the last age group hence, this was found to be difficult. The phonology task was found to be performed better followed by semantics and least in syntax. In syntax, from age of 8+ there was a significant progress. The result was in concurrence with the findings of Karnath, 1984; Asha, 1997; Sharma, 1995.

Assessment Battery for Children with Language Learning Disability (ABC-LLD) - Phase II was developed by Shanbal, 2010. For this study 90 TDC were assessed who were in the age range of 3-4 years, 4-5 years, and 5-6 years. The items assessed were listening skills, phonological awareness, reading skills, written language skills and oral language skills. In results it indicated that for all the tasks there was an improvement across age group and additionally significant difference was found in the age group 3-4 years and 4-5 years, 4-5 years and 5-6 years, 3-4 years and 5-6 years. Equivalent results were found for

oral language skills. In semantic task, the performance for receptive skills was better than the expression skills. In morphological task, significant difference was present in 3-4 years and 5-6 years and 4-5 years and 5-6 years, but was not found between 3-4 years and 4-5 years. In morphological task, similar trend was observed with a significant difference across all age groups except between 4-5 years and 5-6 years. Additionally, it was documented that semantic and morphological skills are developed prior the syntax skills.

Prema in 1979 conducted a study to evaluate few aspects of language among Kannada speaking children in the age range of 5 to 6 years. Total number of four children was selected and their speech samples were recorded for one hour in three successive days. The task implied was a spontaneous speech, which was completed through story narration. Those spontaneous speech samples were studied on the syntax aspects and classified their response on the basis of declarative, negative, interrogative and imperative and also into co-ordinated and pronominalized types. The inferences documented were that the 5 -6 year old children has sentence structure that resembled with adult forms, they found having free negation but these were not yet mastered. Additionally, this age group children were found to be having basic interrogative markers in yes/ no, wh type questions in their speech samples; along with an absence of tag questions, absence of noun pharse and verb phrase conjunctions. Moreover, gender effect was not evidently observed.

Roopa (1980) studied the similar aspect in Hindi language. Hindi syntax patterns were assessed among 4-5 years aged Hindi speaking children. To study the syntactic patterns the spontaneous speech samples was recorded for one hour followed by classifying those into declarative, negative, interrogative and imperative. In findings, it was documented that the sentence structures are similar as of adults but lacks in noun verb agreement, word negation, adversative, conjunctive coordination. Hence, a developmental trend was found and there was no gender effect. Similar findings was found in a study

conducted by Basavaraj (1981), attempted to study the same aspects among Kannada speaking children. It was noticed that at 2-2.6 years the occurrence of negation /illa/ occurs, at 3.6 years the negation /beda/ occurs and later at 3.6 years few markers like /kolde/ and /a:gde:iro/ continues to emerge.

Basvaraj in 1981 conducted an Indian study, which was focused on studying the acquisition of syntax among 85 Kannada speaking children in the age range of 2 – 5 years. The tool was developed in the need of testing the level of syntax among one to five years Kannada speaking children. To develop the test material called TASK information on the grammatical categories and sentence types was firstly analyzed through the spontaneous speech samples of 32 children. In TASK there were total 19 sections consisting of series of sentences, pictures and toys. Through administration, it was concluded that there was a systematic development of grammatical structures and sentence types across age, children till 3.6 years scored better in comprehension than expression, and the gender difference was observed in the performance where girls in the age range of 2 – 3 years performed better than boys and later boys performed better but similar as girls at around 5 years of age. It was also found that until the age of 3.6 years, the comprehension of language was prior to the child's expression skills.

English language test for Indian children (ELTIC) was developed by Bhuvaneswari, 2010. This test was implemented to assess the semantic, syntax and morphology in child. Total 80 children were included and were divided in to 4 age groups (4 to 4.6 years, 4.7 to 5 years, and 5.7 to 6 years). In results, they found better performances as age progressed, in semantic knowledge task comprehension was better than the expression and this task was documented to be scored higher than the syntax and morphological rules. In semantic knowledge, across age groups opposites were scored consistently lower and nouns, verbs were scored consistently higher. In morphological rules, pronoun expression was lowest

than the verb tenses and plurals, comparatives and superlatives. In syntactic rules, there was a developmental trend across ages and among the two subsections, subject verb agreement/ negation and sentence repetition and judgement of correctness it was documented that subject verb agreement/ negation and sentence repetition was performed lowest than the sentence repetition and judgement of correctness but not significant.

Rukmini (1994) reported evidence on the development of syntactic and semantic ability among 4-7 years Malayalam speaking children. Malayalam Language Test was developed and assessed on 90 children falling under 4 to 7 years. The overall findings were documented saying an improvement in performance as age progressed, better performance in comprehension of semantics and syntax than the expression, syntax was comparatively higher than semantics, in result, it was concluded that as per the sentence structure, the noun verb agreement was not stabilized and causative verbs were deviant in 4-year-old children.

Sharma in 1995 conducted a study to establish the normative data on Linguistic Profile Test (LPT) in Hindi. It was studied on 200 participants falling under 6 – 15 years. The participants were chosen were school going individuals. The LPT has three sections namely, phonology, semantics, and syntax which equally assess the comprehension and expression of the enlisted language components. As per the findings of each language components, the phonology skills were developed almost by 6 years. In syntax, the grammatical judgement was achieved at 6 to 7 years and the study also stated that the growth continues until 12 to 14 years of age. In semantics, the performance was better for semantic discrimination than the semantic expression, additionally there was a better scoring for the item colour and furniture than the body parts across the age group and improved in the age group of 12 years. The performance in expression of antonyms, polar questions, semantic anomaly, paradigmatic and syntagmatic relations, semantic contiguity,

and semantic similarity progressed along with age. In negation, the negative marker /nahi/ was in preverbal position in a sentence. Hence, the complete growth in semantic and syntax skills was not mastered until the age of 15 years.

The tool for assessment of both language and cognition was designed by Navitha (2009) by considering of 3-6 years typically developing children (TDC). The study was conducted amongst 150 TDC. For the development of the tool called Comprehensive Language Assessment Tool the reception, expression and cognition sections were considered with six items in each accordingly. After statistical analysis, it was concluded that there was no gender differences, resultant as better performance for expression particularly in the older groups than younger groups. It was stated that there was no significant difference among genders and the performance of children increased as a function of age. Additionally, it emphasised on the fact that reception, expression and cognition has a parallel growth. It was also stated that there was a significant correlation between language and cognition.

Tool for Assessment of Communicative Competence in Kannada (TACCK) was developed by considering 2 to 3 years Kannada speaking children. The objectives were evaluating the prelinguistic, linguistic, communication and adaptive skills of these age group children. The manual prepared was divided as pre receptive, early receptive and receptive skills under receptive domains which were having 14 sections and same was prepared under expressive domains and this was having 16 sections. In result, it was documented showing a progress for each group increase. By 2 to 3 the pre receptive, early receptive, pre expressive, and early expressive were completed (Sreejyothi, 2008)

Meta-semantic Awareness in Children in Kannada (TAMACK) was developed by Saranya, 2012. This test material assessed 180 TDC Kannada speakers. 60 participants were included who were belonging to the age group of 8 to 10.11 years (8- 8.11 years, 9-

9.11 years, 10-10.11 years). In this test manual there were 15 test items (analyze a sentence into lexical units/words, free word association task, word concept awareness, free word association, synonyms, antonyms, homonyms, identify the grammatical category, semantic anomaly, paradigmatic and syntagmatic relations, semantic contiguity, define a word, lexical arbitrariness) and among those items 1 to 13 items were elicited on the basis of judgement and revision and 14, 15 were elicited through generation. In results, a developmental trend was found along with significant differences. However gender difference was not revealed except for the revision subtask (synonym and homonym). Among the tasks, judgement task was better and easier than revision task. Additionally, it was stated that even at the age of fifth grade the meta-linguistic skills were not mastered.

Basavaraj, Goswami & Priyadarshi, 2009, developed a Hindi screening tool named Screening Test for Acquisition of Syntax (STAS-H). This test material has 16 subsections with 89 items. The aim of the study was to assess the syntactic development of 2- 5 years children. The study was conducted on 160 children belonging to the age range of 1 to 5 years. In results they found a developmental pattern across the age groups. Comprehension scores were comparatively better than the expression scores. By 2 years of age the children were found understanding post positions, negatives, tense markers, case markers and among all the subsections the comprehension of gender and number markers were found to be difficult before the age of 4.5 years.

Computerized Linguistic Protocol for Screening (CLiPS) was developed by Anitha (2004). It was conducted with an aim of studying the acquisition of linguistic accepts and also the gender differences among 60 participants of 3 to 8 years (3 male and 3 female). For a task there were 664 picture cards which were categorized as semantics and syntax. There were 22 categories that were assessed for this study. In result it was documented that by below 3 years, body parts, vehicles, case marker in and no was achieved, by 3 to 3.6

years case marker ‘by’ was achieved, by 3.7-4.0 years names of animals, dresses, house and furniture, in syntax interrogatives, intransitives, quotatives, case markers (To and Possessive) was achieved, by 4 to 4.6 years utensils name, case marker (with), 4.7 to 5 years syntagmatic relationship, PNG markers and conjunctions are achieved, 5 to 5.6 years children were achieved with colours, flowers, birds, antonym, semantic similarity, affirmative, negatives, conditionals, and comparatives. By 5.6 to 6.0 years polar questions, semantic anomaly, contiguity was achieved. By 6 to 6.6 years names vegetables were achieved and in two age groups (7 to 8 years) person, insects, paradigmatic relationship, plurals, participial constructions, flowers and tenses are achieved. Additionally comprehension abilities were better and there was no gender difference.

Receptive and Expressive Language Test was re-standardized by Deepa, Shyamala, and Deepthi, 2013. For assessing the comprehension and expression abilities of 480 Kannada speaking typically developing children in the age range of 3 to 7 years of age. This test was used for screening purpose, which profiles the reception and expression language domains. The findings of the study were similar to the previous studies, it was noticed that as age increases the growth of comprehension and expression skills also develops with an upgrade in the receptive skills than their expressive skills. The growth was observed variably across ages. At the age of 3 to 3.5 years, children were able to express ‘wh’ questions. By the age of four years, they developed with the concept temporal aspects, prepositions, tense forms and PNG markers. Following, a growth in the categorization of lexical items, comprehension of complex conjunctions, opposites, irregular pronouns and complex prepositions and stories was developing at the age of five. The growth of syntagmatic and paradigmatic relations and naming up to 6 to 8 colors started at the age of six. By age of 8 years, they initiated expressing the complex negatives,

compound sentences and comparing- contrasting pictures. Additionally, there was no gender difference across the age groups.

Priyadarshi & Shyamala (2013) documented a study on morpho- syntax of Hindi. LARSP-H test material was developed with an aim of assessing the child's morphosyntactic skills. A total 175 TDC (97 boys and 78 girls) were selected and grouped in 6 stages. stage I (0;9-1;6 years), stage II (1;6-2;0 years), stage III (2;0-2;6 years), stage IV(2;6-3;0 years), stage V (3;0-3;6 years), stage VI (3;6-4;6 years). 15 minutes of conversation was collected as a part of judging the individuals morpho-synatx. In results, at stage 1 the children MLU was one word level, usage of clausal (subject verb, subject noun, and element verb) and phrasal structures (noun-noun) were began, nouns and verbs was only the form observed. At stage II, element question, subject complement, object- verb, complement verb, element negative, adverb- element, subject- object- verb, verb element under clause were found, in phrasal structures, determiner noun, adjective noun, noun postposition, verb, verb part, intensifier word, determiner- adjective- noun were appeared. In third stage, indirect object- direct object- verb, adverb- complement- verb, subject- adverb- verb, element- negative- element, subject- adjective- object, adjective- object- verb, subject- object- verb, object- adverb- verb, subject- complement- verb, subject- element- verb, verb element (VX), another element- one element- verb (YXV), subject- element- verb [S(X)V], verb element, element- questions. Additionally, adjective- noun, intensifier element, adjective- adjective- noun, pronoun- other, copula, determiner- adjective- noun, auxiliary- modal clause. At stage IV, more than one subject, subject- question- verb, subject- element- verb, tag, element- adverb- adverb- element, subject- object- complement- verb, noun phrase- noun phrase- postpositions, coordination- element, element- negative, verb- negative, element- coordination- element, post modifying phrase one and more than one were appeared. At stage V, there was a growth in the statement type

of clause and additionally the development of coordination and subordination was found. At stage VI and stage VII, there was a major appearance of initiator, coordination and complex verb phrases structures than the passive clausal and complements. At last stage, there was a discourse level of growth by showing adverbial connectivity, comment clause, and emphatic order.

To conclude, language acquisition in children has been studied applying various language assessment procedures in which few were longitudinal, cross sectional, observational and experimental. As the focus of the present study is to develop a test material which assesses the language growth among individuals; therefore, it would be essential to have a review on some of the available test materials. The description of test materials is tabulated in the Table 5 and 6 in terms of name of the tool, year published, age being assessed, language aspects been focused.

2.3. Language and cognition

Cognition is the collection of mental process and an act of using a process while perceiving, learning, remembering, thinking and understanding. The language has broadly two major functions that is communicative and cognitive. Their role in communication has been discussed so far now. The major role of cognition in language is its influence towards the acquisition, storage transformation and the use of knowledge (Mtlin, 1983). The areas involved in the study of cognition are highly interrelated to one another and these areas or skills are attention, memory, pattern recognition, organization of knowledge, language, reasoning, problem solving, categorization, planning, executing and so on (Best, 1999; Neisser, 1967). There are evidences, which underpin the interaction of cognition role and development with language and communication. Piaget's theory was one among all other that gave a model of cognition and correlated the every stage of cognition across the

language and communication developmental stages. There are different opinions for the topic of language and cognition in nativism vs. non-nativism. According to Noam Chomsky's 'Nativist theory' individuals are born with the ability to build grammatical structures (Universal Grammar) and specialized language learning mechanisms thus, language is separated from the rest of cognition but Jean Piaget "Cognitive development theory' view was cognitive development and general learning mechanisms is applied to language.

Human cognitive development follows a series of stages - an early sensori-motor period, a pre-operational stage, a stage of concrete operations, and a stage of formal operations. This sequence of stages results from a process of adaptation, whereby the tendency of the child to adjust to the environment by matching the original experience and the new experience and this happens by means of two complementary processes. Assimilation, whereby it keeps the new information or experience and adds to what already exists in our minds and accommodation, whereby its representations are modified and restricted so that new information can fit in better. The interplay of these processes results in enabling children to construct more abstract representations (Shruthi, 2016; Piaget, 1976; Lutz & Huitt, 2004). The stages of development have already been discussed in the earlier section. Summarizing the evidences provided in the Piaget's theory of cognitive development is mentioned in Table 2.4.

Table 2.4: *Description of cognitive development provided in Piaget's theory*

Stage	Age or Period	Description
Sensorimotor stage	Infancy (0-2 years)	Presence of Intelligence, knowledge is developing yet limited, knowledge is based on experiences/ interactions, mobility allows child to learn new things, some language skills are developed at the end of this stage Develops object permanence, and achieves basic

		understanding of causality, time, and space.
Pre-operational stage	Toddler and Early Childhood (2-7 years)	Presence of symbols or language skills; memory and imagination are developed; absence of reversible and non-logical thinking; shows intuitive problem solving; commence to see relationships, egocentric thinking predominates.
Concrete operational stage	Elementary and Early Adolescence (7-12 years)	Logical and systematic form of intelligence; manipulation of symbols related to concrete objects; thinking is now characterized by reversibility and the ability to take the role of another; learning concepts of the conservation of mass, length, weight, and volume; operational thinking predominates non-reversible and egocentric thinking
Formal operational stage	Adolescence and Adulthood (12 years and on)	Logical use of symbols related to abstract concepts. Acquires flexibility in thinking, and abstract thinking .Can consider possible alternatives in complex reasoning and problem solving.

Different perspectives relating to language and cognition during child development has been proposed. Cognitivist models hypothesizes in an infant there will be a gradual growth in their general cognitive capacity which allows them to make a more complex representation of the world thus, this are the resultant of biologically pre-programmed processes. It includes executive functions, inhibitory control, selective and strategic attention, cognitive flexibility or switching the mental set, working memory control and coherence and are critical for problem solving, planning, and reasoning.

Cognitive abilities have also an impact on bilingualism where it has been documented that, bilingualism is related with better performance in other cognitive abilities. As per the research on 'language development', language processing has been recognized on the basis of its cognition, and understanding children's capacity for language relates to the understanding of development and recruitment of general learning and cognitive processes. Another say is with early experience to more than one language may

promote the inhibition and working memory skill that in turn facilitates cognitive flexibility (Feng, Bialystok and Diamond, 2009).

Children get their information about language from social interaction and this is essential to the process of acquisition (Tomasello, 2003; Clark, 2003). Individual has a set of multiple representations of experiences, which are not linked, to specific languages, but also on their cognitive development, for categorization, identification, sorting and remembering (Gentner & Goldin-Meadow, 2003). At earliest by the first 12 months, infants start to organize what they know about entities and events before they gain access to the representational properties of language (Clark, 2004). Levine, Svoboda, Hay, Winocur, & Moscovitch, 2002 have documented six steps in the stage of attention growth namely, alertness, selectivity, focal maintenance or attention duration, previewing, self -regulation. The attention growth in an individual forms a conceptual framework wherein it is the first step in the learning process because lack of alertness results lack in understanding, learning or remembering. Attention and memory are interrelated in the process of learning wherein attention to a stimulus allows it to be stored in memory whereas not possible in case of unattended input. According to Hebb (1949) 'no learning is possible without intention to learn, no memory of a sensory event is possible unless it was attended to at the time of its occurrence'. Memory is a process wherein as age increases the individual has increased in the ability to recall and remember the things for long period (Gathercole, 1998).

Memory process and language functions are interrelated wherein if an item ha to be stored in long-term verbal memory it must be decoded, recognized as a linguistic item by recalling its phonological and semantic characteristics. Recalling refers to the recollection of any information. Many studies have proven that recall ability highly influences complex cognitive acts (language comprehension and formulation) (Achiron, Polliack, Rao, Barak, Lavie, Appleboim & Harel, 2005; Jones, 2015). Marian and Neisser reported in the year

2000, that language has an effect on recall wherein the language will act on the mental activity (brain) and forms an internal context that facilitates an individual to recall thus, recalling is uniquely linked with language abilities.

Children use their senses to understand and learn. At the 12 months, a child has a skill of reception and expression of object prominence, differentiating the objects, naming the objects and its specific functions. Starting from four months, the child develops the memory functions to receive and apply new information. At the age of seven months, child understands the cause and effect relationships. During toddler stage child can understand few concepts like under, after, up, and down, few shapes and relationship between objects. In the age of pre- schooling child develops the skill of recalling the past events, able to resolving the problems, responding logically for every question.

2.3.1. Auditory and Visual modality

Auditory perception and visual perception has a specific role in achieving sub skills. Perception components include discrimination (judgments to define subtle differences), processing (ability to sequence meaningful language), memory (immediate recall), and/or comprehension (interpretation) (Gardner, 1985). The variation in the memory for auditory and visual information discussed in working memory model (Baddely & Hitch, 1974) suggests the faster coding for visual stimuli is due to automatic and direct feeding of the information to visuo - spatial system wherein phonological system requires the sub vocal rehearsal of the information to store in it. The process of encoding, analyzing, storing, retrieving and decoding the information which is receiving by orally or by listening is called auditory memory (Blackburn, 2014) and visual memory is the connection in processes among perception, process of encoding, analyzing, sorting, retrieving, and

decoding of the visual information (Berryhill ME, Phuong L, Picasso L, Cabeza R, Olson IR, 2007) These both are related to their auditory and visual short-term memory.

2.3.2. Evidences provided in Western and Indian studies on the different aspects of cognition

Miller (1965) reported that the number of items recalled by children improved as function of age with the average score for 4 years old being about four items, whereas for 9 years old it is 6 items and 7 or higher as they grow. Thus, as children grow older there is an enhancement in the recall strategies. Comparatively two strategies are applied across ages during recall task. These are 'primacy effect' that is applicable for younger participants and 'cumulative rehearsal strategies' applicable for older participants in turn results in integrated units and better recall. Attention is necessary requirement for the cognitive linguistic tasks irrespective of auditory, visual, and written modalities. Due to any impairment may affect the performances of an individual involving discrimination and perception abilities may be affected resulting in communication impairment.

Visual memory was integral to the reading process as established by Samuels and Anderson (1973). The study investigated 64 children in the second grade and hypothesized that the poor readers would perform significantly inferior to their typically developing matched peers in visual memory tasks. The authors provided each participant with three experimental tasks, compromising internal validity. Results proved significant. When the various tasks increased demand on visual memory, children with poor reading skills gave a drastic decrease in performance

Tallal (1980) provided the seminal work in research on auditory discrimination and reading. In this study, children labelled as reading impaired were compared with control children on a nonverbal auditory perception assessment battery which explored

discrimination and temporal order perception. Tallal (1980) discovered no significant differences between groups on tests in which stimuli were presented at slow rates. However, when the same stimuli were presented more rapidly, the reading delayed group made significantly more errors than the control group. The author attributed the ability to process varying auditory information at a rapid pace, as playing a crucial role in efficiently analyzing the phonetic code in normal speech perception. Tallal (1980) concluded that reading impairment was significantly correlated with inferior functioning of auditory perception that affects the ability to learn to use phonics skills.

Another study was conducted by Henry in 2001 on children with age range of 11 to 12 years. These children were categorized into mild, moderate, and severe Learning Disability. For this study the working memory was assessed such as phonological, visual spatial and central executive. In result, it was concluded that working memory and mental age is related wherein; the severe LD performed less then moderate LD and mild LD.

Another study on the reading ability and auditory discrimination was conducted by McAnally, Castles, and Bannister (2004); which claimed that reading ability was not related to auditory discrimination. In this study 10 children with reading delays and 10 children with no history of reading difficulties across a battery of auditory discrimination tasks were compared. Authors concluded saying that both groups of children were equally capable of doing discrimination tasks; as the results indicated that children's performance was not significantly correlated with an ability to discriminate words for reading

Kurdek and Sinclair (2001) examined the relationship between auditory memory and reading. This was conducted on 60 children who were divided into two groups. One group of delayed readers and the other was a group of TDC. These children were assessed using the Stanford Diagnostic Reading Test (Karlsen, Madden, & Gardner, 1984) and the Reading Comprehension subtest in order to get the auditory-visual integration abilities of

each group. In results it was indicated that all tasks that demands short-term auditory memory were significantly lower for delayed readers when compared with TDC. Inferior performance was found because of the lengthy reaction time. Additionally, when there is a minimized demand on memory the children's reading performance established improvement.

Visual working memory was documented in a study conducted by Riggs, McTaggart, Simpson, & Freeman (2006). To study this, there were children from 5, 7, and 10 years. Task given was to compare the stimulus presented on the screen by recalling the stimuli, which was earlier presented. As a result, it was noted that there was an improvement across ages but this progress was due to the presence of better sustained attention and concentration. Additionally, at the stage of 10 years the children were able to recall 4 items. The performance of 10 or 11 years of age children was similar to that of adult.

A study on assessing the working memory abilities was conducted by Bilvashree, 2013 as a task there were two levels of working memory namely word level working memory (non word repetition, digit backward, letter retrieval and word back spell) and sentence level working memory tasks (sentence repetition, sentence comprehension and answering as per the directions). For this study, there were children from grade II, III and IV. In results, it was found that there was a progress happening across the grade and the performance statistical significant. Additionally, the word level working memory tasks was performed better than the sentence level across three grades and gender.

Another Indian study on studying the cognitive aspects was documented by Stephen, Sindhupriya, Mathur & Swapna, 2010. The cognitive linguistic abilities in bilingual children were examined among 12 monolinguals and 12 bilingual children in the age range of 7 to 8 years across gender. Cognitive Linguistic Assessment Protocol for

children (CLAP-C) by Anuroopa and Shyamala (2006) was applied. The findings suggest that bilingual (Kannada- English) children showed significantly better performance than the monolingual (Kannada) children irrespective of gender. In this protocol there were three different domains, which are attention/discrimination, memory, problem solving and it was sequentially assessed in two domains, auditory and visual respectively. As documented, the cognitive linguistic skills of children increased linearly with age. With the result of pair wise significance it was observed that there was a significant difference for attention between 5-6 and 6-7 years but for memory and problem solving domains, a significant difference was found among all the age groups. Additionally, it was also observed that attention/discrimination was superior followed by memory and problem solving.

Kavya and Shyamala (2007) conducted a study aiming at developing Cognitive Linguistic Assessment Protocol with Learning Disability (LD). The task considered both auditory and visual mode response under attention, memory, and problem solving and they were arranged from simple to complex hierarchy. In results, it was found that there was presence of significant difference between LD and TDC and additionally, a developmental pattern was appreciated in both the groups. Memory domain evidently showed a higher difference between the TDC and LD.

Another study was conducted by Priyadarshi and Goswami (2012) in Hindi language for assessing the Early Reading Skills among grade I to VIII children. One of the sections of the tool assesses the perceptual skills (auditory and visual). In Auditory section, identification, recall, discrimination, perceptual, discrimination skills were studied and in the visual section, discrimination, perceptual skills were studied. As per the results of perceptual section, there was a developmental trend across grades. Additionally, there was a better score under auditory perceptual skills than the visual perceptual skills. Grade I,

grade II, grade III participants were found showing errors predominantly than the remaining grades.

Cognitive Linguistic Assessment Protocol for Children (CLAP-C) was developed in 2006 by Anuroopa. The tool provides a knowledge regarding the individual's growth in terms of both auditory and visual mode. This protocol was administered on total 24 typically developing children under the age range of 4 to 8 years and Kannada was the first language of the selected individuals. In this protocol there were three different domains, which are attention/discrimination, memory, problem solving and it was sequentially assessed in two domains, auditory and visual respectively. As documented, the cognitive linguistic skills of children increased linearly with age, with the result of pair wise significance it was observed that there was a significant difference for attention between 5-6 and 6-7 years but for memory and problem solving domains a significant difference was found among all the age groups.

Shruthi (2016) conducted similar study wherein the aim of the study was to study the cognitive linguistic abilities among 6 to 8 years. In results, a developmental trend was found across domains and girl's performance was better than the boys were, but there was a no statistically significant gender difference except the auditory memory task.

To sum up, language and cognition are tightly connected where cognitive development in infants and toddlers is strongly related to increased memory and to the ability to acquire symbols in language and gestures (Gopnick & Meltzoff, 1986). The information processing system of the brain process thought and language by the cognitive mechanism that includes attention, perception, organization, memory, concept formation, problem solving and executive function (Groome, 1999). There are some of the tests available both in western and Indian context, which evaluates an individual's language

skills and cognition abilities by incorporating perceptual assessment (auditory and visual) as one of its sub components.

2.4. Test batteries in Western and Indian context

The various tests namely diagnostic and screening tests that are applied to assess the language milestones among children are listed below according to name of the test, age range and the sub sections that are assessed under each test.

2.4.1. Western test batteries

Table 2.5: *The description of western diagnostic and screening test batteries*

Name of the test and author (year)	Age range	Features
Picture vocabulary test Ammons & Ammons (1958)	2 years through adulthood	Assess the verbal comprehension. Short duration
The Michigan Picture Language Inventory (MPLI) Lera (1958)	3-9 years	It facilitates receptive and expressive skills of a child
The Illinois Test of Psycholinguistic Abilities (ITPA) Kirk, McCarthy & Kirk (1961)	2-10 years	Assess the reception, expression and organization with in a child
Peabody Picture Vocabulary Test (PPVT) Dunn (1965)	2.6 -4.11 years	Score in terms of the child expression abilities. Moreover, specifies about the Intelligent Quotient, Mental age and Percentile rank across different age groups.
Test of Auditory Comprehension of Language (TACL) Carrow (1968) & revised in 1973	3- 9.11 years	Assess only the auditory comprehension and details about the sequence of comprehension of grammatical and lexical concepts among that age group.
Assessment of Childs Language Comprehension (ACLC) Foster, Giddan & Stark (1972)	3-7 years	A tool that assess the reception of grammatical units (preposition, verb nouns, verb forms and modifiers)

Carrow Elicited Language Inventory (CELI) Carrow (1974)		Assess the children expression skills on use of grammar. Specific grammars such as nouns, verbs, pronouns, adjectives, adverbs, negatives, articles, prepositions, conjunctions, plurals and demonstratives.
Denver Development Screening Test Frankenbrg, Dodds & Fundal (1975)		Screens personal – social, fine-motor- adaptive, language and gross motor skills, thus reveals early detection of delayed language development.
Test of Syntactic Abilities (TSA) Quingley, Steinkamp, Power & Jomen (1978)		Assess the syntactic structures and covers nine major grammatical structures such as negation, naming, conjunction, questioning, verb processes, determiners, pronominalization, complementation, relativisation and nominalization.
Test for Reception of Grammar (TROG) Bishop (1989)	Secondary aged school children and young adults	Diagnosis the children with severe/moderate learning disabilities, cerebral palsy, hearing loss and adults with acquired dysphasia. It assesses the reception of grammatical contrasts.
Test of Language Development (TOLD) Hammill & Newcomer (1997)		The subtests included are picture vocabulary, oral vocabulary, grammatical comprehension, sentence imitation, grammatical completion, word articulation, and word discrimination.
Receptive Expressive Emergent Language Scale (REELS) Bzoch & League (1971)	0-36 months	It profiles the receptive, expressive and inner language age of a child. Overall, it profiles the auditory-perceptual, sensory neural processes while encoding, and decoding of oral language.
The Wilson syntax screening test (Wilson, 2000)	Pre KG to Kindergarten	It is syntax screening test that implements 20 grammatical markers. The task is to identify the morphological errors.
Bankson Language Test (Bankson, 1990)	3 to 7 years	Semantic knowledge, syntax/ morphological rules and pragmatics are assessed.
Developmental indicators for assessment of learning-revised (DIALR) (Mardell & Goldenberg, 1983)	2 to 6 years	This screening tool screen the group of children behaviors at a specific area.
Test of early language	3 to 7.11 years	The development of semantics and

development (TELD) (Hresko, Reid & Hammill, 1981)		syntax are assessed. Use 38 items and measures the standard scores, percentile ranks and age equivalent scores.
Fluharty Preshool Speech and Language Screening Test (Fluharty, 1978)	3 to 6 years	In this screening tool articulation, receptive language, expressive language and composite language are measured.
The oral Language Scentence Imitation Screening Test (OLSIST) (Zachman, Huisingh, Jorgensen & Barrett, 1977 a)	3 to 6 years	This is to assess the syntax development. The task implemented under this screening tool is imitation of sentence.
The Language Assessment, Remediation, and Screening Procedure (LARSP) (Crystal, Fletcher & Garman, 1976)	9 months to 4.6 years	Seven stages under syntactic development is assessed among the children. This screening test consists of 5 sections having 125 items.
Northwestern Syntax screening test (Lee, 1971)	3-8 years	It assess the receptive language and expressive language of a children. This screening test consists of two task, picture pointing for reception and delayed imitation task for expression

2.3.2. Indian test batteries

Table 2.6: *The description of Indian diagnostic and screening test batteries*

Name of the test and author (year)	**Age range**	**Features**
A syntax Screening test in Tamil (SST) Maruthy (1981)	5 years	As the term indicates it assess the specific areas of syntax which are negation, wh-questions, yes-no questions, persons, adjectives, tenses, determiners, post positions, degrees and pronominal terminations.
A Language Test in Kannada for Expression in Children (Kathyayani, 1984)	5 to 8 years	Evaluates the expression of nouns, verbs, number, genders, tenses, place markers and persons.
Three Dimensional Language Test (3D-LAT) Geetha (1986)	9- 36 months	This test examines 3 domains and those are reception, expression and cognition.

Test of Pragmatics in Tamil Priya (1994)	8 years	It examines the pragmatic skills of a child and identifies pragmatically disordered Tamil speaking children. Under this a set of play interactions with the child will be held and examines greeting, requesting action, information, naming, answering, informing, summoning, reasoning, and closing conversation. Scored by implying 6 point rating scales.
Kannada Language Test (KLT) by Shyamala, Vijayshree, & Jayaram (2003)	7 years	This test includes both reception and expression skills of a child. It checks for the semantic and syntax ability of a child. Under semantics there are 12 categories naming, semantic discrimination, lexical category, semantic similarity, anomaly, contiguity, paradigmatic and syntagmatic relations, antonym, synonym, polar questions, and homonymy. Additionally under syntax it assess the word structure, morphophonemic structures, plurals, tenses, case markers. Person number gender marker, conditional causes, transitive/intransitives/causatives, sentence types. Conjunction and quotatives, comparatives and participial construction.
Cognitive Linguistic Assessment Protocol for children (CLAP C) Anuroopa and Shyamala (2006)	4 to 8 years	The sections considered were attention, memory and problem solving and each section has auditory and visual section, which assess the different cognitive linguistic skills. To administer this test it takes more than 60 minutes.
Comprehensive Language Assessment Tool for children (CLAT- C) Navitha and Shyamala (2009)	3 to 9 years	Reception, expression and cognition are the domains and this toll is administered to parents/ guardians of the children.
Linguistic Profile Test (LPT) Karanth (1980),	3 to 7 years	Assesses phonology, syntax and semantics in Kannada language
Linguistic Profile Test (LPT)- Hindi Sharma (1995),	6 – 15 years	It assess phonology, syntax and semantics in Hindi speakers
Linguistic Profile Test (LPT)- Malayalam Asha (1997),	6 – 15 years	It assess phonology, syntax and semantics in Malayalam speakers
Linguistic Profile Test	6 – 15	It assess phonology, syntax and semantics

(LPT)- Telugu Suhasini (1987),	years	among Telugu speakers
Malayalam Language Test (MLT) Rukmini (1994)	4 – 7 years	Assesses syntax and semantics
Language Assessment Remediation and Screening Procedure (LARSP): An adaptation and standardization in Hindi (Priyadarshi & Shymala, 2013).	0.9 to above 4.6 years	Assess the morpho-syntax development in Hindi language
Language Assessment Remediation and Screening Procedure (LARSP): An adaptation and standardization in Kannada, K-LARSP by Uthappa, Chengappa & Kaipa in 2016	0.9 to above 4.6 years	Assess the morpho-syntax development in Kannada language
A Screening Kannada Picture Vocabulary Test (KPVT) by Sreedevi, 1988	6 years	Assess the vocabulary age and used for children with language delay.
Screening Test for Acquisition of Syntax in Kannada, STAS-K (Basavaraj, 1981)	1 to 5 years	Assess the comprehension and expression of syntax (grammatical categories and sentence structure) among Kannada speaking children. The task included are simple sentences, person, case, adjectives, post positions, definite determiner, tense, number marker, wh- questions, negatives, embedded sentences, coordinated sentences, gender marker, transitive/intransitive, verbs, causatives, narration.
Screening Test for Acquisition of Syntax in Malayalam, STAS-M (Thomas, Basavaraj & Goswami, 2012)	1 to 5 years	Assess the syntax acquisition in both comprehension and expression among Malayalam speaking children.
Screening Test for Acquisition of Syntax in Telugu, STAS-T (Gopikishore, Basavaraj & Goswami, 2012)	1 to 5 years	Assess the syntax acquisition in both comprehension and expression among Telugu speaking children.

Screening Test for Acquisition of Syntax in Hindi, STAS-H by Basavaraj, Goswami & Priyadarshi, 2009	1 to 5 years	Assess the syntax acquisition in both comprehension and expression among Hindi speaking children.
Linguistic Profile Test in Tamil (Sunanda , 2017)	6 – 15 years	It assess the development of phonology, syntax and semantics among Tamil children.
Tamil Picture Vocabulary Test, (TPVT) by Bhuvaneshwari (1993),	3 to 6 years	Similar to KPVT tasks, it has 33 picture plates. It assess the comprehension and expression (pointing) of pictures among Tamil speakers.
Computerized Linguistic Protocol for Screening, CLiPS (Anitha , 2004)	3 to 8 years	It assesses the semantics and syntax skills. In semantics, body parts, vehicles. Animals, dress, House and furniture, utensils, syntagmatic relationship, color, flower, birds, antonym, semantic similarity, polar questions, semantic similarity, polar questions, semantic anomaly, semantic contiguity, vegetable, person, insects. Pardiagmatic relations, and flowers. In syntax, case markers, interrogatives, quotatives, PNG markers, conjunctions, affirmative, negatives, conditionals, comparatives, plurals, tenses and participial constructions.

Moreover, most of the assessment tools are based on parental reports. Hence there arises a need to develop a test material that is norm- referenced, performance based and within less time. Other findings after going through the review of test materials was that there are no screening or diagnostic test which parallelly assesses the psycholinguistic and perceptual skills among early school goers with language disorder. The reason to incorporate both the skills has already been discussed in earlier sections where it is said that cognition support in the growth of language.

The present study focuses on adapting a screening tool where the purpose of screening speech and language skills is to select children with significant communication problems by screening a total population with a brief but discriminative test procedure (Emerick & Hatten, 1974). A screening program may be the first step in effective

identification of children who may require special assistance in developing their optimum abilities. Hence, an adaption of the test to suit the culture of India was attempted in the present study. There are several tests available in Foreign and Indian languages and are used to assess various components of language in children. Most of these tests are useful in their own ways. Nevertheless, these available tests assess only few components of language. Some of these tests focus upon morphological rules, some focuses upon syntactic rules and some focuses upon semantic knowledge; concentrating upon different languages. Other than these components, if a clinician has to assess the visual or auditory perceptions, the examiner has to go for other tests, which are exclusively meant for these purposes. As stated earlier, BLST provides a means to survey a variety of psycholinguistic and perceptual skills in a relatively short period of time. It is capable of assessing all the above mentioned parameters, which qualifies it to be termed as a comprehensive tool to assess the psycholinguistic and perceptual skills in children of 4-8 years age. Therefore, the present study is aimed at the adaptation of BLST in Hindi language.

CHAPTER III
METHOD

CONTENTS

The present study highlights on adapting a screening tool 'Bankson Language Screening Test' (BLST), (Bankson, 1977) in to Hindi language. Further, it serves as a measure to assess the sequential acquisition of psycholinguistic and perceptual skills among Hindi speaking children in the age range of 4 to 8 years. The BLST is a tool developed by Nicholas W. Bankson in1977 providing a strong base for the other language diagnostic tool, in order to assess and diagnose a child with language deficit in a relatively shorter period of time (approx 25 - 30 minutes). It has been designed for assessing only the expressive skills of variable psycholinguistic and perceptual skills. The test is comparatively simple and assists the clinician/practitioner's in their assessment choices to select the items in a comprehensive and meaningful manner. Listing the variables pertaining to the psycholinguistic and perceptual skills, there are total five main sections named as *semantic knowledge*, *morphological rules*, *syntactic rules*, *visual and auditory perception* used in the BLST.

An adaptation of BLST in Hindi language was performed by following the below four phases. These are:

Phase-I: Developing test material

Phase II: Conducting pilot study

Phase-III: Administering the test on typically developing children.

Phase-IV: Checking reliability and validity of the test.

3.1. Developing test material

The development of Bankson Language Screening Test in Hindi (BLST- H) test material was conducted by considering the BLST, (Bankson, 1977) screening tool. This screening test accounts number of psycholinguistic in addition to perceptual skills at a relatively shorter period that is for 25 - 30 minutes. As specified earlier, BLST is notably

designed for an expressive aspect of language. Thus, this screening tool is relatively simple and assesses total five main sections named as *semantic knowledge, morphological rules, syntactic rules, visual and auditory perception*. Accordingly, BLST contains subsections ranging from concrete word expression to a more generalization that is abstract. As a whole, the major areas of language are considered and are remarkable under language intervention among younger population.

Hence, to complete the process of developing test material, the first step was accurately adapting by considering all the sub sections and the appropriate test items. These items were appropriate based on their compatibility to the Indian culture. At the initial stage, a prior review on the morphosyntactic structures of Hindi language was done for adapting a test material accurately from English language to Hindi language; which was particularly focused on the details of Hindi sentence structure, rules of morphology and rules of syntax. The BLST –H consisted of two booklets - a test booklet where the description of test items, and instructions are provided and another is a booklet of pictures wherein the pictures related to the test items are presented. The process of selecting, categorizing and editing the picture stimulus for the picture booklet in BLST- H were sequentially taken up.

This screening tool consists a total of 17 subsections having 9 items in each, hence all the items of the subsections were translated appropriately by choosing words that were relevant to the Indian culture. This translation was completed by implementing baraha for typing in Hindi font. For each of the test items a corresponding picture was selected taking the help of internet. This picture booklet was the second booklet formed wherein a total of 50 plates having different forms of pictures. These pictures were chosen based on the firm

relationship between the contents of the test items and pictures. However, these pictures were edited using paint and were arranged consecutively.

These two booklets were inspected for the content validity by 3 Speech Language Pathologist and 2 Special Educators, who provided an appropriate judgement for selecting test items and pictures appropriately in each section. In the content validity task, the raters were asked to rate each section based on 20 parameters using five point rating scales (Goswami, Shanbal, Samasthitha & Navitha, 2010). This was administered by using the questionnaire feedback (Appendix I). Considering the ratings of each section and the feedback from every individual, suitable modifications were added and the two booklets were finalized. The modifications enlisted were to modify few of the instructions used in BLST-H that is to work up on the grammar, to edit the picture colours and to lessen the complexity. All the feedbacks were considered and changes were incorporated resulting in the completion of this phase.

3.2. Pilot study

Prior to administering the test material on large population, a pilot study was conducted upon 16 typically developing children (2 in 8 age groups) in the age range of 4 to 8years. The reason to conduct this particular study in small population was to familiarize with the test procedures and to obtain additional information on the complexities of the items and pictures in the two booklets. For the study, groups of children were selected and these children were native speakers of Hindi and importantly they were not included in the final sample. Participants were selected from two 'Central Board School Education (CBSE)' schools situated at Mysuru, Karnataka. The pilot study was conducted on those individuals whose first language was Hindi and then they were enlisted and considered for the further evaluation. This was possible with the help of the Principal and Class Teacher

of the respective classes wherein, each participant's demographic data was taken such as, their age at the time of evaluation, mother tongue, mental status, information about medical and non-medical details, child behaviour with their peer group and the details about the parent's occupation were documented. Participants enlisted were free of known syndromes and were having normal hearing sensitivity. All the participants were from middle socio-economic status. Testing was carried out individually in a well-ventilated classroom with reduced environmental noise and when children were in highest alertness. Children were comfortably seated and provided with instructions for the task. Children were familiarized for the task with practice trials. Once the children were clear with the instructions, further study was continued and scored accordingly.

The pilot study was conducted as an essential step, which in fact gave knowledge on the specific instructions to be provided while administering the test, the flexibility of certain pictures under each subsections, the process of scoring pattern and the total duration required for conducting the test on an individual. In view of that, with the completion of the pilot study and documenting the above measures, the following modifications were done:

1) Few pictures of semantic, morphological rules and syntax sections were not comprehensive enough for few groups of children thus, editing of pictures and few others were modified.
2) Instructions and directions for few subsections such as 'postpositions and color/quantity' were rephrased because few of the participants were finding those instructions to be difficult in understanding and responding appropriately.
3) For better understanding and maintaining uniformity, examples were provided under each subsection. This was done to make sure that the child has understood the concept of each subsection and about the responses that is looked upon.

4) Typographical errors were rectified and overall layout with formatting was refined considering practical issues and experience during the pilot testing. The response sheet was modified and formatted.

Thus, the test material was finalized for administration.

3.3. Administering the test on typically developing children

3.3.1. Participants

Administration was performed on 240 Typically Developing Children (TDC) in the age range of 4 to 8 years in total 8 groups. Each group had 30 children (15 males and 15 females). The age group wise distribution of participants is depicted in Table1.

3.3.2. Inclusion criteria

a) Selected participants were native Hindi speakers who were having appropriate developmental milestones. This was ensured using 'Communication DEALL development checklist' (Karanth, 2007). It assess the major areas such as gross motor, fine motor, receptive and expressive skills, activities of daily living (ADL), cognitive, social and emotional skills.
b) The participants were free from known syndromes and were having normal hearing sensitivity along with normal visual acuity.
c) Participants were physically fit. Absence of neurological, psychological problems and other sensory deficits.
d) All the participants were of middle socio- economic status. To ensure this the details about the parents occupation was checked from the students register and quantitatively by using Kuppuswamy's socioeconomic status scale (Kumar, Gupta & Kishore, 2012)

3.3.3. Procedure of administration:

Following the above mentioned criteria, TDCs were enrolled from homes and CBSE schools of Mumbai and from other neighbouring areas. Firstly, written consent was signed from each parent/guardian of the participant that provided adequate information in concern to the present study. It was followed by the demographic information's which were noted prior to the audio visual (AV) recording and test administration. Both in school and home setup, children were made to comfortably sit in spacious room having reduced environmental noise/ quite environment, ensuring that each participant understood the task well and provided with instructions for the task. Secondly, it was assured that the child was attentive and concentrating towards the situation and has well established rapport before initiating the test. Thus, suitable reinforcements were provided as soon as the child responded to maintain the motivational level and to make them comfortable. The rules, regulations and the sentences as specified for instructions under each subsection in the test booklet were strictly followed; thus, the consistency was well maintained. For each sub – task, children were made familiarized with the respective practice items and once they achieved the understanding of practice items, further steps were taken up and scored accordingly. The instructions and descriptions for every sub section are discussed in the following paragraph.

3.3.4. Stimulus descriptions and instructions

Total five sections were included to assess the psycholinguistic and perceptual skills under BLST-H. Each section has their respective sub sections with nine items in each. Hence, as mentioned earlier, there are two booklets that are required to be utilized simultaneously. Totally there are 17 subsections (8 in semantic knowledge, 3 in morphological rules, 2 in syntactical rules, 2 in visual and 2 in auditory perception); and

each sub section has different instructions with one response mode and the particular task focused only on a single language skill. The scoring was completely based on the child's expression response and the test did not assess their comprehension skills. A detailed description of the sub sections are being presented below that describes about the purpose and skills being assessed, instructions been given by the examiner and the expected response from the participant to get the full score.

3.3.4.1. Section I: Semantic knowledge

a. Body parts

Purpose: This subsection provides information on the participant adequacy towards expressing the names of body parts.

Assessment: Both the expression and reception skills were included in this task but the scoring was done for the expressive response only. The reason for including the comprehension response was only to have information regarding the accuracy in a child's language development.

Instructions:

Expression: The participants were informed to name the respective part, which was pointed by the examiner.

Comprehension: Participants were asked to carefully go through the picture and indicate the body parts as named by the examiner.

Required response: Once the examiner points the body parts, the participants were required to name those specific parts.

b. Nouns

Purpose: This provides details regarding the proficiency of a child in the naming skills and vocabulary growth

Assessment: Both the expression and reception skills were included in this task but the scoring was done in terms of the participants' expressive response.

Instructions:

Expression: The participants were instructed to name the respective item, which was pointed by the examiner.

Comprehension: Participants were asked to carefully go through the picture and indicate the items as named by the examiner.

Required response: Participants were instructed to name the items accordingly by looking at the picture booklet.

c. Verbs

Purpose: This subsection assesses the adequacy in identifying and expressing the action verbs.

Assessment: Both the expression and reception skills were included in this task but the scoring was done in terms of the participant's expressive response only.

Instructions:

Expression: The participants were informed to name the respective item, which was pointed by the examiner.

Comprehension: Participants were asked to carefully go through the pictures and the actions being highlighted. Later, they were asked to indicate the items named by the examiner.

Required response: Participants were expected to name the 9 different verbs which were highlighted in the picture booklet.

d. Categories

Purpose*:* It provides information on the knowledge of an individual's concepts in expressing sub ordinates and supra ordinates.

Assessment: Both the expression and reception skills were included in this task but the scoring was done in terms of the participant's expressive response.

Instructions:

Expression: The examiner instructed the participants to think and name minimum 2 sub ordinate categories for each nine supra ordinate categories that were named by the examiner.

Comprehension: Participants were asked to carefully go through the pairs of items being depicted in a row and point the item, which came under each supra ordinate category.

Required response: In expression, participants were expected to list minimum two sub ordinates of nine different supra ordinates.

e. Functions

Purpose: It assesses an individual's ability to name an item that is related directly to its functions. Hence, it assesses the categorization skills.

Assessment: Both the expression and reception skills were included in this task but the scoring was provided in terms of the participant's expressive response.

Instructions:

Expression: The examiner instructed the participants asking them to think and name one item which was applicable based on its function.

For example, /həm dʒɪs ko: pəhənə̪ṭe: h˜æ/ (which we wear)-/kəpədə:/ (cloth/ dress)

Comprehension: Participants were asked to indicate through pointing only those items which specifically perform that function.

Required response: for expression, participants were expected to verbally name one item that was applicable for those functions, which were named by the examiner.

f. Postpositions

Purpose: It assesses the skills of a child in terms of understanding and expressing the various locations of an item.

Assessment: Both the expression and reception skills were included in this task but the scoring was done in terms of the participant's expressive response.

Instructions:

Expression: The examiner instructed the participants to think and express the location or position of an item.

Comprehension: Participants were asked to carefully go through the picture and indicate the picture, which is named by the examiner.

Required response: The participants were required to comment/respond particularly over the position of the item drawn in the picture.

g. Colors/ Quantity

There were two tasks combined together and each task had different instructions and pictures. For colours, there were 6 colours and for quantities there were three items. Hence, total nine items were used.

Purpose: Together checks the individual's knowledge in naming colours that includes both basic and rare combinations. Similarly, under quantity sub section the quantifier concepts are focused.

Assessment: Both the expression and reception skills were included in this task but the scoring was done in terms of the participant's expressive response.

Instructions:

Expression: In colours, the examiner instructed the participants to think and express the colours that were present in picture book.

Comprehension: Participants were asked to indicate the colours as named by the examiner.

Similarly, for quantity they were assessed for both comprehension and expression.

Expression: participants were asked to complete the sentence uttered by the examiner, by using the correct quantifiers. These sentences were presented corresponding to pictures that facilitates a hint to a child to respond with the target word.

Compression: The participants were asked to carefully go through the picture and indicate the picture according to the quantifiers used by the examiner.

***Required response**:* The participants were expected to give the correct response by naming the colours that were pointed by the instructor

For quantity, they were supposed to use the correct quantifiers to complete the sentence and gain scores.

h. opposites

Purpose: This subsection gives information on individual's ability in answering to the opposites of a word.

Assessment: This subsection included only expression task.

***Instructions**:* The task was to express the opposites of those words that were said by the instructor. Examples were provided before attempting into the target items.

Required response: the participants were required to accurately name the opposite that goes correctly with the target items.

3.3.4.2. Section II: Morphological rules

a. Pronouns

Three types of pronouns were assessed; these are object pronouns, subject pronouns and possessive pronouns, using appropriate pictures. For each pronoun, there were three items, totalling to nine items.

Purpose: Wherein the individual skills to express the pronouns were targeted.

Assessment: Expression was the only task assessed in pronouns

Instructions: The examiner instructed the participants to complete the sentence by using appropriate object/subject/possessive pronouns.

Required response*:* For the correct response and complete score, the participants were required to use an appropriate pronoun by understanding the incomplete sentence and connecting that with the pictures.

b. Verb tenses

Purpose*:* Purpose was to check the individual's ability in using verb tenses appropriately to the context.

Assessment: Present tense (present progressive and present tense), past tense and future tense were the verbs assessed under this subsection along with appropriate pictures. Similar to the previous, this subsection also assessed the child's ability to express the types of verb tenses.

Instructions: The examiner instructed the participants to complete the sentence by using appropriate verb tenses by looking at the appropriate picture.

Required response*:* For the correct response and complete score, the participants were required to use an appropriate verb tense by understanding the incomplete sentence and connecting that with the pictures.

The task was to complete the sentence that was said by the instructor by using appropriate tenses (present progressive, present tense, past tense and future tense).

c. Plurals/comparatives/superlatives

In plurals, there were 6 items and for comparatives/superlatives there were 4 items along with appropriate pictures for each sentence.

Purpose: The entire task provided information on the individual's expression abilities of plurals, and degrees concepts. These are the concepts, which in turn facilitate the growth of syntactic skills.

Assessment: This subsection assesses the participant's expressive responses.

Instructions: The examiner instructed the participants to complete the sentence by using appropriate plurals by looking at the appropriate picture. In this task, the examiner will provide the singular form of the sentence and the participants were asked to complete the remaining part of the sentence by using its plural form. Similarly, for assessing the comparatives and superlatives, the participants were asked to complete the sentence using appropriate comparatives and superlatives by looking at the picture.

Required response*:* For the correct response and complete score, the participants were expected to use an appropriate plural, comparative and superlative by understanding the incomplete sentence and connecting those with the pictures.

3.3.4.3. Section III: Syntactic rules

a. Subject verb agreement/ negation

Purpose: This 'subject verb agreement' subsection assessed the child's ability to express the subject and verb agreement by using appropriate syntax. 'Negation' subsection assesses the child's ability to use negation within a sentence.

Assessment: Under 'subject verb agreement' section, there were total 4 items along with the corresponding pictures. Under 'negation' section, there were total 5 items along with the pictures. Overall it was only the expression task.

Instructions: For Subject verb agreement (SVA) task the participants were instructed to keenly observe the pictures and complete the sentence uttered by the examiner with

appropriate SVA. Similarly, for negation task, the participants were instructed to fill the incomplete sentence uttered by the examiner by applying negation.

Required response: The participants were expected to use an appropriate SVA and negation to score completely. It was possible only by understanding the incomplete sentence and connecting those uttered sentences of the examiner with the pictures displayed.

b. Sentence repetition/ judgment of correctness

Purpose: This sub section provides information about the individual's metalinguistic skills wherein their skills in grammatical judgement and memory was focused.

Assessment: Similar to other sections, this subsection also evaluates the participant's expression skills.

Instructions: The instruction while conducting sentence repetition was to repeat sentences following the examiner. Prior instructions were provided wherein the child was asked to repeat correctly and to maintain the order. The complexities of the sentences were also varied as the series increased. Similarly, for judgement of correctness task the child was supposed to comprehend the sentences as narrated by the examiner and also to confirm whether the spoken sentences were correct or incorrect.

Required response: The expected response was different for both the task. In sentence repetition, the participants were expected to repeat the exact sentence as uttered by the examiner and to follow the word order. For judgement of correctness they were given a binary choice correct or incorrect, and they were expected to choose one accordingly.

3.3.4.4. Section IV: Visual perception

a. Visual matching/ discrimination

This included two tasks in one sub section. This was assessed by using series of pictures. Both the tasks were arranged with increasing complexity.

Purpose: Both the tasks provide information regarding the participant's visual perceptual skills in terms of matching and discriminating the pictures.

Assessment: This was assessed based on their expressive response.

Instructions: In matching task, they were instructed to carefully look at the given rows of figures at the right side and find the correct figure that resembled the left targeted picture. In discrimination task, they were instructed to look at the rows of figures or items and choose one odd item.

Required response: They were supposed to indicate their preferred response through pointing.

b. Visual association/ sequencing

This included two tasks in one sub section. This was assessed by using meaningful pictures and symbols. Both the tasks were arranged with increasing complexity.

Purpose*:* Both the tasks provided information regarding the participant's visual perceptual skills in terms of association and sequencing skills.

Assessment: This was assessed based on their expressive response.

Instructions: In visual association task, they were instructed to carefully look at the given rows of figures at the bottom and find the correct figure that associated itself with the targeted item. In visual sequencing task, they were instructed to look at the rows of figures

or items and they were also warned to look at those pictures carefully; after a minute they were asked to choose the correct row from the series of rows, which were depicted in picture booklet.

Required response: They were expected to indicate their preferred response through pointing by keenly observing the variation and relation among each picture.

3.3.4.5. Section V: Auditory perception

a. Auditory memory

Purpose: To target on an individual's auditory skills. By assessing the participant's memory in recalling the words, sentences and multi step commands.

Assessment: In this task, there were two forms of assessment, which were focused. It was based on the participant's expressive response.

Instructions: They were instructed to listen carefully the sequence of words and sentences that were said by the examiner and were asked to repeat those words in the same sequence after the examiner.

Required response: For word and sentence recalling tasks, they were expected to repeat the items in a correct sequence and maintaining the word order in a sentence repetition. Similarly, in multi step commands the participants were required to follow the commands of the examiner in sequential order.

b. Auditory sequencing and discrimination

Purpose: It gave information regarding the individual memory, attention span, and cognition.

Assessment: In this section, there were two tasks, which were focused on assessing the participants sequencing and discrimination skills.

Instructions: For the auditory sequencing task, the examiner verbally presented a short story and following to that the participants were asked to recall and narrate the same story in the given sequence. For another subsequent task, they were instructed to carefully look at the pictures and listen to the words and sentences said by the examiner and match those words with the pictures depicted in the picture booklet.

Required response: For sequence task, expected response was to narrate the complete story in a correct sequence as uttered by the examiner. For the discrimination task, the participant was expected to indicate the correct picture among two.

3.3.5. Scoring

A common scoring system was used for the subtests. A score of 1 was given for each item answered correctly. Therefore, the maximum score for each subtest was according to the number of items in it. The performance of the participant on each item in the test was scored on a three point rating scale as given below:

1 point: If a participant performed a given test item without any assistance.

Half point: If a participant performed a given test item with an assistance or verbal prompt.

0 point: If a participant was not able to perform a given test item even with verbal prompt.

The summary of each sections and subsections along with the scorings are mentioned in the Appendix II.

3.4. Checking reliability and validity of the test

3.4.1 Reliability

3.4.1.1. Inter-judge reliability

The audio-video recorded sample of data was used for the same. Out of the total data collected, 10 percent of the data was retested by a competent Hindi speaker. From

each group 3 data samples were randomly selected for reliability test and were equally distributed among two judges.

3.6.1.2. Test- retest reliability

After finishing the data collection of each age group the test retest reliability was followed wherein 3 participants from each age group were randomly selected to check for the reliability. This was reanalyzed after two weeks from the date of completion by the investigator.

3.4.2. Validity

To assess the validity of the developed test, it was administered on 10 child Language Disorder (CLD) group and 10 TDC group.

a. All the participants are in the age range of 4-8 years
b. The CLD participants were enrolled from special schools, clinical set up and few from Department of Clinical Service of All India Institute of Speech and Hearing, Mysuru.
c. The participants were diagnosed with Child Language Disorder (CLD) by Professional.

Later, to compare the mean scores of CLD an additional data of 10 typically developing Hindi speaking children were collected. These were not included in the normative data sample. These 10 Hindi speaking participants were in the range of 4-8 years and were enrolled from CBSE schools.

3.5. Statistical analysis

The collected data was analyzed with appropriate statistical measures. These are:

1) Kruskal Wallis Test to find the effect of age on the scores
2) Mann Whitney U test to find gender effect on the data
3) Cronbach's Alpha co efficient was used to find the inter-rater and test retest reliability of the test.

CHAPTER IV

RESULT

CONTENTS

The study was proposed with the following objectives:

1. To translate and adapt Bankson Language Screening Test (BLST) by Nicholas W. Bankson (1977) in Hindi language.
2. To assess the sequential acquisition of Hindi linguistic and perceptual skills in children in the age range of 4 to 8 years.
3. To study if gender has any effect on acquisition of psycho-linguistic and perceptual skills.

The adapted test tool BLST-H attempted to investigate the language and perceptual skills among young children in the age range of 4 to 8 years. Thus, the sections under this screening tool were semantic knowledge, morphological rules, syntactic rules, auditory and visual perception. Thus, following the same instruction of BLST by Nicholas W. Bankson (1977) in BLST in Hindi (BLST-H) was adapted and followed by administrating over 240 Typically Developing Children (TDC).

The data obtained from 240 TDCs, was subjected to the following statistical analyses:

a) To establish norms for the screening tool, Mean and Standard Deviation (SD) was calculated.
b) Test for normality called Shapiro Wilk test was performed through statistical analysis to check whether the data is normally distrusted or vice versa.
c) For the validation of the screening tool, 95% of confidence interval was checked using the test of normality.
d) Kruskal Waliis test was performed to find the significant differences across age group and as there was significant difference observed across age groups, Mann –Whitney u test was conducted to check the pair wise age significance across subsections.
e) Mann –Whitney u test was performed to see the significant differences within the genders.

The results of statistical analysis for all the eight age groups are discussed under the following headings:

4.1 Performance of the children in all the sections

The raw scores of 240 participants were compiled. The Mean and Standard Deviation (SD) were computed which are presented in table 4.1. For all the tasks descriptive statistical analysis was done and the mean scores of each age group was obtained which are provided under each section namely, semantic knowledge, morphological rules, syntactic rules, visual and auditory perception.

Table 4.1: *Mean and SD of each section in BLST-H across age groups*

AGE	SEMANTIC KNOWLEDGE		MORPHOLOGICAL RULES		SYNTACTIC RULES		VISUAL PERCEPTION		AUDITORY PERCEPTION	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
4.1-4.6	72. 6	5.40	58.4	7.50	58.5	5.9	61.8	10.8	55.9	11.85
4.7-5.0	75.9	5.20	57.0	6.20	59.2	7.8	64.8	8.8	62.2	11.14
5.1-5.6	84.2	6.40	72.1	6.10	69.8	8.6	72.9	11.6	67.4	14.42
5.7-6.0	86.2	5.70	76.8	7.2	75.2	11.5	84.1	9.5	78.5	9.53
6.1-6.6	89.9	4.60	80.2	6.80	73.7	10.7	83.1	10.9	75.7	7.3
6.7-7.0	91.7	5.40	79.7	7.30	79.1	11.9	83.3	8.7	80.7	9.08
7.1-7.6	95.9	3.20	82.5	6.50	83.5	6.8	85.4	8.3	83.5	8.81
7.7-8.0	96.0	2.50	86.9	5.50	86.3	5	90.2	5.2	84.8	8.11

The Mean obtained for semantic knowledge section ranged from 72.0 – 96.0, followed by morphological rules mean, which ranged from 57.0 – 86.9; further the mean for syntactic rule ranged from 58.5 – 86.3, for visual and auditory perception it ranged from 61.8 – 90.2 and 55.9– 84.8 respectively. The order of performances varied as age increased and it was noticed that the age group eighth had highest total mean scores and age group

first had lowest total mean score. Thus, mean scores of participant's performance for all the five sections were better in eighth age group as compared to the other groups. The following Figure 4.1 shows the performance of 30 participants in each age group on total five sections of BLST- H.

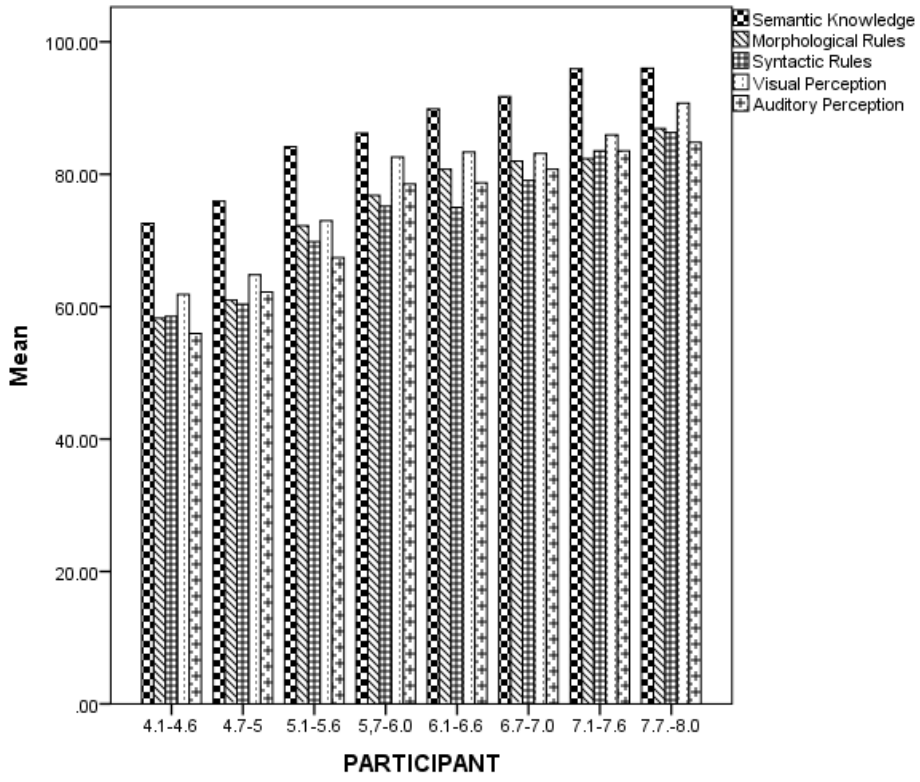


Figure 4.1: Overall mean scores of all sections across 8 age groups

Figure 4.1 depicts that, in first age group that is 4.1-4.6 years, participants had responded significantly better for semantic knowledge (72.6), followed by visual perception task (61.8), syntactic rules (58.5), and morphological rules (58.4) and scored less in auditory perception task (55.9). In the second age group 4.7-5.0 years, their performances were better for semantic knowledge (75.9) followed by visual perception (64.8), auditory perception (62.2), syntactical rules (59.2) and least in morphological rules (57.0). Among 5.1-5.6 years, they scored higher in semantic knowledge (84.2), followed by visual perception (72.9), morphological rules (72.1), syntactical rules (69.8) and least in auditory perception (67.4). In the fourth stage 5.7 – 6.0 years, semantic knowledge (86.2)

performance was higher followed by visual perception (84.1), auditory perception (78.5), morphological rules (76.8) and syntactical rules (75.2). In the fifth stage 6.1 – 6.6 years, semantic knowledge (89.9) performance was higher followed by visual perception (83.1), morphological rules (80.2), auditory perception (75.7) and syntactical rules (73.7). In the sixth stage 6.7 – 7.0 years, semantic knowledge (91.7) performance was higher followed by visual perception (83.3), auditory perception (80.7), morphological rules (79.7) and syntactical rules (79.1). Participants of seventh stage 7.1-7.6 years performed better in semantic knowledge (95.9) performance followed by visual perception (85.4), auditory perception (83.5), syntactical rules (83.5), and morphological rules (82.5). Performance of participants of 7.7- 8.0 year's was higher in semantic knowledge (96.0) followed by visual perception (90.2), morphological rules (86.9), syntactical rules (86.3) and auditory perception (84.8) respectively. Therefore, it was evidently shown that the participants across age group followed a similar pattern while achieving their psycholinguistic and perceptual skills.

4.1.1. Performance in the sub-components of Semantics

In all the subsections there were two levels, one was through comprehension level and another was through expression level, but the participants were scored for 9 only on the basis of the performance during expression. Hence, this tool is completely focused on expression assessment. The table 4.2 shows the performance of participants in the subsections of semantic knowledge. The subsection of semantic knowledge was assessed to determine the easiest and the most difficult components for each participant, based on her/his age. The semantic knowledge assessment was done for total 8 subsections.

Table 4.2 depicts the performance of each age group participants, according to its sub sections. It was noticed for body parts (BP) the mean scores range was within 6.17 –

8.33, in nouns (N) and verb (V) most of the participants got 9.0 across age groups, for categories (C) the mean score was ranging between 5.23 – 8.50, followed by function (F) ranging from 7.73 – 8.93, post positions (P) mean value was ranging between 6.23 – 8.73, in colors/quantity (C/Q) task it was ranging between 5.30 – 8.63, and for the last subsection opposites (OPP) mean scores were between from 3.40 – 8.23.

Table 4.2: *Mean scores of each age group participants according to semantic sub sections*

AGE	BP		N		V		C		F		P		C/Q		OPP	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
I	6.17	1.18	8.8	0.25	9.0	0.0	5.23	1.43	7.73	1.04	6.23	1.40	5.30	1.34	3.40	1.42
II	6.4	1.32	8.9	0.43	8.93	0.25	5.60	0.89	8.0	1.11	6.37	1.65	6.30	1.76	4.57	0.86
III	6.83	1.53	9.0	0.0	9.0	0.0	7.16	1.44	8.40	0.90	7.67	1.12	7.33	1.25	4.90	1.99
IV	6.90	1.52	9.0	0.0	9.0	0.0	7.37	1.19	8.50	1.07	7.80	0.96	7.50	1.60	6.07	1.85
V	7.10	1.29	8.97	0.18	9.0	0.0	8.03	0.88	8.70	0.53	8.0	0.94	8.27	0.78	6.77	1.72
VI	7.40	1.43	8.97	0.18	9.0	0.0	8.10	0.96	8.83	0.38	8.50	0.57	8.50	0.86	6.80	1.52
VII	8.17	0.91	9.0	0.0	9.0	0.0	8.47	0.68	8.9	0.30	8.67	0.58	8.63	0.49	7.97	0.96
VIII	8.33	0.84	9.0	0.0	9.0	0.0	8.50	0.73	8.93	0.36	8.73	0.61	8.63	0.49	8.23	0.63

Note: BP- body parts (BP), N- nouns (N), V- verb (V), C- categories (C), F- function (F), P-post positions (P), C/Q-colors/quantity (C/Q), OPP- opposites (OPP)

As depicted in Figure 4. 2, the scores of each subsection increased gradually from first age group to eighth age group. While in few sub sections the participants of different age group performed significantly higher than preceding group such as it is seen in body parts, categories, postpositions, colours/quantity, and opposites whereas, considering the performances and scores for noun, verb and functions of different age groups were nor varying neither shown any significant difference. Though participants of higher age group scored better, but maximum score was not obtained by any age group children in all the sub sections except for noun and verb.

Another observation was made on the pattern of scores obtained among different age groups for the sub components of semantic knowledge. As observed, the scoring pattern of lower age group was not equivalent with each sub components but as age progressed the scoring pattern became equivalent with each sub components and hence, the difference within scores of each subcomponents was gradually decreasing as the age enhanced.

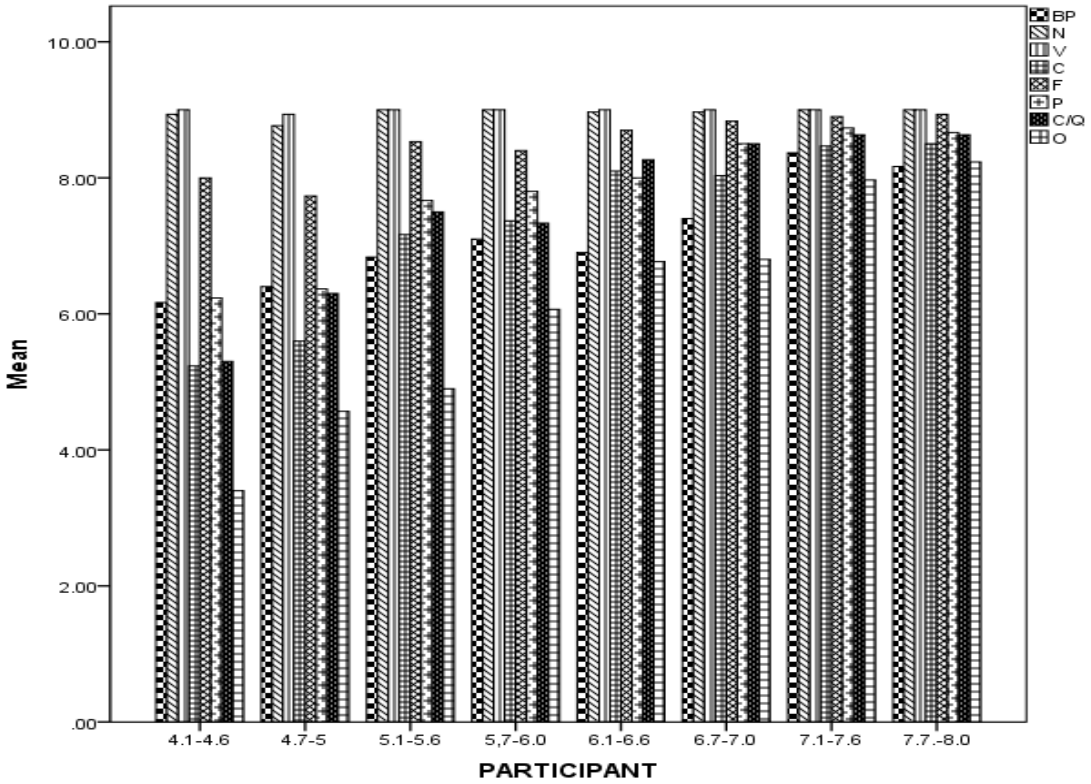


Figure 4. 2: Comparison of semantic subsections across age groups

Considering the performances of 8 age groups under each sub components of semantic knowledge the following hierarchy of the semantic structures from the least to the most difficult was remarkable. First age group (4.1 – 4.6 years): Among this group, participants scored higher in verb and continued with noun, functions, prepositions and body parts, categories and colours/quantity, and scored less in opposites. Second age group (4.7 – 5.0 years): similar performance was documented among these age group participants where

they performed significantly better in verbs followed by noun, functions, and similar performance in body parts and postpositions, subsequently colours/quantity, categories and opposites achieved less scores. Third age group (5.1 – 5.6 years): the pattern of scores was similar as earlier age group but the major difference was in accomplishing a higher score across sections then the younger age groups. Scores were higher and well performed in verbs and noun, followed by functions, postpositions, colours/ quantity, categories, body parts and then opposites. Fourth age group (5.7 – 6.0 years): Under this age group, verb and noun sections were scored with higher values and followed by function, postpositions, colors/quantity and categories, body parts, and opposites. Fifth age group (6.0 – 6.6 years): verb and nouns were performed with equal scores, and as similar to younger age groups these participants were also following the similar pattern of scorings but the difference in scores across sections were reduced. Subsequently, they scored for functions, categories and post- positions, body parts and less in opposites. Sixth stage, Seventh stage, and Eighth stage participants performed similarly across sections where they scored higher in verbs and nouns, followed by functions, post- positions, colours/quantity, categories, body parts, and opposites.

4.1.2. Performance of children on morphological rules task

There were total three sub sections under morphological rules and the same is depicted in table 4. 3. From the performance for the morphological rules, it was noted that there was an improvement across all age groups as they grow. Additionally, the mean scores under each subsection across age groups were noticed and found that for pronouns it was ranging from 3.33 to 6.77, for verb tenses it was ranging from 8.13 to 8.87, and for the last sub section it ranged from 4.27 – 7.83.

Table4.3: *Mean and Standard Deviation scores of morphological rules*

AGE	PRO		VT		P/C/S	
	Mean	SD	Mean	SD	Mean	SD
4.1-4.6	3.33	1.27	8.13	1.04	4.27	0.99
4.7-5.0	3.53	1.07	8.20	1.21	4.73	0.64
5.1-5.6	4.90	0.71	8.40	0.46	5.73	1.22
5.7-6.0	6.10	1.12	8.50	0.65	5.80	1.37
6.1-6.6	6.20	1.45	8.73	0.89	6.87	0.73
6.7-7.0	6.40	1.08	8.77	0.55	6.90	1.35
7.1-7.6	6.60	0.97	8.83	0.43	6.87	1.59
7.7-8.0	6.77	1.10	8.87	0.34	7.83	0.87

Note: PRO- Pronouns (PRO), VT- Verb tenses (VT), P/C/S- Plurals/comparatives/superlatives (P/C/S)

Figure 4.3 depicts the mean scores of subsections under morphological rules, it can be inferred that there was a growth in each task as they grew older. The older age groups achieved the higher scores than the youngest groups.

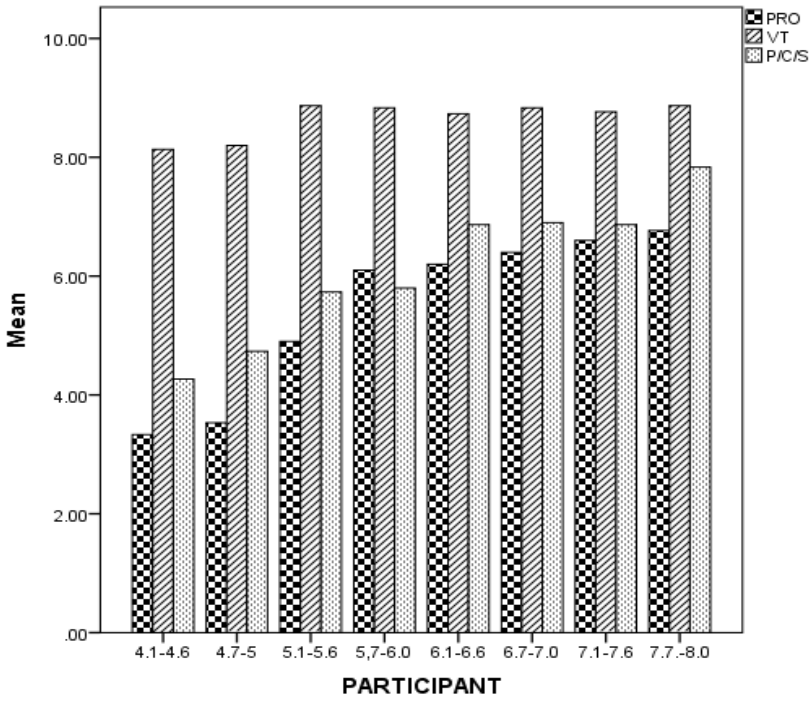


Figure 4. 3: Comparison of mean scores of morphological rules subsections

The scores of each subsection increased gradually from first age group to eighth age group. Considering each sub section and analyzing each it was observed that the performances were majorly higher for VT then followed by P/C/S and PRO and these form of scoring pattern was appreciated among all age groups. Further, it was documented that the mean scores for verb tenses were not significantly varying, that is the participants of all age groups were equally performing but this was not the case in other sub sections. Other observation was that the mean scores of PRO and P/C/S were not drastically changeable hence, performance for this two sub sections were similar for both younger and older age groups. It was seen an improvement in the performance of pronouns and P/C/S as they reached 5.1- 5.6 years and higher. Additionally, looking at the pattern of scores obtained among different age groups, the scoring pattern of younger age groups were not corresponding with each sub components but as age progressed the scoring patterns were equivalent and the discrepancy within scores of each subcomponents were steadily lessening as they grew older.

4.1.3. Performance of children on syntactic rule task

Syntactic rules consisted of two sub sections with a total score of 18 (9 for each). The mean and Standard Deviation (SD) values of each sub section are depicted in the table 4.4 for the 8 age groups respectively. By analyzing the scoring pattern that is by comparing the performance of 8 age groups a growing trend was observed for both SVA/N and SR/J. The mean scores for SVA/N varied from 6.70 – 8.23, and for SR it varied from 3.33 - 7.30.

Table 4.4: *Mean and Standard Deviation scores of subsections in syntactic rules*

AGE	SVA/ N		SR/J	
	Mean	SD	Mean	SD
4.1-4.6	6.70	0.80	3.33	0.80
4.7-5.0	7.20	1.07	4.17	0.83
5.1-5.6	7.73	1.01	4.83	0.95
5.7-6.0	7.80	0.92	5.73	1.57
6.1-6.6	7.86	1.13	5.90	1.56
6.7-7.0	7.87	0.90	6.37	1.71
7.1-7.6	7.97	0.81	7.07	0.94
7.7-8.0	8.23	0.57	7.30	0.53

Note: SVA/N- sentence verb agreement/ negation and SR/J- sentence repetition and judgement of correctness

Similarly, this was presented with a Figure 4.4 to have a detailed depiction about the performance of participants across age group. As resultant, it was noted that SVA/N was having higher scores than the SR. Additionally, there was an improvement shown for both the task as they grew older.

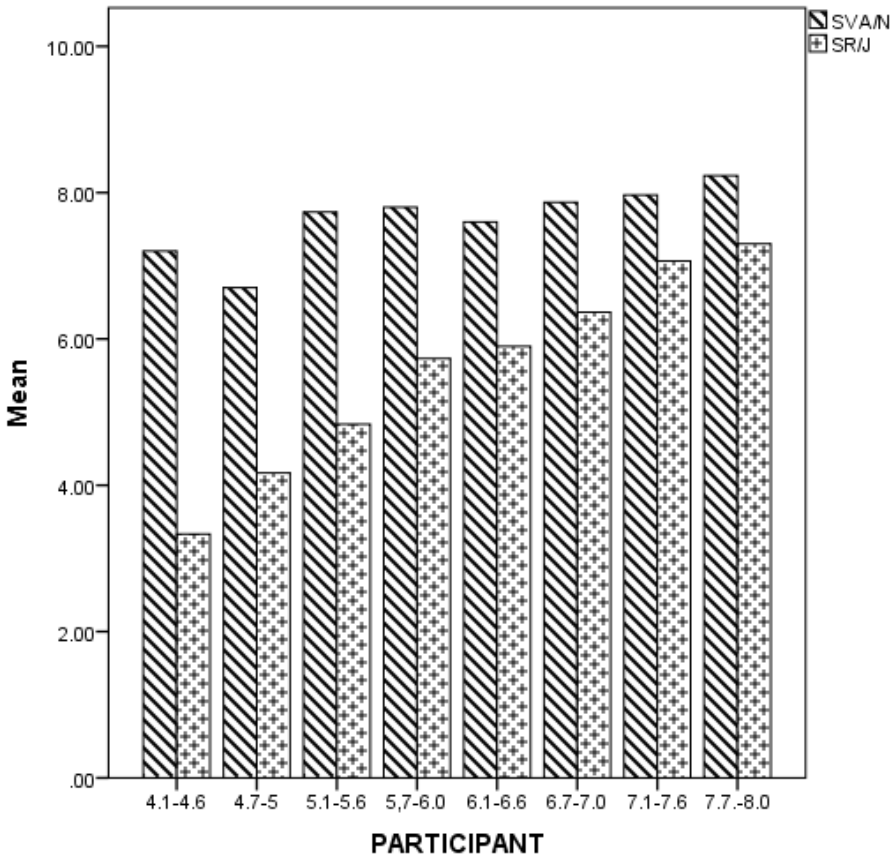


Figure 4.4: Comparison of mean scores of subsections in syntactic rules

By concentrating on each sub section performances it was noted that for SVA/N the younger and older age group both were performing similarly with not much divergence in their scores but this was not the condition in case of SR. In SR, the scores were significantly varying across the age groups and as they grew older, their scores were not differing. Another important observation from this figure is that none of the participants could score above 8 in any of the syntactic knowledge task.

4.1.4. Performance of children on visual perception task

Visual perception and auditory perception tasks judged on the perceptual skills of a child of different age group. In the visual perception section, there were two sub sections namely, VM/VD and VA/VS consisting 9 task sunder each section respectively. The Mean scores and Standard Deviation of VM/VD and VA/VS are mentioned in table 4.5.

Table 4.5: *Mean scores and Standard Deviation of subsections in visual perception*

AGE	VM/VD		VA/VS	
	Mean	SD	Mean	SD
4.1-4.6	5.07	1.17	6.07	1.48
4.7-5.0	5.23	0.93	6.43	1.30
5.1-5.6	5.80	1.35	7.33	1.60
5.7-6.0	6.93	1.44	7.93	0.80
6.1-6.6	7.07	1.28	8.07	0.76
6.7-7.0	7.03	1.10	8.16	0.98
7.1-7.6	7.63	0.89	8.17	0.66
7.7-8.0	8.10	0.88	8.40	0.37

Note: VM/VD- visual memory/ visual discrimination, VA/VS- visual association/ visual sequencing

By calculating the mean and SD scores for each sub sections a progressive growth as age increased was noticed by accounting a higher score at higher age. Under visual perception task, the mean scores ranged variably across the age groups; wherein, for VM/VD the mean scores were varying from 5.07 to 8.10, and for VA/VS the mean scores were varying from 6.07 to 8.40.

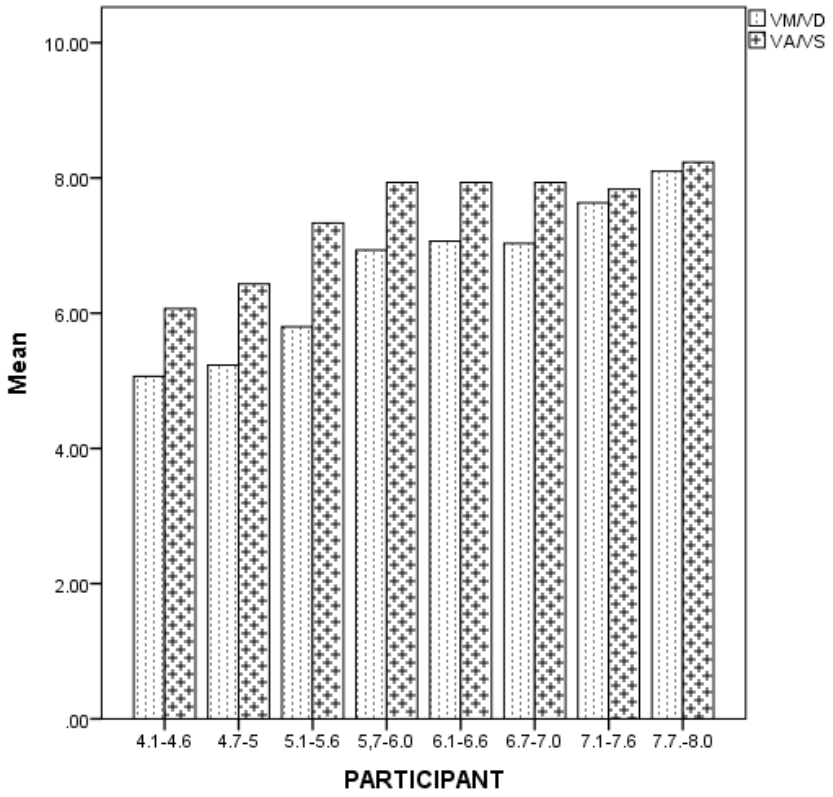


Figure 4.5: Comparison of mean scores of subsections in visual perception

From the figure 4.5, it can be observed that VM/VD and VA/VS scores improved as the age progressed. Another observation was that the scores of VA/VS were comparatively less for three age groups that is from 4.1 to 5.6 years but later the scores and their performances were similar with less score differences if compared with other age groups. For VM/VD sub sections the scores gradually improved from younger to older age group. Comparatively, the scores for both sections were not varying drastically and significantly.

4.1.5. Performance of children on auditory perception task

This was the last section of BLST –H and the second section for assessing perceptual skills of a child. Auditory perception had two sub sections and those were AM and AS/AD which detailed about the auditory perception skills among 8 age groups. The calculated mean scores and SD are depicted in table 4.6.

Table 4.6: *Mean and Standard Deviation of subsections in auditory perception*

AGE	AM		AS/AD	
	Mean	SD	Mean	SD
4.1-4.6	4.43	0.86	5.63	1.71
4.7-5.0	4.67	1.12	6.53	1.25
5.1-5.6	5.53	1.17	6.60	1.87
5.7-6.0	6.53	0.90	7.60	1.10
6.1-6.6	6.50	0.92	7.66	1.27
6.7-7.0	6.87	1.25	7.67	0.89
7.1-7.6	6.90	1.12	8.07	0.73
7.7-8.0	7.20	1.03	8.37	0.52

Note: AM- auditory memory, AS/AD- auditory sequencing/ auditory discrimination

By calculating the mean scores and SD for two sub sections it was found that there was a similar scoring pattern as mentioned in the previous sections. Wherein, for AM, the mean scores were varying from 4.43 to 7.20, and for AS/AD, the mean scores were varying from 5.63 to 8.26. Hence, indicating a growth in scores as age progressed.

Figure 4.6 illustrates the pictorial representation of each subsection under auditory perception tasks across age groups. Through figure 4.6, it can be inferred that the scores of AM is significantly lower than AS/AD across the age group. Considering the scores of each sub section, an improvement was noted as they grew older.

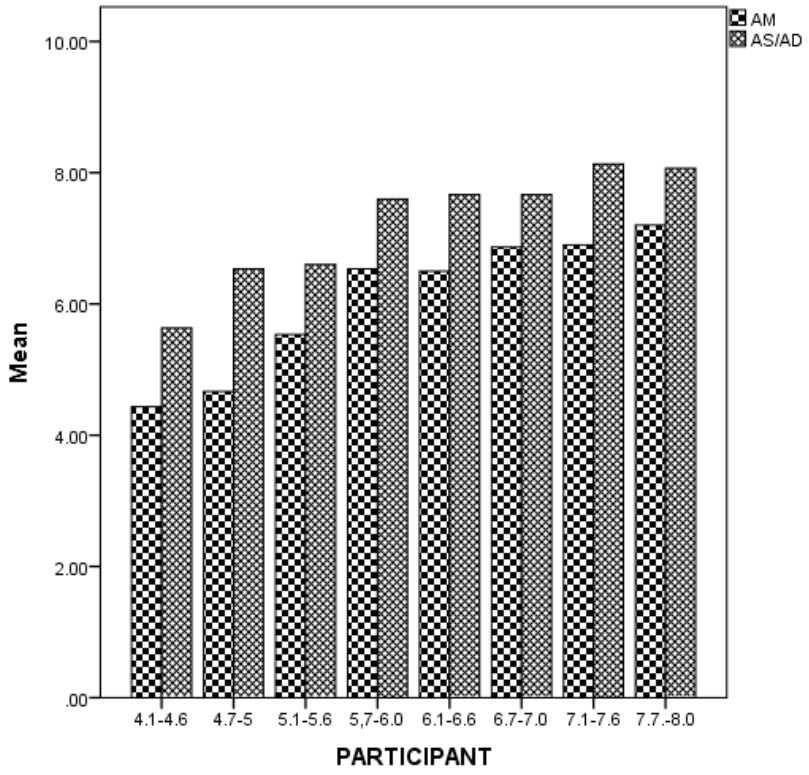


Figure 4.6.: Comparison of mean scores of subsections in auditory perception

4.2. *Comparison of performances across age groups*

After completing the calculation of the mean and SD, Shapiro Wilk test was conducted and this was done for the purpose of calculating test of normality. As a result, test of normality revealed that the data was not normally distributed ($p < 0.05$). Therefore, non parametric test was conducted to check whether there is a significant difference across age groups. Non parametric Kruskal Wallis test was performed to check for the age effect. It was observed that there was significant effect of age across all sub sections ($p < 0.05$) except in SV sub section ($p > 0.05$).

Following the non-parametric result, further Mann Whitney U test was performed to see the pair wise age significance. The pair wise age significance of all age groups across subsections is depicted from table 4.7 to 4.13.

Table 4. 7: *Pair wise age significance of first age group across subsections using Mann-Whitney U test*

SUB SECTIONS	pair wise age significance across sub sections						
	4.1 – 4.6 years						
	4.7 –5.0 years	5.1- 5.6 years	5.7 – 6.0 years	6.1 – 6.6 years	6.7 – 7.0 years	7.1- 7.6 years	7.7 – 8.0 years
	|Z|	|Z|	|Z|	|Z|	|Z|	|Z|	|Z|
BP	0.75	1.6	2.8*	1.7	3.2**	5.8**	5.6
N	1.79	1.4	1.4	0.6	0.6	1.4	1.4
V	1.43	0	0	0	0	0	0
C	0.81	4.2**	4.9**	6.2**	6.7**	6.6**	6.5
F	1.12	2.2*	1.8	2.7*	3.5**	3.9**	4.3
P	0.33	3.8**	4.1**	4.5**	5.6**	6.2**	5.9
C/Q	1.87	5.3**	4.1**	6.5**	6.5**	6.8**	6.8
O	3.29**	3.0*	4.9**	5.7**	5.9**	6.7**	6.7
PRO	0.14	4.7**	6.1**	5.7**	6.1**	6.4**	6.4
VT	0.76	3.2*	3.5**	2.2*	3.0*	2.6*	3.3
P/C/S	0.19	4.3**	4.1**	6.3**	5.8**	5.4**	6.6
SVA/N	2.90	2.1*	2.5*	0.7	2.9*	3.4*	4.7
SR/J	3.62**	5.2**	5.6**	5.9**	5.1**	6.7**	6.8
VM/D	0.81	2.2*	4.5**	4.9**	5.0**	6.0**	6.3
VA/S	0.99	3.1*	5.2**	4.6**	4.6**	4.3**	5.5
AM	0.72	3.7**	6.1**	5.6**	5.9**	6.2**	6.3
AS/D	2.07*	2.1*	4.4**	3.9**	4.7**	5.5**	5.4

Note: '*' indicates $p<0.05$, '**' indicates $p<0.001$

Comparison of I age group to the higher age group (Table 4.7) revealed that C,F,P,C/Q,O,PRO,VT,P/C/S,SVA/N, SR/J, VM/VD, VA/VS, AM and AS/AD were significantly different from third age group onwards. The second age group also showed a significant difference for the task O, and SR/J. Certain sub sections did not showed significant difference in any of the comparison, that includes N, and V. For the task of BP, the fourth, sixth, seventh and eighth group showed significantly different from the first age group.

Table 4.8: *Pair wise age significance of second age group across subsections using Mann-Whitney U test*

SUB SECTIONS	Pair wise age significance across sub sections					
	4.7 – 5.0 years					
	5.1- 5.6 years	5.7 – 6.0 years	6.1 – 6.6 years	6.7 – 7.0 years	7.1- 7.6 years	7.7 – 8.0 years
	|Z|	|Z|	|Z|	|Z|	|Z|	|Z|
BP	0.9	2.1*	1.2	2.6*	5.2**	4.97**
N	2.8*	2.8*	2.3*	2.3*	2.8*	2.80*
V	1.4	1.4	1.4	1.4	1.4	1.43
C	4.0**	5.0**	6.3**	6.31**	6.7**	6.67**
F	3.3**	2.8*	3.8**	4.5**	4.9**	5.13**
P	3.2**	3.5**	3.9**	4.8**	5.4**	5.23**
C/Q	2.7*	2.3*	4.2**	4.7**	5.0**	5.03**
O	0.94	3.3**	4.9**	5.3**	6.6**	6.79**
PRO	5.2**	6.2**	6.0**	6.3**	6.5**	6.52**
VT	3.97**	4.3**	3.03*	3.8**	3.4*	4.12**
P/C/S	4.8**	4.5**	6.8**	6.3**	5.7**	6.86**
SVA/N	4.0**	4.3**	3.0*	4.5**	4.8**	5.59**
SR/J	2.9*	4.0**	4.6**	4.7**	6.5**	6.72**
VM/D	1.8	4.5**	5.1**	5.4**	6.2**	6.48**
VA/S	2.6*	5.0**	4.2**	4.3**	4.0**	5.26**
AM	2.6*	5.3**	4.6**	5.3**	5.6**	5.96**
AS/D	0.5	3.1*	2.6*	3.5**	4.8**	4.64**

Note: '*' indicates $p<0.05$, '**' indicates $p<0.001$

Comparison of II age group to the higher age group (Table 4.8) revealed that N,C,F,P,C/Q,PRO,VT,P/C/S,SVA/N, SR/J, VA/VS, AM were significantly different from third age group onwards. Additionally, for BP task II age group were significantly varying from the group IV, VI, VII, VIII. For the remaining task, O, VM/VD, and AS/AD the IV, V, VI, VII, VIII age groups were statistically significant.

Table 4.9: *Pair wise age significance of third age group across subsections using Mann-Whitney U test*

SUB SECTIONS	Pair wise age significance across sub sections				
	5.1- 5.6 years				
	5.7 – 6.0 years	6.1 – 6.6 years	6.7 – 7.0 years	7.1- 7.6 years	7.7 – 8.0 years
	|Z|	|Z|	|Z|	|Z|	|Z|
BP	0.80	0.09	1.41	3.90**	3.45**
N	0	1.00	1.00	0	0
V	0	0	0	0	0
C	0.53	2.53*	2.26*	3.80**	3.95**
F	0.23	0.43	1.35	2.01*	2.68*
PRE	0.46	1.16	2.95*	3.95**	3.6**
C/Q	0.25	2.50*	3.44**	3.85**	3.9**
O	2.12*	3.31**	3.52**	5.64**	6.2**
PRE	4.2**	3.67**	4.31**	5.49**	5.6**
VT	0.75	0.82	0.05	0.91	0.05
P/C/S	0.2	3.78**	2.43*	3.20**	5.52*
SVA/N	0.3	1.19	0.54	0.93	2.03*
SR/J	2.2*	2.82*	3.38**	5.91**	6.52**
VM/D	2.83*	3.34**	3.41**	4.98**	5.6**
VA/S	2.1*	1.26	1.43	0.59	1.8
AM	3.4**	2.40*	3.72**	4.03**	4.75**
AS/D	2.1*	1.69	2.27*	3.49**	3.4**

Note: '*' indicates $p<0.05$, '**' indicates $p<0.001$

Comparison of III age group to the higher age group (Table 4.9) revealed that for the task O,PRO,SR/J,VM/VD,VA/VS, AM and AS/AD there was a significant difference from the fourth age group onwards. Even from the fifth age group there was a statistical significance for the task of C, C/Q, and P/C/S. For the task P, the VI age group had a significant difference, for the task C, the VII age group had a significant difference, and for task SVA/N, the VIII age group had a significant difference.

Table 4.10: *Pair wise age significance of fourth age group across subsections using Mann-Whitney U test*

	Pair wise age significance across sub sections			
	5.7 – 6.0 years			
	6.1 – 6.6 years	6.7 – 7.0 years	7.1- 7.6 years	7.7 – 8.0 years
SUB SECTIONS	|Z|	|Z|	|Z|	|Z|
BP	0.50	0.93	3.9**	3.32**
N	1.0	1.0	0	0
V	0	0	0	0
C	2.5*	0.2*	3.7**	3.84**
F	0.7	1.5	2.1*	2.72*
PRE	0.8	2.97*	4.13**	3.8**
C/Q	2.1**	2.86*	3.15*	3.2*
O	1.4	1.51	4.08**	4.74**
PRE	0.3	0.06	1.6**	2.20*
VT	1.5	0.77	1.6	0.74
P/C/S	3.2**	2.08*	3.0*	5.2**
SVA/N	1.5	0.31	0.72*	1.93*
SR/J	0.4	1.52	3.4**	4.2**
VM/D	0.38	0.24	2.05*	3.3**
VA/S	0.99	0.75	1.92*	0.88
AM	1.41	1.08	1.1	2.8*
AS/D	0.41	0.20	1.9*	1.8

Note: '*' indicates $p<0.05$, '**' indicates $p<0.001$

Comparison of IV age group to the higher age group (Table 4.10) revealed that for the task C, C/Q, and P/C/S there was a significant difference from the fifth age group onwards. The VII and VIII age group showed a statistical significance for the BP, F, O, PRO, SVA/N, SR/J, and VM/VD task.

Table 4.11: *Pair wise age significance of fifth age group across subsections using Mann-Whitney U test*

SUB SECTIONS	Pair wise age significance across sub sections		
	6.1 – 6.6 years		
	6.7 – 7.0 years	7.1- 7.6 years	7.7 – 8.0 years
	|Z|	|Z|	|Z|
BP	1.3	3.83**	3.3
N	0	1.0	1.0
V	0	0	0
C	0.35	1.42	0
F	0.98	1.7	1.64
PRE	2.08*	3.42**	2.4*
C/Q	1.5*	1.8	3.02*
O	0.1	2.8*	1.80
PRE	0.37	0.97	3.44**
VT	0.78	0.02	1.6
P/C/S	1.11	1.14	0.87**
SVA/N	1.81	2.23*	4.1**
SR/J	1.0	3.1*	3.4**
VM/D	0.21	1.85	3.8**
VA/S	0.2	0.91	3.23
AM	2.13*	2.34*	3.73**
AS/D	0.5	2.1*	1.93*

Note: '*' indicates $p<0.05$, '**' indicates $p<0.001$

Comparison of fifth age group to the higher age group (Table 4.11) revealed that for the task P and AM there was a significant difference from the sixth age group onwards. For the task of SVA/ N, SR/J, and AS/AD there was a significant difference from the VII and VIII age group. The VIII age group also showed significant differences for the task of P/C/S, C/Q, PRO, and VM/VD. There was a significant difference between fifth and VII age group for the task of BP and O.

Table 4.12: *Pair wise age significance of sixth age group across subsections using Mann-Whitney U test*

SUB SECTIONS	Pair wise age significance across sub sections	
	6.7 – 7.0 years	
	7.1- 7.6 years	7.7 – 8.0 years
	|Z|	|Z|
BP	2.75*	1.99*
N	1.0	1.0
V	0	0
C	1.94*	2.15*
F	0.75	1.64
PRE	1.95*	1.4
C/Q	0.2	0.2
O	3.1*	3.91**
PRE	1.8	2.4*
VT	0.8	0.1
P/C/S	1.1	3.42*
SVA/N	0.4	1.62
SR/J	1.4	1.81
VM/D	2.3*	3.7**
VA/S	0.97	0.20
AM	0.02	1.21
AS/D	2.04*	2.05*

Note: '*' indicates $p<0.05$, '**' indicates $p<0.001$

Comparison of VI age group to the higher age group (Table 4.12) revealed that for the task BP, C, O, VM/VD, and AS/AD there was a significant difference for both VII and VIII age group. For the task of PRO, and P/C/S the VIII age group showed a significant difference. And the VII age group showed significance for the P task.

Table 4.13: *Pair wise age significance of seventh age group across subsections using Mann- Whitney U test*

SUB SECTIONS	Pair wise age significance across sub sections
	7.1- 7.6 years
	7.7 – 8.0 years
	|Z|
BP	1.16
N	0
V	0
C	0.35
F	0.98
PRE	0.56
C/Q	0
O	0.88
PRE	0.87
VT	0.99
P/C/S	2.16*
SVA/N	1.28
SR/J	0.68
VM/D	1.98*
VA/S	1.77
AM	1.4
AS/D	0.03

Note: '*' indicates $p<0.05$, '**' indicates $p<0.001$

Comparison of VII age group to the higher age group (Table 4.13) revealed that only for the task SVA/N and VM/VD showed a significant difference and there was no other subsections showing any statistical significance.

4.3. Gender comparison

For gender comparison the mean and SD scores of the total scores in semantic knowledge, morphological rules, syntactic knowledge, and visual and auditory perception section were calculated through descriptive statistics. The same is depicted in the table 4.14 keeping gender as a grouping variable. The mean scores have been depicted in figures to have a complete understanding about the performance of males and females across the age groups in each section.

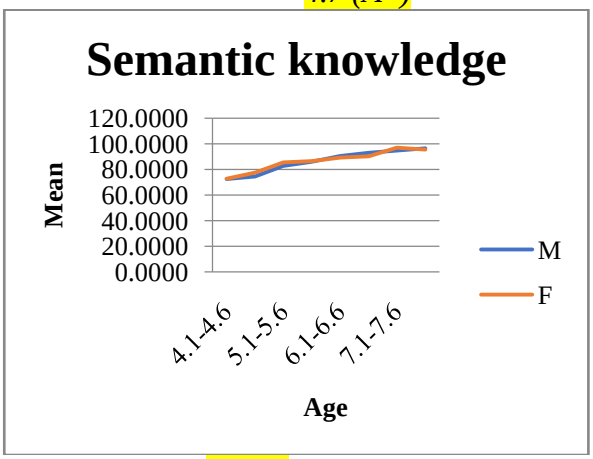
Table 4.14: *Mean and Standard Deviation of males and females across sections*

AGE	GENDER	S K		M R		S R		V P		AP	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
4.1-4.6	M	72.5	6.06	58.0	7.09	59.3	5.42	63.3	11.84	57.8	10.87
	F	72.7	4.85	58.8	8.03	57.8	6.57	60.4	9.82	54.1	12.85
4.7-5.0	M	74.4	5.58	55.3	6.78	59.6	9.02	65.9	9.82	59.6	11.59
	F	77.4	4.50	58.7	5.21	58.9	6.57	63.7	7.82	64.8	10.43
5.1-5.6	M	82.7	6.66	71.6	6.81	70.0	9.10	76.3	8.26	67.4	15.12
	F	85.6	5.98	72.6	5.56	69.6	8.36	69.6	13.75	67.4	14.22
5.7-6.0	M	85.9	4.51	74.8	6.60	74.1	13.89	82.2	10.75	80.7	10.68
	F	86.5	6.81	78.8	7.47	76.3	8.78	85.1	8.01	76.3	7.99
6.1-6.6	M	90.4	3.69	78.0	6.92	72.6	11.20	81.9	12.50	74.1	6.86
	F	89.3	5.40	82.5	6.02	74.8	10.47	84.4	9.20	77.4	7.70
6.7-7.0	M	93.0	4.81	81.7	6.64	82.1	7.99	84.1	10.0	81.9	9.02
	F	90.4	5.71	77.8	7.54	75.2	14.06	82.6	7.53	79.6	9.31
7.1-7.6	M	94.7	3.76	81.5	6.71	82.1	8.26	85.9	9.12	82.1	7.71
	F	97.1	1.93	83.5	6.39	84.1	5.09	84.8	7.71	84.1	10.04
7.7-8.0	M	96.5	2.56	87.7	5.71	87.0	5.42	91.5	5.50	85.9	5.50
	F	95.5	2.53	86.2	5.32	85.6	4.60	88.9	4.69	83.7	10.17

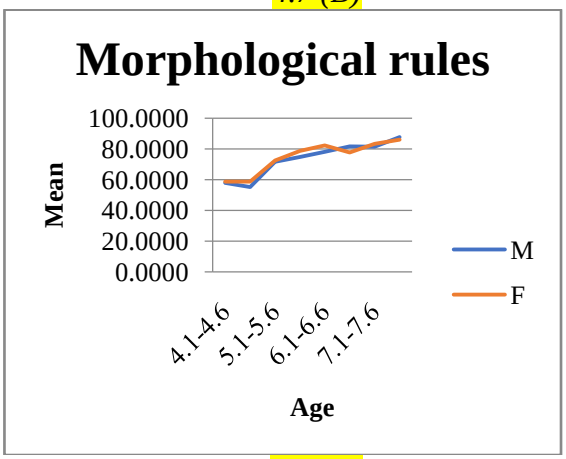
Note: SK- semantic knowledge, MR- morphological rules, SR- syntactic rules, VP- visual perception, AP- auditory perception

The combined figure showing the comprehensive report of the performance in semantic knowledge, morphological rules, syntactic rules, visual and auditory perception across gender is depicted in figure 4.7 (A,B,C,D,E).

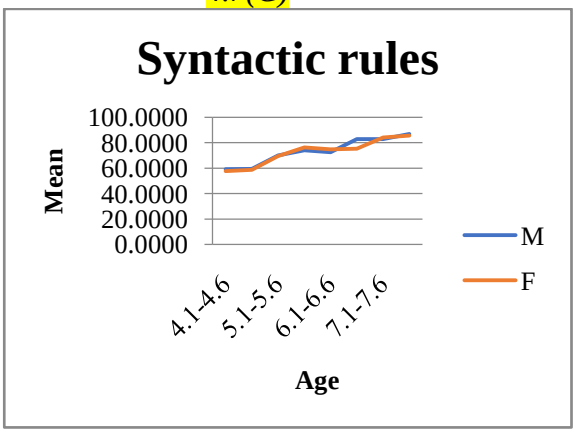
4.7 (A)



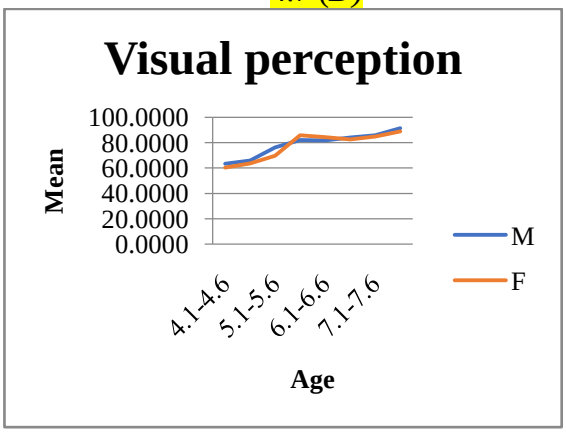
4.7 (B)



4.7(C)



4.7 (D)



4.7 (E)

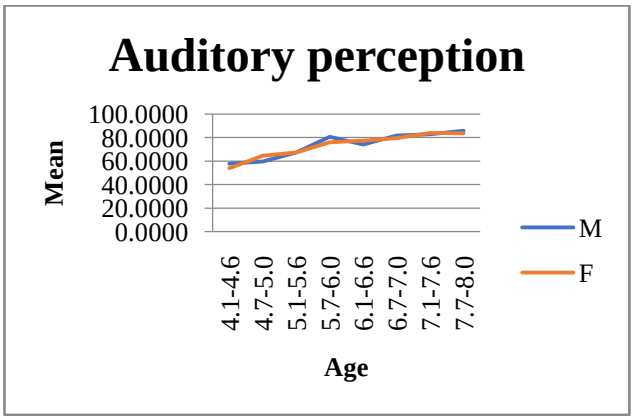


Figure 4.7: Comparison of psycholinguistic and perceptual skills among males and females

Note: A: semantic knowledge across gender, B: morphological rules across gender, C: syntactic rules across gender, D: visual perception across gender, E: auditory perception across gender

In order to find the significant differences across gender, a non-parametric test Mann Whitney U test was conducted. Through Mann Whitney U test, it was observed that there

was no exhibition of statistically significant differences in any age group in any of the sub sections. Thus, the distribution of semantic knowledge, morphological rules, syntactic rules, visual and auditory perception are same across categories of gender.

4.4. Checking for reliability

This was done using the most common internal consistency measure of Cronbach's alpha. In order to judge the order of reliability, 0.7 is generally considered as a minimum alpha value for the satisfactory. For the present study inter reliability and test retest reliability were the two types that were calculated. To check these types of reliability, 10 % (24 participants) of total population was randomly selected and tested for reliability.

4.4.1. Inter rater reliability

In inter rater reliability, by analyzing the ratings of two judges' responses the following findings were observed and the same is depicted in table 4.15.

Table 4.15: *Reliability statistics*

TEST SECTIONS	CRONBACH'S ALPHA
SEMANTIC KNOWLEDGE	0.95
MORPHOLOGICAL RULES	0.92
SYNTACTIC RULES	0.95
VISUAL PERCEPTION	0.92
AUDITORY PERCEPTION	0.92

4.4.2. Test retest reliability

It was conducted by randomly selecting the 24 participants (3 from each age group) and reassessing them after two weeks of first assessment. The Cronbach's alpha was found to be greater than 0.7 over all sections from both the reliability tests and therefore it showed

that all the sections of the Hindi adaptation of BLST were internally consistent. These values indicated high agreement between the ratings by the two raters and thus suggest high reliability.

4.5. Validity

To check validity, the confidence intervals for mean scores of eight age groups under each sub sections of semantic knowledge, morphological rules, syntactic rules, visual and auditory perception was calculated and compared with TDC and CLD group participants.

4.5.1. Validity by conducting BLST-H on 24 Typically Developing Children

The confidence intervals of mean scores were calculated for all the tasks present in the adapted BLST –H. The confidence interval (CI) scores for 240 participants are given separately for each sub section in the age range of 4 to 8 years. Calculating the CI for each sub section, it gives the estimated lower and upper limit for the population mean. The CI given in table 4.16 represents the range for mean for that age group respectively. Validity was assessed by analyzing the scores of another 24 participants on which the normative values were not determined.

The table 4.16 shows the mean and standard deviation of those 24 participants which were calculated and compared with the mean and SD of the total population that is from 240 TDC participants. Prior to data collection each participant's details were documented and respective concerns were signed. The administration of the test followed the same procedure as during the main data collection.

Table 4.16: *Comparison of Confidence Interval (CI) scores of 240 TDC with 24 TDC and 12 CLD*

TEST SUBSECTIONS	AGE	95% CI		TDC (N=24)	CLD (N=12)
		LB	UB		
BP	4.1-4.6	5.72	6.60	5.66	1.5
	4.7-5.0	5.90	6.89	**6.00**	1.5
	5.1-5.6	6.26	7.40	8.00	3.5
	5.7-6.0	6.61	7.58	7.33	2.75
	6.1-6.6	6.33	7.46	**6.40**	3.5
	6.7-7.0	6.86	7.93	7.66	2.5
	7.1-7.6	8.04	8.68	**8.33**	1.5
	7.7-8.0	7.87	8.46	8.33	3.5
N	4.1-4.6	8.83	9.02	8.66	1.5
	4.7-5.0	8.60	8.92	**8.66**	2.5
	5.1-5.6	8.89	9.03	8.66	2.5
	5.7-6.0	8.89	9.03	9.00	2.75
	6.1-6.6	8.83	9.02	**8.90**	3.0
	6.7-7.0	8.89	9.03	9.00	3.0
V	4.7-5.0	8.83	9.0	8.66	2.0
C	4.1-4.6	4.69	5.76	5.00	0.5
	4.7-5.0	5.26	5.93	5.33	0
	5.1-5.6	6.62	7.70	7.33	0
	5.7-6.0	6.92	7.81	7.33	0.5
	6.1-6.6	7.74	8.45	8.33	0
	6.7-7.0	7.70	8.36	8.33	0
	7.1-7.6	8.21	8.72	**8.70**	0
	7.7-8.0	8.22	8.77	9.00	0
F	4.1-4.6	7.58	8.41	8.33	1.0
	4.7-5.0	7.34	8.12	7.77	0.0
	5.1-5.6	8.19	8.86	8.33	1.5
	5.7-6.0	8.0	8.79	8.77	1.5
	6.1-6.6	8.50	8.89	8.89	0.0
	6.7-7.0	8.69	8.97	8.70	0.0
	7.1-7.6	8.78	9.01	8.78	1.0
	7.7-8.0	8.79	9.06	9.00	1.5
P	4.1-4.6	5.70	6.75	6.66	0.5
	4.7-5.0	5.75	6.98	6.33	1.25
	5.1-5.6	7.24	8.08	7.77	1.00
	5.7-6.0	7.44	8.15	7.66	1.75
	6.1-6.6	7.64	8.35	8.33	2.00
	6.7-7.0	8.28	8.71	8.65	0.75
	7.1-7.6	8.51	8.95	8.80	1.0
	7.7-8.0	8.44	8.89	8.60	1.0
C/Q	4.1-4.6	4.79	5.80	5.80	0.00
	4.7-5.0	5.64	6.95	6.33	0.00
	5.1-5.6	7.03	7.96	7.05	0.00
	5.7-6.0	6.73	7.93	7.55	0.00
	6.1-6.6	7.97	8.55	8.00	0.00
	6.7-7.0	8.17	8.82	8.80	0.00
	7.1-7.6	8.45	8.81	8.50	0.00
	7.7-8.0	8.45	8.81	8.45	0.00

OPP	4.1-4.6	2.86	3.93	3.66	1.00
	4.7-5.0	4.24	4.88	4.00	2.00
	5.1-5.6	4.15	5.64	5.64	2.00
	5.7-6.0	5.37	6.75	5.90	2.50
	6.1-6.6	6.12	7.40	6.77	2.00
	6.7-7.0	6.23	7.36	6.33	2.50
	7.1-7.6	7.60	8.32	7.75	1.50
	7.7-8.0	7.99	8.46	8.00	1.00
PRO	4.1-4.6	2.85	3.80	3.00	0.00
	4.7-5.0	2.83	3.63	3.66	0.00
	5.1-5.6	4.63	5.16	4.70	0.00
	5.7-6.0	5.67	6.52	5.85	0.00
	6.1-6.6	5.65	6.74	6.00	0.00
	6.7-7.0	5.66	6.47	6.00	0.00
	7.1-7.6	6.16	6.89	6.77	0.00
	7.7-8.0	6.35	7.17	7.33	0.00
VT	4.1-4.6	7.74	8.52	8.00	0.00
	4.7-5.0	7.44	8.35	7.86	0.00
	5.1-5.6	8.66	9.0	8.66	0.00
	5.7-6.0	8.59	9.07	9.00	0.00
	6.1-6.6	8.26	8.93	8.93	0.00
	6.7-7.0	8.59	9.0	9.0	0.00
	7.1-7.6	8.60	8.92	8.92	0.00
	7.7-8.0	8.73	8.99	8.66	0.00
P/C/S	4.1-4.6	3.93	4.66	4.00	0.00
	4.7-5.0	4.02	4.50	4.50	0.00
	5.1-5.6	5.27	6.19	5.66	0.00
	5.7-6.0	5.28	6.31	5.33	0.00
	6.1-6.6	6.59	7.13	6.67	0.00
	6.7-7.0	6.16	7.16	6.63	0.00
	7.1-7.6	6.37	7.55	6.66	0.00
	7.7-8.0	7.50	8.15	7.66	0.00
SVA/N	4.1-4.6	6.89	7.50	6.90	0.5
	4.7-5.0	6.09	6.90	6.33	0.50
	5.1-5.6	7.35	8.11	7.35	0.00
	5.7-6.0	7.45	8.14	7.89	2.50
	6.1-6.6	6.94	7.78	7.66	0.00
	6.7-7.0	7.53	8.20	8.00	2.00
	7.1-7.6	7.66	8.26	7.95	4.00
	7.7-8.0	8.02	8.44	8.02	4.00
SR/J	4.1-4.6	3.03	3.63	3.45	0.00
	4.7-5.0	3.85	4.47	3.78	0.00
	5.1-5.6	4.47	5.18	4.50	0.00
	5.7-6.0	5.14	6.32	5.33	0.00
	6.1-6.6	5.31	6.48	5.79	0.00
	6.7-7.0	5.72	7.0	6.25	0.00
	7.1-7.6	6.71	7.41	6.77	0.00
	7.7-8.0	7.10	7.49	7.30	0.00
VM/VD	4.1-4.6	4.62	5.50	5.50	1.50
	4.7-5.0	4.88	5.58	5.33	0.00
	5.1-5.6	5.29	6.30	6.00	0.00
	5.7-6.0	6.39	7.46	7.33	1.50
	6.1-6.6	6.58	7.54	7.33	0.00
	6.7-7.0	6.62	7.44	7.00	1.00
	7.1-7.6	7.30	7.96	7.77	0.00
	7.7-8.0	7.76	8.43	8.00	2.00
VA/VS	4.1-4.6	5.51	6.62	5.77	0.50

	4.7-5.0	5.94	6.92	6.00	0.00
	5.1-5.6	6.73	7.93	7.33	0.00
	5.7-6.0	7.89	8.50	7.90	1.00
	6.1-6.6	7.49	8.30	7.66	0.00
	6.7-7.0	7.58	8.35	8.33	0.50
	7.1-7.6	7.36	8.09	7.66	0.00
	7.7-8.0	7.97	8.29	8.00	2.00
AM	4.1-4.6	4.11	4.75	4.70	0.50
	4.7-5.0	4.24	5.08	4.66	0.00
	5.1-5.6	5.09	5.96	5.90	0.00
	5.7-6.0	6.19	6.86	6.66	0.00
	6.1-6.6	5.85	6.54	5.98	0.00
	6.7-7.0	6.39	7.33	7.33	0.00
	7.1-7.6	6.47	7.32	6.66	0.00
	7.7-8.0	6.81	7.58	7.00	0.00
AS/AD	4.1-4.6	4.99	6.27	6.00	1.00
	4.7-5.0	6.06	7.0	6.66	0.00
	5.1-5.6	5.90	7.29	6.55	000
	5.7-6.0	7.18	8.01	8.00	1.00
	6.1-6.6	6.95	7.91	7.91	0.00
	6.7-7.0	7.33	7.99	7.85	1.00
	7.1-7.6	7.86	8.40	8.33	1.00
	7.7-8.0	7.72	8.40	7.95	2.00

Note: BP- body parts, N- noun, V- verb, C-categories, F-functions, P- postpositions, C/Q-colours/quantity, OPP-opposites, PRO- pronouns, VT-verb tenses, P/C/S-plurals/comparatives/superlatives, SVA/N- subject verb agreement/noun, SR/J- sentence repetition/judgement of correctness

Therefore, the findings indicate that the 24 TDCs were falling under the CI.

4.5.2. Validity by conducting BLST-H on Child Language Disorders

Similarly this was conducted among 12 CLDs. The mean and SD of 12 CLD participants were calculated and compared with the performances of 24 TDC participants which were the selected for the validation. The details of CLDs are depicted in table 4.17.

Table 4. 17: *Age and diagnosis of CLDs*

S.No	Mental Age	Diagnosis
1	4.5 years	DSL with MR
2	4 years	DSL with HL
3	5 years	DSL with HL
4	4.7 years	DSL with ADHD
5	5.5 years	DSLD
6	5.9 years	SLI
7	5.7 years	DSL with HL
8	6 years	DSL with autism
9	7 years	ISL with MR
10	6.7 years	ISL with MR
11	7 .2 years	ISL with MR
12	8 years	ISL with Autism

From table 4.18 to 4.29, the validity of atypical group of children is shown. This was carried with those participants who were diagnosed under Child Language Disorder (CLD) and had the Mental Age range of 4- 8 years. These participants were diagnosed at All India Institute of Speech and Hearing and few were been receiving intervention at the same institute and remaining were asked for follow up by contacting them personally. The CLDs included the participants having Delayed Speech and Language (DSL) with other associated problems, their native language was Hindi, few of the participants were belonging to middle socioeconomic class, and few were lower.

The comparison of CLDs and TDC scores across subsections is depicted in below tables. The scores are represented in the form of numerator and denominator. Numerator denotes the scores achieved by each CLD in the specific subsection and denominator denotes the total maximum score of each subsection. Similarly, this was calculated for TDC group.

Table 4.18: *Comparison of scores between TDC and CLDs for the body parts subsection*

AGE	COMPARISION OF SCORES	
	TDC	CLD
4.1-4.6	4/9 7/9 6/9	2/9 1/9
4.7-5.0	3/9 6/9 7/9	0/9 3/9
5.1-5.6	7/9 7/9 7/9	3.5/9
5.7-6.0	6/9 5/9 6/9	3/9 2.5/9
6.1-6.6	5/9 7/9 5/9	3.5/9
6.7-7.0	6/9 5/9 6/9	2.5/9 2.5/9
7.1-7.6	5/9 5/9 7/9	1.5/9
7.7-8.0	8/9 7/9 7/9	3.5/9

As shown in Table 4.18, TDC group participants has achieved the concept of expressing the names of body parts and the performance were better as they grew older. Despite of obtaining the lesser score at the age of 4.1, they were found to be having good comprehension of the body parts and also they could achieve above 50% of the maximum score. Whereas, the CLDs as compared with TDC, it was observed that these participants could perform but has not achieved the concepts as TDC participants. The scores for the expression of body parts among CLD group were significantly lower throughout as compared with the TDCs from the first age group itself.

Table 4.19: *Comparison of scores between TDC and CLDs for the noun subsection*

AGE	COMPARISION OF SCORES	
	TDC	CLD
4.1-4.6	8/9 9/9 9/9	2/9 1/9
4.7-5.0	6/9 9/9 9/9	3/9 2/9
5.1-5.6	8/9 9/9 9/9	2.5/9
5.7-6.0	9/9 9/9 9/9	2/9 2.5/9
6.1-6.6	8/9 8/9 9/9	3/9
6.7-7.0	7/9 9/9 9/9	3/9 3/9
7.1-7.6	9/9 9/9 9/9	3/9
7.7-8.0	9/9 9/9 9/9	4/9

The expression of nouns between TDC and CLD was calculated and the obtained scores is depicted in table 4.19 It can be observed that CLD group scored significantly poor than the TDCs across the age groups.

Table 4.20: *Comparison of scores between TDC and CLDs for the verb subsection*

AGE	COMPARIOSN OF SCORES	
	TDC	CLD
4.1-4.6	8/9 7/9 9/9	 1/9 2/9
4.7-5.0	8/9 9/9 9/9	2/9 2/9
5.1-5.6	8/9 9/9 8/9	1/9
5.7-6.0	9/9 9/9 9/9	3/9 2/9
6.1-6.6	8/9 9/9 9/9	2.5/9
6.7-7.0	8/9 9/9 9/9	3.5/9 3.5/9
7.1-7.6	8/9 8/9 9/9	2/9
7.7-8.0	9/9 9/9 9/9	2/9

It can be observed from the table 4.20 that all the participants of TDC group had acquired the concept of expressing verbs and this finding was equivalent to the performance of 240 TDC participants, hence it indicates they have mastered this concept. But this was not the case in CLD group; whereas, few CLDs performed but not equivalent to the TDC group. It can be observed that, CLD participants' performance was significantly poor across the age groups.

Table 4.21: *Comparison of scores between TDC and CLDs for the categories subsection*

AGE	COMPARISION OF SCORES	
	TDC	CLD
4.1-4.6	6/9 3/9 6/9	 0/9 1/9
4.7-5.0	5/9 5/9 6/9	0/9 0/9
5.1-5.6	7/9 7/9 8/9	0/9
5.7-6.0	6/9 8/9 8/9	0/9 1/9
6.1-6.6	8/9 9/9 8/9	0/9
6.7-7.0	7/9 9/9 9/9	0/8 0/9
7.1-7.6	7/9 7/9 9/9	0/9
7.7-8.0	9/9 9/9 9/9	0/9

It can be observed from the results, which is depicted in table 4.21, that TDC group participants were showing a development across the age and they had performed significantly better than the CLD group. Only one of the CLD from fourth age group had acquired this concept.

Table 4.22: *Comparison of scores between TDC and CLDs for the functions subsection*

AGE	COMPARISION OF SCORES	
	TDC	CLD
4.1-4.6	9/9 7/9 9/9	0/9 2/9
4.7-5.0	7/9 6/9 8/9	0/9 0/9
5.1-5.6	7/9 8/9 9/9	1.5/9
5.7-6.0	9/9 9/9 9/9	0/9 3/9
6.1-6.6	9/9 9/9 9/9	0/9
6.7-7.0	8/9 9/9 8/9	0/9 0/9
7.1-7.6	8/9 8/9 9/9	1/9
7.7-8.0	9/9 9/9 9/9	1.5/9

Comparisons of TDC and CLD group for functions task is shown in table 4.22. All the TDC group participants had acquired the concept of functions starting from the first age group itself; on the other hand, only few CLDs were found to be responding for this task but could not achieve the scores completely; thus, CLD across the age groups performed significantly poorer than the TDC group.

Table 4.23: *Comparison of scores between TDC and CLDs for the postpositions subsection*

AGE	COMPARISION OF SCORES	
	TDC	CLD
4.1-4.6	6/9 6/9 8/9	0/9 1/9
4.7-5.0	2/9 5/9 6/9	1/9 1.5/9
5.1-5.6	4/9 7/9 4/9	1/9
5.7-6.0	6/9 9/9 8/9	1/9 2.5/9
6.1-6.6	7/9 9/9 9/9	2/9
6.7-7.0	4/9 9/9 9/9	0/9 1.5/9
7.1-7.6	7/9 4/9 9/9	1/9
7.7-8.0	6/9 9/9 9/9	1/9

Table 4.23 depicts the scores of each participant under postposition task of semantics section. With the comparison between CLD and TDC, it was evidently observed that each participants of CLD group were performing significantly poorer than the TDC group. From TDC group most of the participants were found to be obtaining a full score but on the other hand, none of the CLD participants were able to obtain 50% of the maximum score.

Table 4. 24: *Comparison of scores between TDC and CLDs for the colours/quantity subsection*

AGE	COMPARISION OF SCORES	
	TDC	CLD
4.1-4.6	8/9 5/9 5/9	0/9 0/9
4.7-5.0	6/9 6/9 7/9	0/9 0/9
5.1-5.6	9/9 7/9 5/9	0/9
5.7-6.0	8/9 8/9 9/9	0/9 0/9
6.1-6.6	8/9 9/9 9/9	0/9
6.7-7.0	9/9 9/9 9/9	0/9 0/9
7.1-7.6	7/9 7/9 9/9	0/9
7.7-8.0	8/9 8/9 9/9	0/9

The scores of each TDC and CLD participants are depicted in table 4.24. It can be observed that the expression of colours/quantity were not found in any of the CLD group but on the hand, TDC was found to be performing significantly better than the CLDs and few were found to be procuring the maximum score. Thus, a developmental pattern was found in TDC and not in CLD.

Table 4.25: *Comparison of scores between TDC and CLDs for the opposites subsection*

AGE	COMPARISION OF SCORES	
	TDC	CLD
4.1-4.6	3/9 4/9 4/9	1/9 1/9
4.7-5.0	3/9 5/9 4/9	1/9 1/9
5.1-5.6	6/9 7/9 4/9	2/9
5.7-6.0	8/9 6/9 7/9	2/9 3/9
6.1-6.6	7/9 9/9 9/9	2/9
6.7-7.0	4/9 7/9 7/9	3/9 2/9
7.1-7.6	8/9 4/9 8/9	1.5/9
7.7-8.0	8/9 8/9 8/9	1/9

From table 4.25, it was found that CLD group participants were comparatively poorer than the TDC. Whereas, TDC were able to procure better scores than the CLDs and there was a progressive improvement across the age but this was not found among CLD group; even though each CLD group was found to be responding for at least one item in a row.

Comparison of scores of CLD with TDC in expressing the morphological rules (pronouns, verb tenses, plurals/ comparatives/ superlatives) is depicted in table 4.26.

Table 4.26: *Comparison of scores between TDC and CLDs in morphological rules*

AGE	COMPARISION OF SCORES					
	Pronouns		Verb tenses		Plurals/comparatives/superlatives	
	TDC	CLD	TDC	CLD	TDC	CLD
4.1-4.6	5/9 5/9 5/9	0/9 0/9	7/9 8/9 9/9	0/9 0/9	6/9 6/9 6/9	0/9 0/9
4.7-5.0	5/9 2/9 4/9	0/9 0/9	6/9 7/9 8/9	0/9 0/9	6/9 5/9 4/9	0/9 0/9
5.1-5.6	3/9 4/9 3/9	0/9	8/9 9/9 9/9	0/9	4/9 7/9 6/9	0/9
5.7-6.0	1/9 7/9 5/9	0/9 0/9	9/9 9/9 9/9	0/9 0/9	4/9 8/9 4/9	0/9 0/9
6.1-6.6	4/9 6/9 8/9	0/9	9/9 9/9 9/9	0/9	5/9 8/9 6/9	0/9
6.7-7.0	4/9 6/9 8/9	0/9 0/9	9.9 9/9 9/9	0/9 0/9	7/9 8/9 8/9	0/9 0/9
7.1-7.6	6/9 3/9 7/9	0/9	9/9 9/9 9/9	0/9	7/9 6/9 7/9	0/9
7.7-8.0	7/9 7/9 8/9	0/9	8/9 9/9 9/9	0/9	6/9 8/9 9/9	0/9

The table 4.26 indicates the performance of TDC and CLD group for the morphological task. With the results it was evidently observed that none of the CLD group was able to respond or understand the task under morphological rules. Hence, it shows that the participants involved in CLD group were inadequate and having poor scores than the TDC.

Comparison of scores of CLD with TDC in expressing the syntactic rules (subject verb agreement/ negation and sentence repetition/ judgement of correctness) is depicted in table 4.27.

Table 4.27: *Comparison of scores between TDC and CLDs in syntactic rules*

AGE	COMPARISION OF SCORES			
	Subject verb agreement/ negation		*sentence repetition/judgement of correctness*	
	TDC	CLD	TDC	CLD
4.1-4.6	7/9 7/9 9/9	0/9 1/9	2/9 2/9 3/9	0/9 0/9
4.7-5.0	7/9 5/9 7/9	0/9 0/9	3/9 4/9 4/9	0/9 0/9
5.1-5.6	8/9 7/9 7/9	0/9	5/9 6/9 1/9	0/9
5.7-6.0	9/9 7/9 9/9	0/9 5/9	5/9 4/9 7/9	0/9 0/9
6.1-6.6	6/9 9/9 8/9	0/9	4/9 6/9 4/9	0/9
6.7-7.0	8/9 8/9 9/9	4/9 0/9	8/9 7/9 5/9	0/9 0/9
7.1-7.6	9/9 6/9 7/9	4/9	7/9 3/9 7/9	0/9
7.7-8.0	7/9 8/9 9/9	4/9	7/9 7/9 7/9	0/9

In the task of assessing syntax knowledge among CLD, same findings were observed wherein; none of the CLDs was able to express subject verb agreement/ negation and sentence repetition/ judgement of correctness. CLDs performed significantly poorer than the TDC group.

Similarly, for perceptual skills, the scores of each TDC and CLD was calculated and compared with each other. Comparison of scores is depicted in table 4.28 and 4.29.

Table 4. 28: *Comparison of scores between TDC and CLDs in visual perception*

AGE	COMPARISION OF SCORES			
	Visual matching/visual discrimination		Visual association/ visual sequencing	
	TDC	CLD	TDC	CLD
4.1-4.6	5/9 5/9 7/9	0/9 3/9	8/9 6/9 9/9	0/9 1/9
4.7-5.0	5/9 5/9 6/9	0/9 0/9	7/9 5/9 6/9	0/9 0/9
5.1-5.6	8/9 6/9 4/9	0/9	8/9 7/9 7/9	0/9
5.7-6.0	6/9 5/9 7/9	0/9 3/9	8/9 9/9 9/9	0/9 2/9
6.1-6.6	6/9 8/9 8/9	0/9	7/9 9/9 7/9	0/9
6.7-7.0	9/9 9/9 9/9	0/9 2/9	9/9 8/9 8/9	0/9 1/9
7.1-7.6	6/9 8/9 6/9	0/9	9/9 6/9 6/9	0/9
7.7-8.0	7/9 8/9 9/9	2/9	7/9 8/9 8/9	2/9

In visual perception task CLDs, scores were significantly poorer from TDC group. CLDs performance for visual matching/ discrimination was better than the subsequent task. Most of them were found to be responding better in visual matching and discrimination task despite being scoring lesser than the TDCs. Many CLDs were found performing with difficulty in Visual association/ visual sequencing task

Table 4.29: *Comparison of scores between TDC and CLDs in the auditory perceptual task*

AGE	COMPARISION OF SCORES			
	Auditory memory		Auditory sequencing / auditory discrimination	
	TDC	CLD		
4.1-4.6	4/9 5/9 6.00	0/9 1/9	6/9 6/9 7/9	0/9 2/9
4.7-5.0	5/9 3/9 6/9	0/9 0/9	8/9 5/9 7/9	0/9 0/9
5.1-5.6	6/9 5/9 7/9	0/9	9/9 7/9 9/9	0/9
5.7-6.0	5/9 8/9 7/9	0/9 0/9	7/9 8/9 9/9	0/9 2/9
6.1-6.6	5/9 5/9 5/9	0/9	7/9 8/9 9/9	0/9
6.7-7.0	6/9 8/9 8/9	0/9 0/9	9/9 8/9 8/9	0/9 2/9
7.1-7.6	6/9 6/9 8/9	0/9	8/9 8/9 9/9	1/9
7.7-8.0	7/9 6/9 7/9	0/9	7/9 8/9 8/9	2/9

The comparison of scores between TDCs and CLDs in the auditory perceptual task is depicted in table 4.29. The results for the auditory perception was equivalent to the visual perception task, the performance of CLDs was significantly poorer and from the scores it was found that few of CLDs group were able to attempt for the auditory discrimination task but this was not found in auditory memory task.

To conclude, from these performance scores of TDCs and CLDs, it was observed that in TDC group, the scores for each of the section lay between the CI; but the similar response was not appreciated among the CLD. They performed poorly when compared to TDCs and it was noticed poor across all sections. On comparing the scores across the age groups, it was observed that all the three TDC across the age groups had acquired or were

at the stage of mastering the psycholinguistic and perceptual skills, but this was not found in any of the CLDs. This shows that they still need to acquire many skills to achieve the growth in their language skills and cognitive skills. It may also be noted that CLD participants were not able to finish the test in the given time, and also required more prompts and cues.

CHAPTER V

DISCUSSION

CONTENTS

Studies in the area of psychological and neurobiological factors of how humans acquire, express, and understand language in their environment defines psycholinguistics (Hatch, 1983). During the language acquistion, cognition has an important role. Cognitive processes play a major role for further growth in a child's metalinguistic skills, which is required for the growth of vocabulary and grammatical structures for them to comprehend utterances and words. The self-awareness, hand to eye co-ordination and memory skills are developed. Thus, in real sense to rule out any child with delayed language milestones, they should be screened appropriately by judging their psycholinguistic and perceptual skills. As it was previously discussed, psycholinguistic and perceptual skills have been a major field for researchers to study the development of language and its essential components in combination to perceptual skills. In this regard 'Bankson Language Screening Test' (Bankson, 1977) a screening material was adapted in the present study that provides a means to inspect the psycholinguistic and perceptual skills in Hindi speaking children. The results of the study indicate a number of potential factors in development of psycholinguistic and perceptual skills in typically developing young participants.

Through descriptive statistics, the values of Mean score and Standard Deviation (SD) were calculated. It was observed that the differences in scores for each task enhances, as they grew older. These findings do support diverse studies of western as well as of Indian studies (Fry et al, 1970; Wiig & Semel, 1975; Wiig 1984; Chakravarti & Srimani, 2012). The score difference in each task across the age group signifies a growth in their psycholinguistic and perceptual skills. Based on the difficulty level across age groups, a hierarchy was established by considering the entire five sections, in which the scores of semantic knowledge was evidently uplifted over the other four sections and was placed as a least difficult task irrespective of age groups and genders. In psycholinguistic skills, acquisition of semantic rules was dominant followed by morphological rules and syntactic

rules with a marginal difference in their mean score. Whereas in perceptual skills, the visual skills were achieved with higher scores than the auditory skills but these scores were not significantly varying.

Henceforth, by considering the results of descriptive statistics and the results of non- parametric test, this chapter discusses the participants of the major findings of psycholinguistic and perceptual skills after implementing BLST-H among the participants of 8 age groups and document the differences accounted while conducting the same test on atypical population.

5.1. Development of semantic knowledge

In order to acquire the semantics of a language, a child must gain knowledge typically in identifying the relevant linguistic items, understanding the meanings and its relationship, and learning about how the forms connect to the meanings. Thus, it can be said that as children grow, they become better at knowing forms and structures and show progress in their conceptual abilities of the world. It has been focused in the present study, by documenting the findings and observations made during the assessment of semantic knowledge. As mentioned in chapter 3, this test has eight sub sections, which are targeted on the expression and comprehension of semantic skills in a child. These sub sections were body parts (BP), noun (N), verbs (V), categories (C), functions (F), postpositions (P), colors/ quantity (C/Q), opposites (OPP) respectively which were scored individually with a score of nine. Based on the scorings for each task the mean percentages were calculated and were formally depicted in a bar graph, which is depicted in chapter 4.

According to the results, there was a growth occurring irrespective of gender and a rising pattern was maintained across the age, which is to say, from younger age group to older age group. This subsection includes both comprehension and expression response.

For comprehension task, it was observed that the children were able to understand the instructions and were accurately indicating the responses through pointing the pictures and the similar responses were appreciated in both males and females. It was also noticed that a few of the participants from all the age groups were not proficient in responding for few body parts irrespective of major and minor body parts such as elbow, thumb and shoulder. Additionally, a few of the participants could point at the correct body parts but in a presumption. Many young participants of elementary age were advanced in comprehension task rather than in expression such as when asked to express the categories, postpositions, a quantity and body part they were finding difficulty in expression but that was not the same in case of comprehension. This in turn proves that the children of below 6 years have the capacity to understand the semantic skills adequately, but the same impact for expression is inadequate and shows they are in a stage of development. The findings are in concurrence with the study of Rukmini (1994) who documented that language performance improves with age, and comprehension is better than expression during the stages of language development. There are evidences provided by studies on the early language growth in children, in conclusion, many have suggested that children firstly perceive and understand the sound structure and meanings of words before the production (Clark & Hecht, 1983). Goldin-Meadow and her colleagues (1976) documented that 1- to 2-year-old children often seem to understand the word dog but the same response was not observed in naming a picture of a dog. Hence, it can be inferred that at this stage, children probably understand the adult meaning of dog but when asked to produce they would be producing only the child word or no word (Rescorla 1980). Finally, comprehension does not match production in studies of children's acquisition (Clark & Hecht, 1983). The possible reason for the limited growth in children's production was probably because of having difficulty in retrieving the targeted words.

In the present study, it was found that children performed extremely better for three sub sections namely, nouns, verbs and functions. Verb was achieved before the noun but the differences were not significant to justify the dominancy over the other and additionally, the scores for verbs and nouns were achieved completely from the first age group onwards. This may also indicate that these two skills might have emerged earlier and leading with higher scores as contrasted to other tasks. The subsequent score was obtained in 'functions' sub section. In this regard, there are diverse discussions with a title of thematic skills wherein, the growth of types of thematic skills among children and adults are focused (Nelson, 1977; Cronin, 2002; Naomi Hashimoto, Karla McGregor and Anne Graham, 2007; Janani & Prema, 2008). To define 'thematic', it links an object co-occurring in the same situation or event. For example: 'chair — to sit on' (Caramelli, Setti, & Maurizzi, 2004). Considering the scores of function task, it was observed that the children from first age group onwards were capable of categorizing and expressing the name of an object based on an item function. As age increased, it showed a succeeding pattern along with the growth of other semantic tasks. For the task of colors / quantity, categories, post – positions, and body parts, most of the children were capable in expressing correctly but were lacking in stability. This performance was similar across the age groups and hence, was difficult as compared with other tasks in all age groups, but comparatively better than the opposite.

Thus, from the descriptive statistics and through graphical representation a hierarchy by relating the scores of each subsection in the development of semantic knowledge was drawn starting from the least to the most difficult and this was irrespective to age and gender. This information is depicted in Fig 5.1.

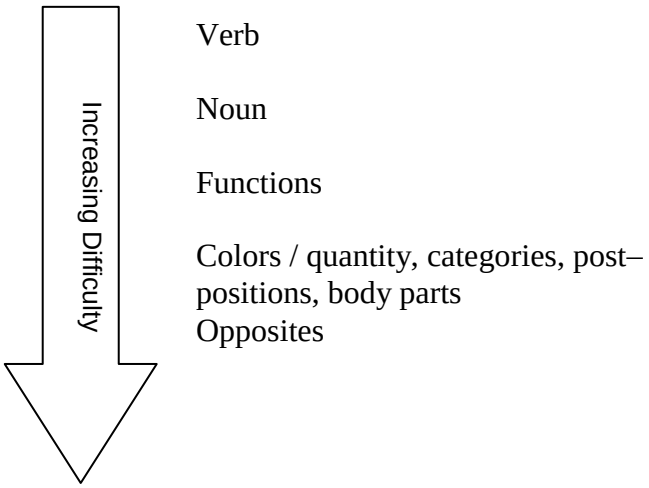


Figure 5.1: Hierarchal representation of performance across age groups in the subsections of semantic knowledge

The figure 5.1 provides evidence that the children starting from their elementary age onwards initiates expressing the nouns, verbs and functions but the same growth is not shown while expressing opposites and thus it was found to be most difficult than other semantic tasks.

5.1.1. Acquisition of Nouns and Verbs

According to Nelson, 1973 nouns are acquired earlier than verbs due to the differences in their semantics and syntactic properties but this was not the case in the findings of the present study. In another study by Masterson et al, 2008 it was listed that see, give, make, and so on verbs are formed later than nouns. In the current findings even if the verbs were scored above the nouns, there was no statistical differences as such which demarcates the acquisition of nouns and verbs. Nouns and verbs are two different word classes that are classified within lexical items and it has major impact for the growth of language and communication. A verb consists of syntactic entity and because of the

complexity, it is meant to be more complex than nouns (Nelson, 1973). Noun is meant to be simpler because it indicates the objects which may be referring to the people, places and things but this are less relational in their semantics than the verbs (Langacker, 1987). Another reasons documented are in support to the imageability effect, wherein noun retrieval is faster because it is benefited more from imageability that is to say it is more imageable than verbs (Bird et al. 2000,2003). Another reason is to do with the effects of word frequency during lexical retrieval, which says that low frequency nouns are difficult to name than the high frequency words (Kauschke & von Frankenberg, 2008). Horowitz & Prytulak in 1969 concluded their findings on the memory for nouns and verbs, which indicated that during the sentence recall nouns were retrieved better than verbs. Additionally, subject's nouns were easier to recall than the object nouns. In contrary to the findings of above studies, Zingeserlly and Berndt in1988 has also put forth their views stating verbs are acquired first because it is naturally more vulnerable.

5.1.2. Acquisition of postpositions and opposites

Another finding from the present study was on the acquisition of postpositions that was comparatively better than the acquisition of antonyms/opposites. Participants starting from the first age group onwards itself have achieved in their expression of postpositions but have not mastered it completely. Hence, it indicates the acquisition has happened much earlier and develops across the stages. The same findings were postulated in a study done by Basavaraj, Goswami, and Priyadarshi (2009), it was stated that the comprehension of postpositions are acquired at 2 years and expression at the early stage of 2.5 years irrespective of gender. Additionally, according to their findings, it was documented that there was no indication of postpositions among the 3.5 – 4.5 years age group, signifying a growth emerging. This was studied among Tamil speaking children and this was in support

to the current findings. According to the author and her findings, the Tamil speaking child acquires this concept from the age of 3-5 years and continues to develop thereafter (Sunanda, 2017).

As shown, opposites are found to be the most difficult across age groups despite of showing a progress in their expression of opposites along with their age. Similar findings were documented by Rukmini (1994), according to the results, the concept of opposites were not achieved completely even at the age of 6 -7 years.

5.1.3. Acquisition of categories and functions

Along with above findings it was noticed that when the task was given to express the categories and functions of any object, they were scoring comparatively higher for functions and not for categories. Obsbornen and Calhoun (1998), Nguyen and Murphy (2003) reported similar findings for the object categorization. It postulates evidence that a child initiates his/her growth by constructing his/her conceptual skills by comprehending the specific functions of any object and not by categorizing the objects according to the sub ordinates, supra ordinates or co-ordinates. In fact, when children of this age group begin to grow older, their conceptual skill extends an ability to switch to understand and express the categories of an object or the taxonomic relation (Nguyen & Murphy, 2003). From the third age group that is from the age of 5 years onwards the participants had evidently achieved the comprehension and expression of categories and functions; which is similar to the results of the study conducted by Deepa, Shyamala, and Deepthi (2013) and Locke (1993), and the differences in the scores between categories and functions decreased. This provides a statement that the flexibility initially achieved in expressing the functions of an item than in naming the categories (Janani & Prema, 2008). Comparatively, the comprehension of categories and functions was well achieved in the early age itself.

Results of the study suggests that after entering the school, children rapidly develop language skills by mastering flexibility in object categorization and the same was found in a study conducted by Deepa, Shyamala, and Deepthi, (2013), McLaughlin, (1998).

5.1.4. Acquisition of body parts and Colours/Quantity

These two subsections were performed by all age groups but were limited when asked to express the names. In body parts, participants of first two age groups were finding difficulty in answering the names of fine body parts such as thumb, knee and few major parts such as neck and shoulder. In older age groups they were having naming difficulties and also had confusions for few minor parts like knee, thumb, neck, and shoulder. This is in accordance with Asha (1997) and Suhasini (1997) who have stated saying the concept of body parts are achieved by age of 6 + years. There are other findings that support the results obtained for body parts expression. According to Suchitra and Karanth (1990), the scores for body parts subsection reached maximum only by 11 years. Similar to this statement, Sharma (1995) stated that the scores on body parts were not scored higher even by 15 years of age and most of the errors were for the task of identifying the right side and left side of body parts.

In the present study, it was observed that the children of first and second age groups were able to name only the basic colours and those are red and black. But as age increased, the participants of third age group showed a sudden growth in their performances wherein they were capable of naming most of the colours from the given list appropriately and this continued to progress in later stages. This is in accordance with Asha (1997) and Suhasini (1997) who has also stated saying the colour concepts are achieved by 6 years and above. Similarly, it was mentioned in a study conducted by Deepa, Shyamala, and Deepthi (2013) that in, the naming of 6 to 8 colours were acquired at the age of six, which points towards

the fact that the number of colours being acquired in younger groups would be much lesser. In addition, few postulations have been made regarding the role of primary and secondary colours (Berlin & Kay, 1969; Kay & MaY, 2000; Kay & McDaniel, 1978), wherein it is stated that a hierarchical order of acquisition occurs while learning colours. It is believed to be universal. This fact was firstly proposed involving the seven stages. The stage 1 (black and white), stage 2 (red), stages 3 and 4 (yellow and green in either order), and stage 5 (blue) were referred to primary colours. The stage 6 (Brown) and stage 7 (orange, purple, pink, and grey) colours were grouped under non primary or secondary colour. Further, when the task was to name and indicate the brown and grey the preschoolers were repeatedly inaccurate. Thus, it can be concluded that the young children have difficulty in differentiating few colours which in turn, relates with the cognition of an individual (Pitchford & Mullen, 2003).

With the mean scores of first and second age group participants, it was observed that they were scoring higher in few sections but at the same time, they were lacking in few other sections. These children belonged to elementary age group where they initiate learning reading, writing, socializing and so on. This on the other hand, supports the growth of various other linguistic skills. The performance of both the groups were not significantly varying across the task but there was enhancement in the scores of opposites, colors/quantity, therefore it accounts a sign of progress happening with the age and these could be in both comprehension and expression. Along with all such findings it was noticed that seventh and eighth age group participants were scoring higher in almost all the sub sections of semantics. Wherein, they were scoring better than the previous age groups in almost all the sub sections. This conveys that there is a growth happening across the stages of linguistic development and this development happens besides learning of new concepts. As noticed from the 6 years onwards there was a better score in almost all the tasks of

semantic section. This would be because of the fact that by six years, children would have entered first grade and start learning language concepts (Deepa, Shyamala, and Deepthi, 2013) and learn to imply the same in different scenario, which is equally important in the growth of their language.

To conclude it can be said that there was development seen in each sub section under semantic knowledge as age progressed. Additionally, each age group followed a similar pattern while performing in which noun and verb were scored at maximum then followed by functions, colours / quantity, categories, post – positions, body parts and the least was opposites.

5.2. Development of morphological rules

In earlier section, the discussion was made on the concepts of semantics that includes growth in naming skills, verbs and other related parameters. Following to this a child starts acquiring the grammatical morphemes of their native language, which are plurals, tenses and so on. Morphological rules judge the knowledge of children based on their abilities to comprehend and express the various morphological skills. In BLST-H the same was evaluated by taking in the three task scores respectively which accounts for a total of 27 scores (9 for each task). Those three tasks were only for expression of pronouns, verb tenses, and plurals/comparatives/ superlatives. Each task had different identity and difficulty level for a child to respond; the results of this sub section indicated a progressive trend along with age. This trend was followed for the entire task but the tremendous growth was markedly shown in the verb task. The pronoun task was placed with low scores in all age groups. Looking at the scores of each task it hierarchal growth can be observed from least to most difficult in perceiving morphological knowledge among

the eight age groups and this is depicted in Fig 5.2. This was the growing pattern observed among all age groups.

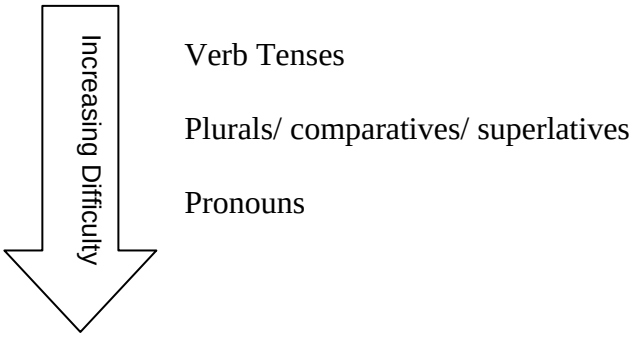


Figure 5.2: Hierarchal representation of performance across age groups in the subsections of Morphological rules

Though there was a growth across age group, there were few tasks which were considerably scored lower. 'Pronouns' task which was increasingly difficult than the remaining two.

5.2.1. Acquisition of pronoun

Pronoun task had low scores across age groups. It was evaluated based on the child's performance for three types of pronouns, as discussed previously. When the individual scorings were evaluated it showed a mastery in few kinds of pronouns from the first age group onwards itself. The findings and observations suggested that in possessive pronoun, the children of first four age groups were confident, consistent and faster in expressing singular form possessive pronoun /mera/ and /meri/ but not the same with plural form /həmari/ and /həmara/. Even at the age of 6 years, few individuals were finding difficulty in responding for plural possessive pronoun, but were recovering at later stages. In subject pronoun, many individuals across age groups were finding easier to understand and respond correctly for singular than the plural form. To add on, despite of the better performance by 4.1 – 5.6 years age children for the task of expressing subject pronoun, they were not familiarized with the concepts. This was not the condition observed in higher

age groups because they could comprehend and respond accordingly for the singular subject pronoun. The next type is object pronoun. It was comparatively difficult to make the first six age groups understand and respond; whereas, participants of the last two age groups were confident and quick in completing the task. In Hindi, pronouns consist of first, second and third person for singular and plural gender. In the present study, first and second person was considered and in results it was found that the participants of first four age groups were finding difficulty in responding for second person object, subject and possessive pronouns such as, /apəko/ /ʋe/ /həmari/. Additionally, from the present findings it is evidently inferred that the participants starting from the first age group onwards, had difficulty level in expressing the types of Hindi pronouns wherein, possessive pronouns were least difficult and the other two subject and object pronouns were equally difficult.

Many individuals across the age groups had difficulty in comprehending and confidently responding for three forms of pronoun than the other two sub sections, which could be a reason for obtaining consistently low scores across the age group. Indeed, there was extreme progress observed from the age of 5.1 years onwards in expressing pronouns but none of the groups could fetch a complete score of nine. The participants from the first age group onwards had initiated the growth in expressing the pronouns but had not yet mastered even at the age range of 7.6 to 8 years. These findings are in tune with the growth of language at the intuitive linguistic period which was postulated by Matthews (1996). At this period, personal pronouns are not used adequately and it was observed to be developing from there onwards. Additionally, it was observed that even at the age of five, personal pronouns were not used properly and they developed from 5 to 8 years of age.

Basavaraj (1981) stated that comprehension of pronouns is achieved much earlier than the expression irrespective of genders in Kannada speaking children. Additionally, the study suggested that there is an increasing developmental pattern from 1 to 5 years and also

stated that at the age of 1.6 years they have the ability to understand the pronouns. At the age of 2.6 – 3.0 years, they start expressing /nanu/ /ninu/ (object pronoun) and at age of 3.6-4.0 years they start using /avanu/ and /ivanu/ (subject pronoun) and the similar findings were also documented in Santhi (2008) and Gopikishore, Basvaraj & Goswami, 2012). The similar finding was documented in Deepa, Shyamala, and Deepthi, 2013 study; according to their findings, a Kannada speaking child at 3.6 years use pronouns such as me, mine, my, he, she, it, they , them. These findings are in agreement with Brown (1973), Villers and Villers (1973), Navitha (2009), and Levy and Polisok (2011). Another supportive finding was cited in Prasitha, 2008. Wherein, it was stated that personel pronouns emerge after stage II, subjective pronouns are mastered before stage II, followed by object pronouns and the possessive pronouns such as his, hers, theirs developed at later stages.

5.2.2. Acquisition of plurals, Comparatives, and superlatives

In the hierarchal representation it is observed that plurals, comparatives, superlatives were performed lower to the verb tenses, but prevailed a growth along with the age. This growth was much higher than the growth seen for pronouns. Judging based on the individual task performances, in plurals there were total five items that included three regular and two irregular forms. As observed, all the participants across age groups were familiar with concepts of pronouns but this was acknowledged only in English language. Where many participants of younger age group that is from 4.1 to 6.0 years and few even from fifth age group were adding suffix /s/ to the singular form when asked to express plurals in Hindi (Eg: /kiṭ̪ab/ - /kiṭ̪abs/). This implies that at younger age children do have the concepts of plurals, but not equally learned in their mother tongue. It was also noticed that even after 6 years participants were finding difficulty in expressing accurately the irregular form of plurals, when asked to respond for the plural form of /ləɖəki:/ where the

expected response would be (/ləɖəkɪjˇa/ but as mentioned ,children even of that age group were finding difficulty. Berko (1958) also stated in support to the current findings, saying children even at 7 years has morphological errors during expression task. Many researchers have found that children at around age of two years initiate towards producing plural forms with regularity (Cazden, 1968; Brown, 1973; Gordon, 1982). Similar findings were observed in the study conducted by Anitha (2004). As per the result of the study, it can be observed that the syntagmatic relationship, PNG markers are achieved by 4.7 to 5 years; colour, antonyms and comparatives are achieved by 5 to 5.6 years; later on by 7 to7.6 years, pronouns, paradigmatic relations, plurals are achieved and the concept of tenses is obtained by 7.6 to 8 years. The current findings were similar to the findings of Malayalam Language Test (MLT), in results it was found that even at the age of 6 – 7 years the children were not able to procure complete scores.

While expressing comparative and superlatives the participants were judged on their expression of two different degrees. For this task, most of the participants starting from the first age group could accurately respond and were consistent with the response. There are few supportive studies, such as Layton and Stick (1971) and David (1974) who found a child at 3 to 4 years understanding the comparative and superlative markers. Deepa, Shyamala, and Deepthi (2013), found that by 5.6 to 6.0 years, most of the concepts learnt previously get stabilize and learning of new concepts takes place. At this age, the degree concepts are understood such as positive, comparative, and superlatives and slowly these concepts are mastered in the school age. Similar to this Navitha in 2009 has reported by saying that, at 4.6 to 5.0 years itself the comprehension of degrees initiates.

5.2.3. Acquisition of verb tenses

Another subsequent task under this section was expression of verb tenses. From the scores of descriptive statistics it was found that, the rules of tenses were accomplished starting from the first age group, but to master the rules of verb tenses by achieving complete score was commenced at the age of 5.1 years. In fact the previous age group participants belonging to elementary age 4.1 to 5.0 years were, nowhere less in accurately performing for verb tenses, this leads to the fact that the growth in comprehending and using tenses may have achieved earlier but not yet mastered. Moreover, there was some discrepancy between the age groups with their respective scores which may be because of the difference in an individualistic performance.

These findings are in support with Basavaraj, Goswami, and Priyadarshi (2009), who has documented their findings saying comprehension and expression of tense markers emerges from the 2 years of age. This was similarly documented in the findings of Sreedevi (1976) and Murthy (1981) where the differences in acquisition of tenses across gender were documented. According to their findings, at the age of 3 to 3.5 years males performed better and at the age of 4 to 4.5 years females performed better. Prasitha, 2008, has documented the identical finding, wherein it was stated that among 2 to 5 years age children the growth of present and past tense is much earlier than future tense.

To conclude, it can be said that to master the morphological rules, an individual must have accuracy in using verb tenses, plurals, degrees, and pronouns. For finding the accuracy in individual task, it was observed that the maximum accuracy and mastery in production of tenses were followed by plurals/comparatives/superlatives and least accuracy was observed in pronouns. In addition, this pattern of difficulty was found to be the same among all age groups.

5.3. Development of syntactic rules

Syntax acknowledges the growth of an individual in terms his/her understanding and expressing the structure of sentences, meaning of sentences and metalinguistic skills. An individual without the explicit instruction tends to develop the syntactic rules by socializing and listening other's speech. In fact, involvement of parental stimulation and environment exposure plays an important role. Thus, these are seemingly important factors for a child to strengthen their linguistic skills (Navitha, 2009).

To judge on the growth of syntactic rules, which was assessed with the BLST –H, there were two sub tasks, subject verb agreement / negation and sentence repetition/ judgment of correctness respectively. The results indicated that there was a growth happening in the two tasks, as the age progressed. Additionally, there was a difference in the performance across the age groups leading into having highest in one task and lowest in another subsequent task. The performance of each age group suggests that subject verb agreement / negation was dominant over the sentence repetition/ judgment of correctness task. The same information is depicted in the Fig 5.3 by presenting a hierarchy with increasing difficulty followed across all age groups.

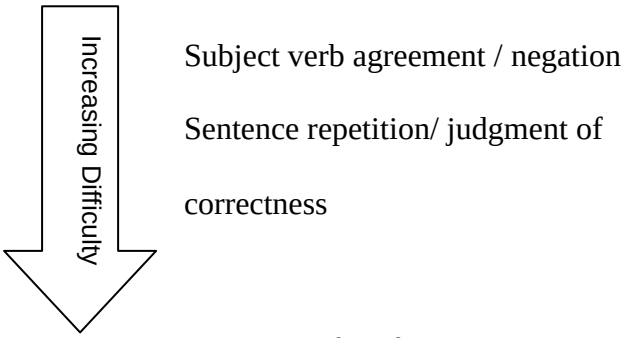


Figure 5.3: Hierarchal representation of performance across age groups in the subsections of Syntactic rules

With the mean scores, it was evident that as the age progressed, the difference in the scores between these two tasks was markedly lesser. However, there was a major

difference among the first four groups, wherein the participants of elementary age had difficulty in performing for sentence repetition/ judgment of correctness task. These two tasks undoubtedly judged their metalinguistic skills; these skills were underdeveloped among the higher age group participants.

As observed in sentence repetition task, the difficulty was observed due to the increase in complexity of sentences. This complexity was increased serially by inserting additional number of words in a sentence, variable case markers and functional words. As the complexity increased it would pressurize the cognitive load of an individual and make complex to memorize and repeat the same. Judgment of correctness was equally important in adding score for this particular sub section. According to Clark, 1978, for an individual to procure the knowledge of grammatical judgment, follows a developmental trend, which starts from the spontaneous repair of oneself speech, correcting others, at last by judging certain sentences possibility and how to infer.

For the judgment of correctness there were few participants from fifth age group onwards, who were identifying the correct and incorrect sentence, hence it signifies that at the age of 6 and onwards they have an explicit knowledge of syntax and it progresses with age. Whereas, among younger age group participants that is from 4.1 to 6.0 years it was observed that the knowledge of judgment of correctness was not well developed. This finding is in concordance with the results of Scholl and Ryan, 1980 who found that the older children produced more accurate judgments about grammaticality when it was assessed among kindergarten, second, and fourth grade. In another study conducted by Sarnaya (2012), the maximum score was not attained even at the age of 10 years. In Linguistic Profile Test – Hindi by Sharma (1995), it was found that there was a significant improvement in the mean score from above 8 years of age. Additionally, it was found that 6 to 7 years children were gradually making grammatical judgment similar to adults. It is

documented in the literature that even at the age of grade V, a complete score was not achieved; which indicates that the development of metalinguistic skills is not mastered even if it is emerged in the middle childhood (DeLisi & Arnold, 1981; Sarnaya, 2012). The decrease in the score could be attributed to the individualistic cognitive difference in the children as metalinguistic abilities are related to the cognitive development, intellectual capacity, scholastic achievement, reading skills and environmental factors such as play experience and other adult language stimulation (Hulit & Howard, 2002). By six years of age, children would have entered first grade, at this age they start learning finer aspects of language, and there will be emergence of metalinguistic skills (McLaughlin, 1998). At 6 years of age, they are well developed in their cognition and capable of performing metalinguistic skills appropriately (McLaughlin, 1998; Turnbull & Justice, 2008).

In the present study the subject verb agreement / negation were found to be scored higher than the other sub sections. Even though there was a slight increase in the scores with the increase in age it was not significant. In result it was found that from the age of 4.1 years itself, the participants could score above 6 and go higher in their older age. Prema (1979), also documented a better performance on this task; and reported that the structure of the negative sentences in 5 to 6 year old Kannada speaking children is similar to adult form.

Other finding of the present study was that despite of having complete scores for the negation task, the participants could not score completely for the subject verb agreement task and this was followed across the age groups. In subject verb agreement, it requires an individual to understand the syntax structure and express accordingly. This growth was observed to be slightly weak and it gradually improved through the last age group. Few participants of the first age group were found procuring a complete score;

hence might prove that there is a growth happening but was not mastered yet, in the proficiency of expressing the subject verb agreement.

5.4. Development of visual perception and auditory perception

The advantage of learning perceptual skills has a vital role in the acquisition of both language and knowledge. Perceptual skills are equally important in reading, writing, arithmetic and spelling. The majority of test materials do not contain an additional section for assessing perceptual skills along with the linguistic skills among children, but these skills are important to be assessed. Therefore, the present study encompasses the two essential perceptual skills, explicitly visual and auditory perception.

5.4.1. Visual perception

Under visual perception section, visual matching and discrimination were scored together and similarly was followed for visual association and sequencing task. The performance for each task suggests that none of the age group could achieve the complete score. Other than this finding, it was also noticed that both the tasks were considerably showing a growth across the age groups. The growth was not significantly differing between visual matching/ discrimination and visual association/ sequencing; hence, resulting to be similar across the groups.

Considering the performance of individual task, it was noticed that for a child to visually associate and sequence was moderately upgraded than for the visually match and discriminate but this difference was not statistically significant. However, these variations were not seen in the eighth age group participants which points on the fact that individuals of lower age group finds difficulty in performing equally in the two-sub tasks. To reason out the dissimilarity, it was crosschecked with the scorings for individualistic task and as

observed for the visual matching task the scores obtained were consistently higher than the visual discrimination task. For the visual association and sequencing task, participants were finding difficulty in performing for both the tasks and this was evidently noted as the level of complexity increased.

The reason for these differences may be due to the requirement of additional cognitive load, which is involved while thinking for discriminating an item among the group of related or unrelated items. Another reason for this dissimilarity would be the complexity of the visual discrimination, association and sequencing task that increases at each level; if complexity increases the demand for selective and sustained attention increases (Anuroopa, 2006). According to Wright and Vlietstra (1975) attention abilities grow in to direct attention at the age of 6 years and that leads to the improvement in the growth of discrimination skills. A similar observation was made in the present study wherein, the performance of children from the fifth age group was improved and maintained.

5.4.2. Auditory perception

Other perceptual skills that were assessed are auditory memory and auditory sequencing/discrimination. There was a growth observed across the age group, and there was a difference in the performances for both the tasks. This difference was because of the average performance in auditory memory sub section. The differences in the performances of both the tasks were mildly differing across the age group. In the present study, for the auditory memory task, there was a requirement of memorizing and recalling the list of words and sentences that varied in number of words accordingly. The result pointed towards the inability of an individual's cognition to overcome the complexity of the tasks. Another observation was that for a child recalling a word was much better than the

sentences recall, this was maintained across the age groups. This finding is in concurrence with the study conducted by Bilvashree (2013). To reason out, it was stated in the study that learning of word happens at early stage of development but not the same at sentence level, because it is inclined by text reading knowledge and decoding; thus, these are developed at later stages comparatively.

Another finding of the present study was that none of the age groups could fetch the maximum score in both the tasks. It was observed that all the participants were capable of repeating the words and sentences but there was a decline in repetition as number of units increased resulting in performance decline. In a study by Shruthi (2016), auditory recall was assessed among 4 to 8 years, the results reported that the older group (6 to 8 years) was better in the performance and achieved a complete score; than the lower age group participants and this statement supports the current findings. Another supportive finding was by Miller (1965), who reported that a 4 year old child would recall about four items, whereas for 9 year old would recall 6 to7 items and even higher corresponding to the age. Thus, as children grow older there is an enhancement in the recall strategies.

In story sequencing, memory span takes up an important role wherein, a systematic increase across the age group was observed. In few studies such as Shruthi (2016), Brown and Fraser (1963), where the task was to sequence the stories at variable levels; it was stated that the growth of age and memory span goes hand in hand. Hence, this supports the current findings wherein the older age group performance for story sequencing was better than the younger age groups. Another important factor that reason out the current findings is the recalling strategies (Ornstein, Naus & Liberty; 1975). Recalling strategies are established better as a child grows older in age. This has been explained with the role of primacy effect, in which the younger children have a tendency to recall the first few list of items. In addition, as they grow older they tend to recall by cumulating sub vocal rehearsal,

chunking and so on, termed under rehearsal strategies. To sum up, this makes the older group of children more efficient for recalling.

Therefore, with all these findings the important observation made on sequential acquisition was that as a child grows there will be a progress happening in their linguistic and cognitive skills. Few of the studies such as Vijayalakshmi, (1981), Santhi (2008), Navitha (2009), have been found in supportive with the current findings. Which have reported that as the age increased the language and cognitive concepts grew and this is particular for the expression. Hence, it directs towards the fact that with increase in age, neuromuscular maturity, linguistic and cognitive abilities also increases.

5.5. The performance across genders

Additionally, the differences among genders were checked and found that there was no variance among genders and they were performing equally, which was similar to the findings of Deepa, Shyamala, and Deepthi (2013). In contrast, there are findings having gender differences as a variable in language development. The earlier belief starting from Jespersen (1922), has considered girls to achieve language aspects earlier and more rapidly than boys. The same was postulated by many authors but later was degraded by saying there was no statistical significance in their findings (MaCaulay, 1978). MaCaulay (1978) wrote his conclusion on the debate of gender difference by summarizing that there is no significant difference between the genders in the linguistic ability. Another supportive study by Navitha (2009) concluded that gender there was no significant difference between males and females. However there are contradictory studies at early years which had stated that girls exceeds in performance like verbal, fluency, language usage, and other language complexities (Garai & Schlenfield, 1968; Templin, 1957; Mc Carthy, 1954; Jerperon, 1922), which was not observed in the present study.

5.6. Performance of CLDs in comparison to TDC

The BLST H was administered on 12 Child Language Disorders (CLDs) participants. The scores of each participant with CLD are mentioned in earlier chapter where it has been compared with TDC groups. It was observed that the overall psycholinguistic and perceptual performances of these children were completely low as compared with TDC group and they were not able to obtain even 50% scores of the TDC group. CLDs were lacking in their expression skills and which were in appropriate to their Mental Age (MA). Despite having verbal mode expression, all CLDs were lacking in their Mean Length of Utterance (MLU), according to the parents and as per the observation they were speaking at word level and most often preferred to use gestural mode of expression. Comprehension skills of semantics were also limited and inadequate along with other sections. Among all CLD participants, cases, one participant with Specific Language Impairment (SLI) who was considered for the present study; was able to respond comparatively better than the remaining CLDs. SLI participant was able to express few items of body parts, common nouns, verbs, postpositions (in, out, up, down), visual matching, auditory discrimination, functions (/se: kʰaʈ̪e: hˇæ/, / se: lɪkʰəʈ̪e: hˇæ/, /se: səməj ɖ̪e;kʰəʈ̪e: hˇæ/) Following the instructions was a complex task for CLD children, as they were lacking in attention span. Making them to sit in one stretch for 20 minutes was even more difficult.

There was large difference found between the CLD and TDC groups. This finding was also supported by the studies conducted by Deepa, Shyamala, and Deepthi (2013) and Sunanda, (2017). Therefore, the findings of the present study prove to be a test that is able to differentiate the disordered group from TDC and helps in taking further step in the assessment program. As this was conducted just for the validation purpose; no other statistical significance test was conducted.

CHAPRT VI

SUMMARY AND CONCLUSION

The primary aim of the present study was to adapt a 'Bankson Language Screening Test' (Bankson, 1977) in Indian context specifically in Hindi language. Further, to assess the sequential acquisition of psycholinguistic and perceptual skills among Hindi speaking children in the age range of 4 to 8 years. This screening test was developed to overcome the insufficiency of standard tools, to asses various linguistic as well as the perceptual skills among early school goers. Additionally, it is a comprehensive tool to assess the psycholinguistic and perceptual skills in children of 4-8 years age. This test assesses the language abilities namely *semantic knowledge, morphological rules*, *syntactic rules*, and perceptual abilities namely *visual and auditory perception;* overall, there are five major sections. In semantic knowledge, section, there were eight subsections- body parts, nouns, verbs, categories, functions, postpositions, colours/quantity, and opposites. In morphological rules, pronouns, verb tenses and plurals/comparatives/superlatives were assessed. In syntactic rules, subject-verb agreement/negation and sentence repetition/ judgment were assessed. In visual Perception, visual matching/discrimination and association/sequencing were assessed. In auditory perception section, auditory memory/sequencing and auditory discrimination were assessed. Each subsection had 9 items and had different instructions with one response mode. The scoring was completely based on the child's expression abilities; thus, the test was not assessed or scored based on their comprehension abilities. The test was developed along with the picture stimuli's. These pictures were chosen based on the firm relationship between the contents of the test items and pictures. Subsequently this screening tool along with the pictures was inspected for the content validity by 3 Speech Language Pathologist and 2 Special Educators. Their

feedbacks were considered, changes were incorporated and a pilot study was conducted. Pilot study included16 native Hindi typically developing children (TDC) (2 in 8 age groups) from the Central Board School Education (CBSE)' schools. After completing the pilot study and documenting the observations, few modifications such as editing, instructions and so on were done; and the material was finalized.

The BLST- H was administered on 240 TDC in the age range of 4 to 8 years in total number of 8 groups. Each group had 30 children (15 males and 15 females). These children were selected on the basis of inclusion and exclusion criteria. The written consent was signed from each parent/guardian of the selected participants, and made the participants to sit comfortably in spacious room and quite environment. During testing the participants were given instructions in Hindi by following the manual and simultaneously the pictures were shown to the participants. Score '1' was given if a participant performed a given test item without any assistance, score *'0.5'* if a participant performed a given test item with an assistance or verbal prompt and score *'0'* if a participant was not able to perform a given test item even with verbal prompt. The details of each section and its subsections along with the maximum scores are depicted in Appendix II. The collected data were tested for reliability and validity wherein to assess reliability, inter-judge and test reliability was conducted and to assess the validity, the same test was assessed on other 24 TDC and 12 number clinical population having Child Language Disorder (CLD).

The raw scores found under each sections of BLST-H across the age groups were subjected to statistical analysis using SPSS, 21-version tool. Mean and Standard deviations were calculated across the age groups and gender, Kruskal Wallis Test was done to find the effect of age on the scores, Kolmogorov- Smirnov was done to check for normal distribution, Mann Whitney U test (non-parametric) was performed to find gender effect on

the data and pair wise age significance, and Cronbach's Alpha co efficient was used to find the inter- rater and test - retest reliability of the test.

Mean and SD indicated and revealed that there was progression happening from first age group to eighth age group and this was followed across subsections. Thus, from the mean and SD values it was observed that the mean scores for all the five sections were better comparatively for the eighth age group. The Mean obtained for semantic knowledge section was more than the other sections. In semantic knowledge, the mean scores of verbs and nouns were more, followed by functions, post- positions, colours/quantity, categories, body parts, and least mean scores in opposites. In morphological rules, the performances were majorly higher for VT then followed by P/C/S and pronouns. In syntactic rules, the scores of SVA/N was significantly high than the SR. In visual perception, the scores for both sections were not significantly varying and the performance of VA/VS was better than the scores of VM/VD. In auditory perception the scores of AM is significantly lower than AS/AD.

Through Shapiro Wilk test, it was revealed that there was no normal distribution ($p < 0.05$) and from Kruskal Wallis test it was found that except SV there was a presence of significant effect of age across other sub sections ($p < 0.05$). Through Mann Whitney U test, it was found that the distribution of all sections in BLST-H is same across both the categories of gender. It also found that, within the development of psycholinguistic skills, acquisition of semantic rules was dominant. In perceptual skills, the visual skills were achieved with higher scores than the auditory skills but these scores were not significantly varying. Participants of elementary age were advanced in comprehension task rather than in expression. Children from the first age group onwards performed extremely better for three sub sections namely, nouns, verbs and functions and had achieved in their expression of postpositions but was not yet mastered by this age. In semantic knowledge, opposites were

found to be the most difficult across all age groups. The scores of expressing functions were higher than the expression of categories. Participants from the first two age groups were finding difficulty in answering the names of fine body parts and were able to name only the basic colours (red and black). In morphological rules section, the children of first four age groups were found to have achieved expressing the singular form possessive pronoun /mera/ and /meri/, but had difficulty with the plural form, which was also noticed at the age of 6 years. The growth in expressing the pronouns was not mastered at the age range of 7.6 to 8 years. Additionally, it was observed that all the participants across age groups were familiar with concepts of pronouns in the English language. The rule of verb tenses was present from the first age group itself, but was mastered at the age of 5.1 years. At the age of 6 years, participants were finding difficulty in expressing the irregular form of plurals. For comparative and superlative degrees, the first age group participants were accurately responding with consistency. In syntactic rules for subject verb agreement / negation, the participants of 4.1 years were scoring above six and went higher as they grow older. In the judgment of correctness, it was found that only a few participants from fifth age group onwards achieved these skills. Also at the age of 4.1 to 6.0 years, the knowledge of judgment of correctness was found to be not well developed. In visual perception, there was a difference in the performance of both the subsections but this was not statistically significant. In auditory perception, all the participants were proficient of repeating the words and sentences but as number of units increased, there was a decline in the performance across all the age groups. The older age group performance for story sequencing was better than the younger age groups. CLDs were lacking in their expression skills of psycholinguistic and perceptual skills and their performances were not appropriate to their Mental Age. The overall psycholinguistic and perceptual performances of CLD group were poor from the TDC group.

Implications:

1) The outcome of the present study will be of great help for the practicing clinicians/professionals as it will provide a means by which a number of psycholinguistic as well as perceptual skills could be surveyed in children in a relatively shorter period of time.
2) It will be particularly useful for determining those areas which are in need of further in-depth analysis by language tests that are diagnostic in nature.
3) The material has a sufficient breadth and depth to assist the clinician in the process of case selection and to provide a strong base from which to recommend additional testing.
4) As BLST-H is validated test material in Hindi language; it can be used by the clinicians/professionals for identification of linguistic and perceptual skill deficits in children ranging from 4 to 8 years of age.
5) Also the material can be used for planning appropriate management strategies for children with language disorder.
6) The BLST-H test is adapted and validated and can be utilized as a reference manual in speech and language clinics for assessment of linguistic and perceptual skill deficits in children ranging from 4 to 8 years of age.

Limitations:

1) BLST-H screening tool only assess the three components of language namely, semantics, syntax and morphology but has not implemented phonology and pragmatics as a part of assessment.
2) This screening tool is restrictive in a sense as it can be used to evaluate only those children who are at the age range of 4 to 8 years.

3) The number of CLD participants who were included in the study to compare with the TDCs; there is a need to include a large number of language disordered population from different types of impairments related to language.

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APPENDIX – I

PARAMETERS	Very poor	Poor	Fair	Good	Excellent	Remarks
Simplicity						
Familiarity						
Size of the picture						
Color and appearance						
Arrangement						
Presentation						
Volume						
Relevance						
Complexity						
Iconicity						
Accessibility						
Flexibility						
Trainability						
Stimulability						
Feasibility						
Generalization						
Scope of practice						
Scoring pattern						
Publications, outcomes and developers						
Coverage of parameters (reception and expression)						

APPENDIX II

Sections	Subsections	Before Pilot Study		After Pilot Study	
		Number of stimuli	Maximum Score	Number of Stimuli	Maximum Score
Semantic knowledge	Body parts (BP)	9	9	9	9
	Nouns (N)	9	9	9	9
	Verbs (V)	9	9	9	9
	Categories (C)	9	9	9	9
	Functions (F)	9	9	9	9
	Postpositions (P)	9	9	9	9
	Colors/ Quantity (C/Q)	9	9	9	9
	Opposites (O)	9	9	9	9
Morphological rules	Pronouns (PRO) a) Object b) Subject c) Possessive	9	9	9	9
	Verb tenses (VT) a) Present progressive b) Present c) Past d) Future	9	9	9	9
	Plurals/comparatives/ superlatives (P/C/S)	9	9	9	9
Syntactic rules	Subject verb agreement/ Negation (SVA/N)	9	9	9	9
	Sentence repetition/ judgement of correctness (SR/J)	9	9	9	9
Visual perception	Visual matching/discrimination (VM/D)	9	9	9	9
	Visual association/ sequencing (VA/S)	9	9	9	9
Auditory perception	Auditory memory (AM)	9	9	9	9
	Auditory sequencing and discrimination	9	9	9	9

Appendix III

BANKSON LANGUAGE SCRENING TEST- HINDI (BLST-H)

1. SEMANTIC KNOWLEDGE

A. Body parts

Expression: यह एक लड़के का चित्र है। मेरे द्वारा दिखाए गए शरीर के अंगों के नाम बताइए|

/jəhə ek ləɽəke ka tʃɪt̪r hæ//mere ɖʊə:rə: ɖɪkʰae gəe ʃəri:r ke ɵgõ: ke nam bət̪aɪje/

/yəh/ /ek/ /ləDke/ /kA/ /citr/ /hɛ/ /mere/ /dawArA/ /diKAe/ /gae/ /SarIr/ /ke/ /angon/ /ke/ /nAm/ /batAie/

This is a picture of a boy. You have to name the body parts that are pointed by me.

Reception: बोले गए अंगों को ध्यान से सुने और फिर उन अंगो को दिखाइए।

/bole gəe: ə˜go˜: ko: ɖʰjan se: sʊne: ɔr fɪr ʊn ə˜go˜: ko: ɖɪkʰaɪje:/

/bole/ /gae/ /angon/ /ko/ /DhyAn/ /se/ /sune/ /aur/ /Pir/ /un/ /angon/ /ko/ /diKAie/.

Listen carefully to the body parts that I name and later you haʊe to point out those body parts by looking at the picture.

		E	**(R)**
1.	नाक /nak/ /nAk/	…….	……..
2.	आंख /a˜:kʰ/ /Ankh/	……..	……..
3.	हाथ /haʈʰ/ /hAth/	……	…….
4.	उंगली /ʊ˜gəli:/ /ungalI/	…….	……
5.	अंगूठा /ə˜gu:ʈʰa/ /angUThA/	…….	…….

6. घुटना …….. …….
/gʰʊʈəna/
/GuTnA/

7. कान ……. …….
/kan/
/kAn/

8. गरदन …….. ……
/gərəɖən/
/gardan/

9. कंधा …… ……...
/kə̃ɖʰa/
/kndhA/

B. Nouns

Expression: मेरे द्वारा दिखाए गए चित्रों के नाम बताइए ।

/me:re: ɖvara ɖɪkʰae: gəe: ʧɪʈr̃o ke nam bəʈaɪje:/
/mere/ /dawArA/ /diKAe/ /gae/ /citron/ /ke/ nAm/ /batAie/
Name the pictures that are shown by me

Reception: अब केवल चित्र का नाम कहा जाएगा । आप उन चित्रों को दिखाइए।

/əb kevəl ʧɪʈr kə: nam kəha dʒae:ga/ /ap ʊn ʧɪʈrõ: ko: ɖɪkʰajɪe/
/ab/ kewal/ /citra/ /kA/ /nAm/ /kahA/ /jAegA/ /Ap/ /un/ citron/ /ko/ /diKAie/
Now, show those pictures which I name

E (R)

10. तितली ……. ……..
/ ʈɪʈəli:/
/titalI/

11. बंदूक ……. …….
/ bə̃ɖu:k/
/bandUk/

12. ढोल …… ……
/ ɖʱo:l/
/Dhol/

13. कुर्सी …… ……
/kʊrsi:/
/kursI/

14. चश्मा ……. ……

/tʃəʃma/
/caSamA/

15. छाता …..... ……..

/tʃʰaʈa/
/CAtA/

16. ताला ……. ……..

/ʈala/
/tAlA/

17. नल ……. ……..

/nəl/
/nal/

18. गिलास

…….. ……...

/g**ɪlas/**
/gilAs/

C. verbs

Expression: अब बताइए कि इन चित्रों में बच्चे क्या कर रहें हैं?

/əb bəʈaɪje: kı ın tʃɪʈro˜: me˜ bətʃtʃe: kja kər rəhe hæ˜/
/ab/ /batAie/ /ki/ /in/ /citron/ /me/ /bacche/ /kyA/ /kar/ /rahen/ /hen/
Look at these pictures, and tell me what are children doing?

Reception: अब दिखाइए कि किस चित्र में बच्चा ……..

/ əb ɖɪkʰaɪje: kı kıs tʃɪʈrə me˜: bətʃtʃa/ ……..
/ab/ /diKAie/ /ki/ /kis/ /Citr/ /me/ /baccA/ …….
Now show me, in which picture the child is ……..

E (R)

19. दौड़ रहा है …….. ……..

/ ɖɔːɖ rəha hæ/
/dauD/ /rahA/ hai/

20. पढ़ रहा है …… ……

/pəɖʰ rəha hæ/
/paDhn/ /rahA/ /hai/

21. झूल रहा है …… ……

/ dʒʰuːl rəha hæ/
/JUl/ /rahA/ /hai/

22. लिख रहा है ……. …….
/lIkʰ rəha hæ/
/liK/ /rahA/ /hai/

23. चला रहा है ……. …….
/ ʧəla rəha hæ/
/clA/ /rahA/ /hai/

24. पी रहा है ....
/ pi: rəha hæ/
/pI/ /rahA/ /hai/

25. सो रहा है …… ……...
/ so: rəha hæ/
/sO/ /rahA/ /hai/

26. खा रहा है ....
/ kʰa rəha hæ/
/KA/ /rahA/ /hai/

27. गा रहा है ....
/g a rəha hæ/
/gA/ /rahA/ /hai/

D. Categories

Expression: अब आपको मुझे कुछ श्रेणियों के नाम बताने होंगे । जैसे कुछ ..... के नाम बताइए । (नोट: सही रूप से स्कोर करने के लिए दो उपयुक्त श्रेणियों के नाम आवश्यक हैं)

/əb apəko: mʊdʒʰe: kʊtʃʰə ʃre:ɳɪjo˜: ke: nam bəʈane: ho˜:ge:/ / dʒæ:se kʊtʃʰ …….. ke: nam bəʈaɪe:/ (/no:ʈ - səhi: ru:p se: sko:r kərəne ke: lɪje: ɖo: ʊpəjʊkʈ ʃre:ɳɪjo˜: ke: nam aʊəʃjək hæ˜/
/ab/ /Apako/ /muJe/ /kuC/ /kShreNiyon/ /ke/ /nAm/ /batAne/ /honge/ /jaise/ /kuC/ ……. /ke/ /nAm/ /batAie/. (/noT/ /sahI/ /rUp/ /se/ /skor/ /karane/ /ke/ /lie/ /do/ /upyukt/ / kShreNiyon/ /ke/ /nAm/ /AwaSyak/ /hain/)

Now, you have to name some categories for me. Like, name some ……. (Note: for full scores, two appropriate names under each category is necessary)

Reception: अब दिखाए गए इन चित्रों में से कौन से चित्र ..... के संबंधित है।

/əb ɖɪkʰae: gəe: ɪn ʧɪʈro˜: me˜: se: kɔ:n se: ʧɪ˜ʈrə ……. ke: sə˜bə˜ɖʰɪʈ hɛ:/
/ab/ /diKAe/ /gae/ /in/ citron/ /me/ /se/ /kaun/ /se/ /citr/…. /ke/ /sambandhit/ /hai/

Now show me, among these pictures which one is related to …….

E (R)

28. जानवरों ....
/dʒanəʊəro˜:/
/jAnawaron/

29. वाहनों ....
/ʊahəno˜:/
/wAhanon/

30. फूलों ....
/ pʰuːlo˜:/
/PUlo/

31. फर्नीचरों ....
/pʰərni: tʃəro˜:/
/ParnIcaron/

32. फलों ....
/pʰəlo˜:/
/Palon/

33. सब्जियों ....
/səbdʒɪjo˜:/
/sabjiyon/

34. कपड़ों ....
/kəpəɖo˜/
/kapado/

35. रंगों ....
/rə˜ɡo˜:/
/rango/

36. बरतनों ....
/bərət̪ənoˆ:/
/baratano/

E. Functions

Expression: अब आप उन चीज़ों के नाम बताइए, हम जिस ……(नोट: प्लेट बंद करना आवश्यक है)

/əb ap un tʃiːdʒo˜: ke: nam bət̪aɪje: həm dʒɪs ……./ (/ noːt̪ pleːt̪ bə˜ɖ kərəna avəʃəjək hɛː/
/ab/ /Ap/ /un/ cIzon/ /ke/ /nam/ /batAie/ ham/ /jis/ …….. (/noT/ /pleT/ /band/ /karnA/ /AwaSyak/ /hai/)

Now you haʊe to tell me the names of those items from which we ……

Reception: अब उस चित्र को दिखाइए जो हम अक्सर उपयोग करते हैं. अब दिखाइए हम जिस..……

/ab us tʃɪt̪r ko: d̪ɪkʰaɪe: dʒo: həm əksər upəjo:g kərət̪e: hɛ:˜/ /əb d̪ɪkʰaɪje: həm dʒɪs/ ……..
/ab/ /us/ /citr/ /ko/ /diKAie/ /jo/ /ham/ /aksar/ /upayog/ /karte/ /hain/ /ab/ /diKAie/ /ham/ /jis/ ……..…

These are the picture of items which we regularly use. Among these show me from which we...……

		E	(R)
37.	से खाते हैं /se: kʰa t̪e: hɛ:˜/ /se/ /KAte/ /hain/	.....	.....
38.	को पहनते हैं /ko: pəhənət̪e: hɛ:˜/ /ko/ /pahante/ /hain/	.....	.....
39.	से लिखते हैं /se: lɪkʰət̪e: hɛ:˜/ /se/ /liKate/ /hain/	.....	.....
40.	से काटते हैं /se: kaʈət̪e: hɛ:˜/ /se/ /kATate/ /hain/	.....	.....
41.	से सिलते हैं /se: sɪlət̪e: hɛ:˜/ /se/ /silate/ /hain/	.....	.....
42.	को चलाते हैं /ko: tʃəlat̪e: hɛ:˜/ /ko/ /calAte/ /hain/	.....	.....
43.	से समय देखते हैं /se: səməj d̪e;kət̪e: hɛ:˜/ /se/ /samay/ /dekate/ /hain/	.....	.....
44.	को बजाते हैं / ko: bədʒə:t̪e hɛ:˜/ /ko/ /bajAte/ /hain/	.....	.....
45.	पर सोते हैं /pər so:t̪e: hɛ:˜/ /par/ /sote/ /hain/	.....	.....

F. Postpositions

Expression: ‘ चित्र को देखिये और बताइए कि गेंद कहाँ है? गेंद डिब्बा के/से .....

(नोट: यदि बच्चा उचित रूप से जवाब न दे तब आप अन्य संकेत/ अधिक विवरण दे सकते है, उदाहरण के लिए ‘गेंद को देखों', ‘‘गेंद कहाँ है’ आदि|)

tʃɪt̪r ko d̪ekʰɪje: ɔ:r bət̪ə:ɪe kɪ ge˜d̪ kəhə˜: hɛ:/ /ge˜d̪ dɪbbə: ke/ /se/ .....

/noʈ jəd̪ɪ bətʃtʃə: ʊtʃɪt̪ ru:p se dʒəʊə:b nə d̪e t̪əb ə:p ənjə sə˜keʈ/ /əd̪ʰɪk ʊɪʊərən̪ d̪e səkt̪e hɛ: ʊd̪ə:hərən̪ ke ɪɪe ge˜d̪ kəhə˜ hɛ: ə: d̪ɪ/

Show the picture and ask,

"Now tell me where is the ball? (Note: If the child could not respond then you provide other examples such as, ‘look at the ball, ‘where is the ball' etc).

Reception: दिखाए गए इन चित्रों में से कौन से चित्र में ‘गेंद डिब्बा के/ से .....है’।

/d̪kʰə:e gəe ɪn tʃɪt̪ro˜: me˜ se tʃɪt̪r me˜ ge˜d̪ dɪbbə: ke/ /se/ ..... /hɛ:/

Now looking at this pictures tell me, in which of the picture 'ball is ..... the box .....’

		E	**R**
1.	ऊपर /u:pər/ /Upar/	……	……
2.	बीच /bi:tʃ/ /bIc/	……	……
3.	दूर	……	……

/ɖu:r/

/dUr/

4. नीचे …… ……

/ni:tʃe:/

/nIce/

5. सामने …… ……

/saməne:/

/sAmane/

6. पीछे …… ……

/pi:tʃʰe:/

/pICe/

7. पास …… ……

/pas*l*

/pAs/

8. बाहर ....

/bahər/

/bAhar/

9. अंदर …… ……

/˜əɖər/

Andar

G. Colors/ Quantity

Colors

Expression: यह अलग-अलग रंगों के गुब्बारे हैं. उन रंगों के नाम बताइए ।

/jəhə ələg ələg ˜rəg˜o: ke: gʊbbare: hɛː˜/ /ʊn ˜rəg˜o: ke: nam bəʈaɪe:/

/yaha/ /alag/ /alag/ /rangon/ /ke/ /gubbAre/ /hain/ /un/ /rangon/ /ke/ /nAm/ /btAie/

Here is the picture of ballons with different colors. Tell me the name of these colors.

Reception: अब आपको पूछे जाने वाले रंग को दिखाना होगा।

/ əb apəko: puːtʃʰeː dʒaneː ʊaleː ˜rəg koː ɖɪkʰana hoːgaː/

/ab/ /Apako/ /pUCe/ /jAne/ /wAle/ /rang/ /ko/ /diKAnA/ /hogA/

Now you have to point the colors which I name.

	E	R
10. लाल	……	…….
/lal/		
/lAl/		
11. नीला	……	…….
/ni:la/		
/nIA/		
12. हरा	……	…….
/hərа/		

/harA/

13. पीला …… ……

/pi:la/

/pɪlA/

14. काला …… ……

/kala/

/kAlA/

15. गुलाबी …… ……

/gʊlabi:/

/gulAbɪ/

Quantity

यह गुब्बारें की विभिन्न राशि है| अब ध्यान से गुब्बारे की राशि को देखिये और मेरे द्वारा कहे गए अधूरे वाक्यों को पूरा कीजिए|

Expression:

इस चित्र को देखिये 'इस लड़के के पास बहुत सारे गुब्बारे हैं, लेकिन इस लड़के के पास और भी ..... (अधिक/ ज़्यादा) गुब्बारे हैं।

और इस लड़के के पास ..... (सबसे अधिक/ ज़्यादा) गुब्बारे हैं।

अब ..... चित्र को देखें और बताइए यहाँ कितने गुब्बारे हैं?

(नोट: निरंतरता बनाए रखने के लिए चित्रों को बढ़ते क्रम में प्रस्तुत किया गया है| उसी बढ़ते क्रम में चिन्हित कर सवाल पूछिये| प्रत्येक चित्र के लिए निर्देश दिए गए है|)

/jəhə gʊbbare: ki: ʊbʰɪnn raʃɪ **hɛ: /əb ɖʰjan se: gʊbbare ki: raʃɪ** ko **ɖe kʰɪje: ɔ:r mere ɖʊara kəhe gəe əɖʰu:re ʊakyõ ko: pura ki:dʒɪe/**

Expression:

/ ɪs tʃɪʈr ko: ɖe:kʰɪje- ɪs ləɽke: ke: pas bəhʊʈ sə:re gʊbbare: hɛ:˜ le:kɪn ɪs ləɽke: ke: pas ɔ:r bʰi: ……. (/əɖʰɪk/) (/dʒjə:ɖə:/) gʊbbare: hɛ:/

/ ɔ:r ɪs ləɽke: ke: pas …….. (səbəse: əɖʰɪk/ dʒjə:ɖə:/) gʊbbare: hɛ:/

/ əb …… tʃɪʈrə ɖe:kʰe: ɔ:r bəʈaɪe: jə˜ha kɪʈnəe: gʊbbare: hɛ:/

/ /noːʈ/ /nɪ˜rəʈərəʈa bənae : rəkʰne ke : lɪe: tʃɪʈr˜o: ko: bəɽʰʈe: krəm m˜e: prəsʈʊʈ kɪe : gəe: hɛ:/ /usi: bəɽʰʈe: krəm m˜e: səʊal pu :tʃʰɪje:/ / prəʈje:k tʃɪʈrə ke : lɪe: nɪrɖe:ʃə ɖɪe: gəe: hɛ:/

/yaha/ gubbAre/ /kI/ viBinn/ /rASi/ /hai/ /ab/ /DyAn/ /se/ /gubbAre/ /kI/ /rASi/ /ko/ /deKiye/ /aur/ /mere/ /dvArA/ /kahe/ /gae/ /aDUre/ /vAkyon/ /ko/ /pUrA/ /kIjie/

/ ɪs/ */citr/ /ko/ /deKiye/ /is/ /ladake/ /ke/ /pAs/ /bahut/ /gubbAre/ /hen/ /lekin/ /is/ /laDake/ /ke/ /pAs/ /aur/ /BI/ …… (/adhik/) /hain/*

***/aur** / /is/ /ladake/ /ke/ /pAs/ ……. (/sabase/ /adhik/) /hain/*

/ab/ ……. /citr/ /deKe/ /aur/ /batAie/ /yahAn/ /kitane/ /gubbAre/ ***/hain/***

/not/ nirantarantA/ /banAe/ /raKne/ /ke/ /lie/ /citron/ /ko /baDhnte/ /kram/ /me/ /prastut/ /kie/ /gae/ /hen/ /usI/ /baDhnte/ /kram/ /me/ /sawAl/ /pUCiye/ /pratyek/ /citr/ /ke/ /lie/ /nirdeS/ /die/ /gae/ /hai/

In this picture, there are different amounts of ballon. Look carefully at the amount of ballons in each picture and answer me.

For picture 'A and B' ask 'This boy has a lot of ballons' but this boy has even ……. (More)

For picture 'C' ask, 'And this boy has the ……. (Most)

Now look at picture 'C' and tell me, how many balloons are here?

(Note: To maintain the continuity the pictures are presented in succession, hence, in the same order the questions must be asked. For each picture, the instructions are given)

Reception: दिखाइए,

किस लड़के के पास अधिक और सबसे अधिक गुब्बारे हैं।

/ d̪ɪkʰaɪe:/ /kɪs ad̪əmi: ke: pas əd̪ʰɪk ɔ:r səbəse: əd̪ʰɪk gʊbbare: hɛ:/

/diKAie/ /kis/ /AdamI/ /ke/ /pAs/ /adhik//aur/ /sabase/ /adhik/ /gubbare/ /hain/

Show me, Which boy has more and most balloons?

	E	(R)
16. अधिक / əd̪ʰɪk/ /aDik/	…….	…….
17. सबसे अधिक /səbəse: əd̪ʰɪk/ /sabase/ /aDik/	…….	…….

A. Opposites

Expression only: अब आपको मेरे द्वारा कहे गए शब्दों का विपरीत शब्द बताना है ।

उदाहरण: " ऊपर का विपरीत शब्द नीचे है "

(नोट: ये उदाहरण देते समय इशारो का उपयोग कीजिए ताकि बच्चा समझ सके/ यदि आवश्यक हो तो अन्य उदाहरण भी दीजिये।)

/əb apəko: mere d̪ʊara kəhe gəe ʃəbd̪o˜: ka ʊɪpəri:ʈ̪ ʃəbd̪ bəʈ̪ana hɛ:/

/ʊd̪ahərən/ - /u:pər ka ʊɪpəri:ʈ̪ ʃəbd̪ ni:tʃe: hɛ:/

/no:ʈ̪/ /je ʊd̪ahərən d̪eʈ̪e s**əm**ɛ:j ɪʃarõ k**ə:** ʊp**əjo:g k**ɪdʒi:je ʈ̪**ak**ɪ bəʈʃtʃə: s**əmə**dʒʰ s**əkẽ/ jə**d̪ɪ **ə:**ʊəʃj**ək ho:** ʈ̪o: **ənj** ʊd̪ə:h**ərə**ɳ bʰi: d̪i:dʒɪje/

/ab/ /Apako/ /mere/ /dawArA/ /kahe/ /gae/ /Sabdon/ /ka/ /ʊiparIt/ /Sabd/ /batAnA/ /hai/

/udAharaN/:/Upar/ /ka/ /nIce/ /Sabd/ /ʊiparIt/ /he/

/not/ /ye/ / udAharaN/ /dete/ /samay/ /iSAro/ /kA/ /upayog/ /kIjie/ /tAki/ /baccA/ /samaJ/ /sake/. /yadi/ /AʊaSyak/ /ho/ /to/ /anya/ udAharaN/ /bI/ /dIjiye/

Now I want you to tell me a word that means just opposite to the word which I say. For example: the opposite of word 'up' is 'down'

Note: while reading the example the examiner has to explain along with gestures. To make the child understand the required responses appropriately.

E

64. बड़ा .....

/bəd̪a/

/baDA/

65. उल्टा .....

/ʊlʈ̪a/

/UITA/

66. भारी .....

/bʰari:/

/BArI/

67. आसान .....

/**asan**/

/AsAn/

68. मोटा …….....

/mo:ʈə:/

/moTA/

69. पास ……

/p**as**/

/pAs/

70. साफ़ ……..

/s**a** pʰ /

/saf/

71. तेज .....

/t̪e:dʒ/

/teJ/

72.सही .....

/s**əhi:/**

/sahI/

2. MORPHOLOGICAL RULES

A. Pronouns

Instructions: इन चित्रों को देखिये और मेरे द्वारा कहे गए अधूरे वाक्यों को पूरा कीजिए।

(सर्वनाम के तहत सभी उदाहरण के लिए नोट: यदि बच्चा उचित सर्वनाम के रूप में जवाब ना दे या समझने में मुश्किल हो तो परीक्षक को अधिक विवरण देते हुए और **समझाते हुए बच्चे से सही उत्तर/जवाब बुलवानी है।)**

/ ɱ tʃɪʈro: ko: ɖekʰɪje ɔ:r mere ɖ ʋara kəhe gəe **əɖʰu:re ʋakjõ ko pu:r**a ki:**dʒɪe/**

(/sərʋənə:m ke **ʈəhəʈ səbʰi: ʊɖə:hərəɳ ke lɪe noʈ jəɖɪ bətʃtʃə: ʊtʃɪʈə** ru:p me **dʒəʋə:b nə: ɖe j ə: səmədʒʰəne me mʊʃkıl ho : ʈo: pəri:ʂək ko əɖʰık ʋɪʋərəɳə ɖeʈe hue ɔ:r səmdʒʰəʈe hʊe bətʃtʃe se s**əhi: **ʊʈʈər bʊləʋəni: hɛ:/)**

(in chitron ko deKiyaur mere daʋArA kahe gae aDUre ʋAkyon ko pUrA kIjie. (sarʋanAm ke tahat saBI udAharaN ke lie not: yadi baccA uchit sarʋanAm ke rUp men jaʋAb nA de yA samJane men muSkil ho to parIkSak ko aDik ʋiʋaraN dete hue aur samjhAte hue bacce se sahI uttar/jaʋAb bulaʋAnI hai)

Look at these pictures, now I will say a part of a sentence and I want you to say the remaining part of the sentence.

For all examples under the pronoun note: If the child does not respond or understand the concept of pronoun, the examiner has to give more details to the child and explain

(Object pronoun) PLATE 13

उदाहरण: राम ने सीता से पूछा क्या ..... **(तुम्हें) फल खना है**?

rəm ne si: ʈə: se pu: tʃʰə: kjə:/ ……. (/ʈʊmhe/) pʰə l kʰənə: hɛ:/

rAm ne sItA se pUCA kyA ..... (tumhen) fal KanA hai?

73.राम पत्र लिखना चाहता है तो राम ने रानी से कहा कि……..... (मुझे) भी पत्र लिखना है|

/rəːm pət̪rə lɪkʰənəː tʃəːhət̪əː heː t̪oː rəːm ne rəniː se kəhəː k ɪ/ ……(/mʊdʒʰe/) bʰiː pət̪rə lɪkʰənəː hɛː/

rAm part liKnA cAhatA hai tO rAm ne rAnI se kahA ki..... (muJe) BI patr liKanA hai

74.राम ने सीता को पत्र दिया और पूछा कि क्या..... (तुम्हें) पत्र लिखना है?

/rəm ne siː**t̪əː koː pət̪rə ɖ̪ɪjə**ː **ɔː**r puː**tʃʰəː kɪ kj**əː/ ……. (/**t̪ʊmhe/)** **/pət̪r**ə l**ɪkʰən**əː h**ɛː/**

rAm ne sItA ko patr diyA aur pUCA ki kyA..... (tumhen) ptr liKnA hai?

75.राम ने माँ को पत्र दिया और पूछा कि क्या..... (आपको) पत्र लिखना है?

/rəːm ne məː koː pət̪rə ɖ̪ɪjəː ɔːr puː tʃʰəː kɪ kjəː/ ……. (/əːpəko/) pət̪rə lɪkʰənəː hɛː/

rAm ne mAn ko ptr diyA aur pUCA ki kyA..... (Apako) ptr liKnaa hai?

(Subject pronoun) PLATE 14

उदाहरण: इस चित्र में, ... **(वह) गाड़ी चला रही है**.

/ɪs tʃɪt̪rə me/…… (/ʊəhə/) /gəːɖ̪iː tʃələː rəhiː hɛː/

is chitr men, ... (ʊaha) gAdI chalA rahI hai.

76.इस चित्र में, (वह)……. गेंद को पकड़ा हुआ है

/ɪs tʃɪt̪rə me/…… (/ʊəhə/) /geɖ̪ə koː pəkəɖ̪əː hʊəː hɛː/

is chitr men, (ʊaha)……. gend ko pakadA huA hai

77.इस चित्र में, (वह)……... गेंद को पकड़ी हुई है

/ɪs tʃɪt̪rə me/…… (/ʊəhə/) /geɖ̪ə koː pəkəɖ̪iː hʊəː hɛː/

is chitr men, (ʊaha)…….. gend ko pakadI huI hai

78.इस चित्र में, (वे/ वे दोनों/ वे लोग)……. गेंद को पकड़े हुए हैं

//ɪs ʧɪt̪rə me/…… (/ʊe/ /ʊe ɖono/ /ʊe logə/) ……. /ge͡ɖə ko: pəkə͡ɖe hʊe hɛ:/

is chitr men, (ʊe/ ʊe donon/ ʊe log)……. gend ko pakade hue hain

(Possessiʊe pronoun) PLATE 16

उदाहरण: आदमी ने कहा कि यह ……. (मेरी) गाड़ी है।

/ə:ɖəmi: ne kəhə: kɪ jəhə/ ……. (/meri:/) /gə:di: hɛ:/

AdmI ne khaa ki yah ……. (merI) gAdI hai.

(PLATE 17- ITEMS 79-81)

79.लड़के ने कहा कि यह ……. (मेरा) कुत्ता है|

/lə͡ɖəke ne kəhə: kɪ jəhə/ ……. (/merə:/) kʊt̪t̪ə: hɛ: /

ladke ne kahA ki yh ……. (merA) kuttaa hai

80.लड़की ने कहा कि यह ..... (मेरी) किताब है|

/lə͡ɖəki: ne kəhə: kɪ jəhə/ …… (/meri:/) /kɪt̪ə:b h ɛ:/

ladkI ne kahA ki yaha ..... (merI) kitAb hai

81.लड़की और लड़के ने कहा कि यह …… (हमारी) साइकिल है|

/lə͡ɖəki: ɔ: r lə͡ɖəke ne kəhə: kɪ jəhə/ ……. (/həmə:ri/) /səɪkɪl hɛ:/

ladkI aur ladke ne kahA ki yaha …… (hamArI) sAikil hai

B. Uerb tenses

Instructions: अब कहे गए अधूरे वाक्यों को पूरा कीजिए.

(Present progressiʊe) PLATE 18

(काल के तहत सभी उदाहरण के लिए नोट: यदि बच्चा उचित काल के रूप में जवाब ना दे या समझने में मुश्किल हो तो परीक्षक को अधिक विवरण देते हुए और समझाते हुए बच्चे से सही उत्तर/जवाब बुलवानी है|)

/əb kəhe gəe ə͡ɖʰu:re ʊakjõ ko: pu:ra ki:dʒɪje/

(/kal ke ʈəhəʈ səbʰi: ʊɖə:hərəɳ ke lıe noʈ - jəɖı bətʃtʃa ʊtʃıʈ ru:p me dʒəʊab na ɖe ja: səmədʒʰəne me mʊʃkıl ho: ʈo: pəri:ʂək ko əɖʰık ʊıʊərəɳ ɖeʈe hue ɔ:r səmdʒʰaʈe hʊe bətʃtʃe se səhi: ʊʈʈər bʊləʊani: hɛ:/)

/ab/ /kahe/ /gae/ /adhUre/ /wAkyon/ /ko/ /pUrA/ /kIjie/

/kAl/ /ke/ /that/ /sbhi/ /udaahrn/ /ke/ /lie/ /not/ /yadi/ /baccA/ /ucit/ /kAl/ /ke/ /rUp/ /men/ /jaʊAb/ /nA/ /de/ /yA/ /samJane/ /men/ /muSkil/ /ho/ /to/ /pariSak/ /ko/ /aDik/ /ʊivaraN/ /dete/ /hue/ /aur/ /samJAte/ /hue/ /bacce/ /se/ /sahi/ /uttar/ /jaʊAb/ /bulaʊAnI/ /hai/

Now carefully look at these pictures.Here I will say one part of the sentence and you have to complete the sentence by finishing the remaining part.

For all examples under the tenses note: If the child does not respond or understand the concept of pronoun, the examiner has to give more details to the child and explain

उदाहरण: वह खेलना पसंद करता है। इस चित्र में वह …… (खेल रहा है)।

/ʊəhə kʰeləna: pəs˜əɖə kərəʈə: h ɛ:/ /ıs tʃıʈrə me ʊəhə/ …… (/kʰel rəhə: h ɛ:/

/udAharaN/: /waha/ /KelanA/ /pasand/ /karatA/ /hai/. /is/ /citr/ /me/ /waha/……. (/Kel/ /rahA/ /hai/)

82. वह दौड़ना पसंद करता है। इस चित्र में वह ……(दौड़ रहा है)

/ʊəhə ɖɔ:ɖən: pəs˜əɖə kərəʈʰə: hɛ:/ /is tʃıʈrə me: ʊəhə/ …….. (/ɖɔ:ɖə rəhə: h ɛ:/

/ʊaha/ /dauDnA/ /pasand/ /kartA/ /hai/. /is/ /citr/ /me/ /ʊaha/ ……. (/dauD/ /rahA/ /hai/)

83. उसे पढ़ना अच्छा लगता है। इस चित्र में वह ……..(पढ़ रही है)

/ʊse pəɖʰənə: ətʃtʃʰə: ləgəʈə: hɛ:/ /is tʃıʈrə me ʊəhə/ ……. (/pəɖʰə rəhi: hɛ:/)

/use/ /paDhnA/ /acCA/ /lagatA/ /hai/. /is/ /citr/ /me/ /ʊaha/ …….. (/paDhn/ /rahI/ /hain/)

84. वह तैरना पसंद करती है। इस चित्र में वह ……. (तैर रही है)

/ʊəhə ʈ ɛ:rənə: pə˜səɖ kərəʈi: hɛ:/ /ıs tʃıʈrə me ʊəhə/ …… (/ʈɛ:r rəhi: hɛ:/

/ʊaha/ /tairanA/ /pasand/ /karatI/ /hai/. /is/ /citr/ /me/ /ʊaha/ ……. (/tair/ /rahI/ /hai/)

Present tense (Plate 18 दिखाइए)

उदाहरण: इस चित्र में वह ……(खेलता) है

/ɪs tʃɪ ʈrə me ʊəhə/ …… (/kʰeləʈə:/) /h ɛ:/

is chitr men ʊaha ……(KelatA) hai

85.इस चित्र में वह …… (दौड़ता) है|

/ɪs tʃɪ ʈrə me ʊəhə/ ……. (/ɖɔ:ɖəʈə:/) /h ɛ:/

is chitr men ʊaha …… (daudtA) hai

86.इस चित्र में वह ……. (पढ़ती) है |

/ɪs tʃɪ ʈrə me ʊəhə/…….. (/pəɖʰəʈi:/) /hɛ:/

is chitr men ʊaha ……. (paDatI) hai |

87.इस चित्र में वह …… (तैरती) है|

/ɪs tʃɪʈrə me ʊəhə/…….. (/ʈɛ:rəʈi:/) / hɛ:/

is chitr men ʊaha …… (tairatI) hai

Past tenses

उदाहरण: इस चित्र में लड़का कपड़ा ……. (पहन रहा है), लेकिन इस चित्र में लड़के ने कपड़ा ……. (पहन लिया)|

/ ɪs tʃɪʈr me ləɖəkə: kəpə**ɖə:/ …….. (/p**əhən rəhə: h**ɛ:/) lekɪn ɪs tʃɪʈr**ə me lədəke ne kəpə**ɖə:/ …….. (/p**əhən lɪ**jə**:/)

is chitr men ladakA kapadA ……. (pahan rhaa hai), lekin is Citr men ladake ne kapadA ……. (pahan liyA)|

88.इस चित्र में वह कंघी कर रही है लेकिन इस चित्र में वह ……. (कंघी कर चुकी है)

/ ɪs tʃɪʈr me ʊəhə ˜kəgʰi: kər rəhi: hɛ: lekɪn ɪs tʃɪʈr me ʊəhə/ ……. (/˜kəgʰi: kər tʃʊki: hɛ:/)

/is/ /citr/ /men/ /ʊaha/ /kanGI/ /kar/ /rahI/ /hai/ /lekin/ /is/ /citr/ /me/ /ʊaha/ …….. (/kanGI/ /kar/ /cukI/ /hai/)

89.इस चित्र में लड़का मौज़ा पहन रहा है, लेकिन इस चित्र में लड़के ने मौज़ा …….

(पहन लिया)

/ ɪs tʃɪt̪rə me ləɖəkə: mɔ:dʒə: pəhənə rəhə: hɛ: lekɪn ɪs tʃɪt̪rə me ləɖəke ne mɔ:dʒə:/ …… (/pəhən lɪjə:/)

is Citr men ladkA maujA pahan rahA hai, lekin is chitr men ladke ne maujA ……. (pahan liyA)

Future tenses

90.इस चित्र को देखिये और बताइए लड़का क्या करेगा? यह लड़का गिलास से पानी

…… (पियेगा)

/ ɪs tʃɪt̪rə ko: ɖekʰɪje: ɔ:r bət̪ə:ɪe kɪ ləɖəkə: kjə: kəregə:/ /jəhə ləɖəkə: gɪlə:s se pə:ni:/ …… (/pɪjegə:/)

/is/ /citr/ /ko/ /deKiye/ /aur/ /batAie/ /ke/, /laDkA/ /kyA/ /karegA/? /yaha/ /laDakA/ /gilAs/ /se/ /pAnI/ …….. (/piyegA/)

C. Plurals/ comparatiʋes/ superlatiʋes

Instructions: कहे गए अधूरे वाक्यों को पूरा कीजिए ।

***/k* əhe gəe əɖ̪ʰu:re ʋə:kjo: ko: pu:rə: ki:dʒɪe/**

/kahe/ /gae/ /aDhUre/ /wAkyon/ /ko/ /pUrA/ /kIjie/

Carefully look at the pictures and answer me by completing the part of sentences that I start.

उदाहरण: यह एक कुत्ता है| इधर दो ..... (कुत्ते) हैं|

/ j əh ek kʊʈ̪ʈə: hɛ:/ / ɪɖ̪ʰər ɖ̪o:/ …….. (/kʊʈ̪ʈe/) /h ɛ:/

/yah/ /ek/ /kuttA hai/ /idhar/ /do/ ……. (/kutte/) hain/

91.यह एक किताब है। इधर दो ……(किताबें) हैं ।

/ j əh ek kɪt̪ə: hɛ:/ / ɪɖ̪ʰər ɖ̪o:/ ……. (/kɪt̪ʰə:be/) /hɛ:/

/yah/ /ek/ /kitAb/ /hai/. /idhar/ /Do/ …….. (/kitAben/) /hain/

92. यह एक डब्बा है। इधर दो ……..(डब्बे) हैं ।

/ j əh ek ɖəbbə: hɛ:/ / ɪɖ̪ʰər ɖ̪o:/ …… (/ɖəbbe:/) /h ɛ:/

/yaha/ /ek/ /dabbA/ /hai/ /idhar/ /do/ ……../(dabbe)/ /hain/

93. यह एक चश्मा है। इधर दो …….(चश्मे) हैं ।

/ j əh ek tʃəʃəmə: hɛ:/ / ɪɖ̪ʰər ɖ̪o:/ ……. (/tʃəʃəme/) /h ɛ:/

/j əh// ek/ /chaSamA/ /hai/ /idhar/ /do/ ……./(chaSme)/ /hain/

94. यह एक लड़की है। यहाँ दो …… (लड़कियाँ) हैं ।

/jəh ek ləɖəki: hɛ:/ /jəhã ɖ̪o:/ …… (/ləɖəkɪjã/) /hɛ̃/

/yah/ /ek/ /laDakI/ /hai/. /yahAn/ /do/ …… (/laDakiyAn/) /hain/.

95. यहाँ एक महिला है। यहाँ दो ……. (महिलाएं) हैं ।

/jəh˜ə: ek məhɪlə: hɛ:/ /jəh˜ə ɖ̪o:/ ……. (/məhɪlə:e/) /hɛ:/

/yahAn/ /ek/ /mahilA/ /hai/. /yahAn/ /do/ …… (/mahilAen/) /hain/.

Comparatives/ superlatives

(नोट : यदि बच्चा उचित रूप में जवाब ना दे या समझने में मुश्किल हो तो परीक्षक को अधिक विवरण देते हुहे और समझाते हुहे बच्चे से सही प्रतिक्रिया बुलवानी है।)

/no:ʈə/ /jəɖ̪ɪ btʃʧə: ʊtʃɪʈ̪ə ru:p me dʒəvə:b nə: ɖ̪e: jə: səmədʒʰəne me mʊʃkɪl ho: ʈ̪o: pəri:ʂək ko: əɖ̪ʰɪk vɪvərəɳ ɖ̪eʈ̪e hʊhe: ɔ:r səmədʒʰə:ʈ̪e hʊhe: bətʃʧe se səhi: prəʈ̪ɪkrɪjə: b ʊl ə və:ni: hɛ:/

(note : yadi baccA uchit rUp men javAb nA de yA samaJane men mushkil ho to parISak ko adik vivaran dete huhe aur samaJAte huhe bacce se sahi pratikriyA bulvAni hai)

(Note: If the child does not respond properly or has difficulty to understand,then the examiner has to give more details to the child and explain)

उदाहरण: यह लड़का लंबा नहीं है । यह लड़का लंबा है| यह लड़का उस लड़के …… (से लंबा है), और यह लड़का …… (सबसे लंबा है) ।

/j əh ə l ə ɖəkə: ˜l əbə: nəhi: hɛ:/ / jəh ləɖəkə: ˜ləbə: hɛ:/ / jəhə lə ɖəkə: ʊs ləɖəke/ …..…… (/se: ˜ləbə: hɛ:/) / ɔ:r jəhə ləɖəkə:/ ……. (/səbəse ˜ləbə: hɛ:/)

yaha ladkA lanbA nahin hai . yaha ladakA lanbA hai. yaha ladakA us ladake …… (se lanbA hai), aur yaha ladkA …… (sabse lanbA hai) .

96. यह कुत्ता बड़ा नहीं है । यह कुत्ता बड़ा है। यह कुत्ता उस कुत्ते …… (से /से भी बड़ा है), और यह कुत्ता …… (सबसे बड़ा है) ।

/jəhə kʊʈʈə: bəɖə: nəhi: h ɛ:/ /jəhə kʊʈʈə bəɖə: hɛ:/ / je kʊʈʈə ʊs kʊʈʈe/ …… (/se/ /se bʰi: bəɖə: hɛ:/ / ɔ:r jəhə kʊʈʈə/ ……/səbəse bəɖə: hɛ:/

/yaha/ /kuttA/ /baDA/ /nahIn/ /hai/. /yaha/ /kuttA/ /baDA/ /hai/. /ye/ /kuttA/ /us/ /kutte/ …… (/se/, /se/ /BI/ /baDA/ /hai/)

97. इस पेड़ का तन। मोट। नहीं है । इस पेड़ का तन। मोट | इस पेड़ के का तन। उस पेड़ के तन। …… (से मोट। है), और इस पेड़ का तन। …… (सबसे मोट। है) ।

/ ɪs pe:ɖ ke ʈəne mo:ʈe nəhĩ hɛ̃/ /ɪs pe:ɖ ke ʈəne: mo:ʈe hɛ̃/ / ɪs pe:ɖ ke ʈəne: ʊs pe:ɖ ke: ʈəne:/ ……. /se mo: ʈe hɛ̃/ / ɔ: r ɪs pe:ɖ ke ʈəne:/ …….. /səbəse mo: ʈe hɛ/

/is/ /ped/ /kI/ /tane/ /motI/ /nahin/ /hai/ /is/ /ped/ /kI/ /tane/ /motI/ /is/ /ped/ /kI/ /tane/ /us/ /ped/ /ke/ /tane/ …… (/se/ /motI/ /hai/) /aur/ /is/ /ped/ /kI/ /tane/ …… /sabse/ /motI/ /hai/

3. SYNTACTIC RULES

A. Subject verb agreement/ negation

Instructions: मेरे द्वारा कहे गए अधूरे वाक्य को पूरा कीजिए ।

/mere **ɖ̪vara kəhe gəe əɖ̪^{h}u:re ʋakjə ko pura ki:dʒɪje:/**

/mere/ /dwArA/ /kahe/ /gae/ /aDhUre/ /wAkya/ /ko/ /pUrA/ /kIjie/.

You have to complete the sentence I say.

(PLATE 28)

उदाहरण: यह घोड़ा दौड़ रहा है| ये घोड़े …….. (दौड़ रहे हैं)|

/jəh gʰo:ɖa ɖ̪ɔ:ɖ रəha hɛ: je gʰo:ɖe/ …… (/ɖ̪o:ɖ रəhe hɛ̃/)

yaha GodA daud rahA hai ye ghode …….. (daud rahe hain)

98.यह गाय चर रही है. ये गाये ……. (चर रही हैं)

/jəh gaj tʃər rəhi: hɛ: jəh gajɛ̃/ …… (/tʃə:r rəhi: hɛ̃/**

/yaha/ /gAy/ /car/ /rahI/ /hai/, /yaha/ /gAye/ ……. (/car/ /rahI/ /hain/)

99. लड़का खा रहा है| लड़के …… (खा रहे हैं)|

/ləɖ̪əka kʰa rəha hɛ: ləɖ̪əke/ …….. (/kʰəa rəhe hɛ̃/

100. वे चलते हैं, वह ……..(चलता है)

/ ʋe tʃələʈ̪e hɛ: ʋəhə/ …….. (/tʃələʈ̪ə hɛ/)

/we/ /calate/ /hain/, /ʋaha/ …… (/calatA/ /hai/)

101. वह दौड़ती है, वे ……. (दौड़ते हैं)

/ʋəhə ɖ̪ɔ:ɖ̪əʈ̪i: hɛ: ʋe/ …… (/ɖ̪ɔ:ɖ̪əʈ̪e hɛ̃/)

/ʋaha/ /dauDtI/ /hai/, /we/ ……. (/dauDate/ /hain/)

Negation

उदहारण: इस आदमी ने टोपी पहनी है लेकिन इस आदमी ने ..... (टोपी नहीं पहनी है)/(नहीं)

/ɪs aɖ̪əmi: ne ʈo:pi: pəhəni: hɛ: lekɪn ɪs aɖ̪əmi: ne/ ……..(/ ʈopi: nəhi: pəhəni: hɛ:/) / (/nəhi:/)

/is/ /AdamI/ /ne/ /TopI/ /pahanI/ /hai/ /lekin/ /is/ /AdamI/ /ne/ ……..
(/TopI/ /nahIn/ /pahanI/ /hai/)/ (/nahIn/)

102. इस कुत्ते के गले में पट्टा है लेकिन इस कुत्ते के गले में..... (पट्टा नहीं है) /(नहीं)

/ɪs kʊʈʈe: ke: gəle: me pəʈʈa hɛ: le:kɪn ɪs kʊʈʈe: ke: gəle: me:/……(/pəʈʈa nəhi: hɛ:/)/ (/nəhi:/)

/is/ /kutte/ /ke/ /gale/ /me/ /paTTA/ /hai/ /lekin/ /is/ /kutte/ /ke/ /gale/ /me/ ……. (/paTTA/ /nahIn/ /hai/, /nahIn/)

100. इस आदमी ने चश्मा पहना है लेकिन इस आदमी ने ..... (चश्मा नहीं पहना है)/(नहीं)

/ɪs aɖəmi: ne tʃəʃəmə: pəhənə: hɛ: lekɪn ɪs aɖəmi: ne ……..(/tʃəʃəmə: nəhi: pəhənə: hɛ:/)/ (nəhi:/)

/is/ /AdamI/ /ne/ /caSamA/ /pahanA/ /hai/ /lekin/ /is/ /AdamI/ /ne/ ……
(caSamA nahI pahanA hai)/ /nahI/

101. इस गिलास में पानी है लेकिन इस गिलास में ..... (पानी नहीं है)/ (नहीं)|

/ɪs gɪlə:s me: pə:ni: hɛ: le:kɪn ɪs gɪlə:s me:/……(/pə:ni: nəhi: hɛ:/)/ (/nəhi:/)

/is/ /gilAs/ /main/ /pAnI/ /hai/ /lekin/ /is/ /gilAs/ /main/ ……(/pAnI/ /nahI//hai/)/ /nahI/

102. इस पेड़ में फल नहीं है, लेकिन इस पेड़ में ..... (है)

/ɪs pe:ɖ me: pʰəl nəhi: hɛ: lekɪn ɪs peɖə me:/ ….. /hɛ:/

/is/ /peDn/ /me/ /Pal/ /nahIn/ /hai/, /lekin/ /peDn/ /me/ ……. (/hai/)

103. दिखाइए किस चित्र में बिल्ली दूध नहीं पी रही है…….

/ɖɪkʰəːɪe kɪs ʧɪtrə me: bɪlli: ɖuːɖʰə nəhi: pi: rəhi: hɛː/

/diKAie/ /kis/ /citr/ /me/ /billI/ /dUdh/ /nahIn/ /pI/ /rahI/ /hai/ ……..

B. Sentence repetition/ judgment of correctness

Repetition:

"मेरे द्वारा कहे गए वाक्य को आपको ठीक ठीक दोहराना है । (नोट : अधिकतम स्कोर (एक/1)के लिए, दोहराया हुआ वाक्य बोले गए वाक्य के समान सही रूप में होना आवश्यक है, अन्यथा शुन्य/0)

/mere **ɖəʊəːrə: kəhe gəe ʊəːkjə ko: əːpəko: ʈiːk ʈiːk ɖoːhərəːnə: hɛː/ /noːt/ / ə ɖʰɪkəʈəm skoːr eːkə ke: lɪe: ɖoːrəːjə: hʊə: ʊəːkyəː boːle gəe ʊəːkjə ke səməːn səhi: ruːp me: hoːn ə: əːʊəʃjək hɛː, ənjəʈʰə: ʃʊnjə/**

/mere/ /dawArA/ /kahe/ /gae/ /wAkya/ /ko/ Apako/ /ThIk/ /ThIk/ /doharAnA/ /hai/. (/noT/: **adhiktm skor/** ***/ke/ /lie/, /doharAyA/ /huwA/ /wAkya/ /bole/ /gae/ /wAkya/ /ke/ /samAn/ /sahI/ /rUp/ /me/ /honA/ /AwaSayak/ /hai/*** **anythaa shuny/**

Now listen carefully, you have to repeat the sentences after me

(NOTE: Sentence must be alike to the model for getting a complete score of one and , otherwise zero)

		Incorrect	**Correct**
104.	कुत्ते बच्चों को पसंद करते हैं ।	……	……

/kʊʈʈe bətʃtʃõː ko: pəsə̃ɖ kərəʈe hɛ̃ː/

/kutte/ /bacon/ /ko/ /pasand/ /karte/ /hain/

105. माँ ने बच्चे को दूध पिलाने के लिए ……. …….

बहन को कहा ।

/mã̃ ne: bətʃtʃe ko: ɖuːɖʰə pɪlane ke lɪe bəhən ko: kəhəː/

/mAn/ /ne/ /bacce/ /ko/ /dUdh/ /pilAne/ /ke/ /lie/ /bahan/ /ko/ /kahA/

106. क्या आप अपनी बिल्ली मुझे दिखाएंगे? …… ……

/kja **ap əpəni: bɪlli: mʊdʒʰe: ɖɪkʰaẽge:/**

/kyA/ /Ap/ /apanI/ /billI/ /muJe/ /diKAenge/?

107. हमको चल कर जाना होगा क्योंकि …… ……
यह गीता की गाड़ी है ।

/h**əməko: tʃəl kər dʒana ho:ga kjũ:kɪ jəh gɪ:ʈa ki: gadi: hɛ:/**

/hamako/ /cal/ /kar/ /jAnA/ /hogA/ /kyunki/ /yaha/ /gItA/ /kI/ /gADI/ /hai/

108. यदि आपको यह अच्छा लगता है …… ……..
तो यह आपको दे दूंगा |

/j**əɖɪ apəko: jəhə ətʃtʃʰa ləgəʈə: hɛ: ʈo: jəhə apəko: ɖe: ɖũ:ga/**

Judgment of correctness:

अब बताइए कि क्या ये वाक्य सही है या गलत?

/ əb bəʈaɪje: kɪ kja je: ʋakjə səhi: hɛ: ja gələʈ/

/ab/ /batAie/ /ki/ /kyA/ /wAkya/ /sahI/ /hai/ /yA/ /galat/

Here, you have judge my sentences and tell me if I say it right or wrong.

		Correct	**Incorrect**
109.	यह कुत्ता दौड़ना |	……	……..
	/j**əh kʊʈʈə: ɖɔ:ɖənə/**		
	/yaha/ /kuttA/ /dauDanA/		
110.	वह प्लेट नहीं टूटी है|	……	……..
	/ ʋəh ple:ʈ nəh˜i: ʈu:ʈi: hɛ:/		
	/ʋaha/ /pleT/ /nahIn/ /TUTI/ /hai/		
111.	मुझे बहुत सारे चिड़िया दिख रहे हैं |	……	……..
	/m**ʊdʒʰe: bəhʊʈ sare tʃɪɖɪjã ɖɪkʰ rəhe: hɛ̃/**		

/muJe/ /bahut/ /sAre/ /ciDIyA/ /diK/ /rahe/ hain/

112. बेटा रो रहे थे| ....

/beʈa ro: rəhe ʈ̪ʰe:/

/beTA/ /ro/ /rahe/ /the/

4. VISUAL PERCEPTION

A. Visual matching/ Discrimination

Matching

Instructions: अब जो चित्र दिखाया जाएगा आपको उस चित्र का मेल दिखाना होगा |

/ əb dʒo tʃɪʈ̪r d̪ɪkʰaja dʒaega apəko: ʊs tʃɪʈ̪r ka me:l d̪ɪkʰana ho:ga/

/ab/ /jo/ /citr/ /diKAyA/ /jAegA/ /Apako/ /us/ citr/ /kA/ /mel/ /diKAnA/ /hogA/

I am going to show you few pictures and you have to find the match of the same.

113. ....

114. ....

115. ....

116. ....

Discrimination

Instructions: अब आपको वह एक चित्र दिखाना है जो संबंधित नहीं है |

/ əb ə:p əko ʊə h ek tʃɪt̪r d̪ ɪ kʰ ə:n ə: h ɛ: dʒo: s˜b˜d̪ʰɪt̪ nəhi: hɛ:/

/ab/ /Apako/ /vaha/ /ek/ /citr/ /diKAnA/ /hai/ /jo/ /diKAe/ /gae/ /citr/ /se/ /sambanDit/ /nahIn/ /hai/

You have to choose the picture which does not belong to the group

117. ....

118. ....

119. ....

120. ....

B. Visual association/ sequencing

Association

Instructions: अब आपको एक चित्र दिखाया जाएगा और आपको ऐसा चित्र ढूढ़ना होगा जो दिखाए गए चित्र से जुड़ा हुआ है |

/ əb apəko: ek tʃɪt̪r d̪ɪkʰaja dʒaega ɔ:r apəko: e:sa tʃɪt̪rə d̪ʰu:d̪ʰ˜na ho:ga dʒo: d̪ɪkʰae gəe tʃɪt̪r se dʒʊd̪a hʊa hɛ/

/ab/ /Apako/ /ek/ /citr/ /diKAyA/ /jAegA/ /aur/ /Apako/ /esA/ /citr/ /DUDnnA/ hogA/ /jo/ /diKAe/ /gae/ /citr/ /se/ /juDA/ /huA/ /hai/

Look at the pictures carefully and show me one picture which goes with the picture I point to.

121. ....

122. ....

123. ....

124. ....

125. ....

Sequencing

Instructions: अब आपको एक क्रम में जुटाए गए चित्र दिखाए जाएंगे, इन्हें ध्यान से देखिये; आपको इन चित्रों का सही क्रम याद रखना होगा. दिए हुए चित्रों में से सही क्रम को चुने |

(नोट: पहले केवल पहली पंक्ति के चित्रों को दिखाइए. बच्चे को पांच सेकंड का समय दीजिये | उसके बाद पहेली पंक्ति के चित्रों को ढक कर बच्चे से सही क्रम को चुनने के लिए कहिये)

/ əb apəko: ek krəm me: dʒʊʈae gəe tʃɪʈr ɖ ɪkʰae dʒaẽge: ɪnhẽ: ɖʰjan se : ɖekʰɪje apəko: ɪn tʃɪʈroẽ: ka səhi: krəm jaɖ rəkʰəna ho:ga/ /ɖɪe hʊve tʃɪʈroẽ: me: se səhi: krəm ko: tʃʊne:/

/no:t/ **/pəhəle ke:ʋəl pəhəli: pẽkʈɪ ke tʃɪʈroẽ: ko ɖʰ ɪkʰaɪje/ /bətʃtʃe ko: pẽə:tʃ sekẽəɖ ka səməj ɖi:dʒɪje:/ / ʊsəke baɖ p əheli: pẽkʈɪ ke tʃɪʈroẽ: ko: ɖʰk kər bətʃtʃe se səhi: krəm ko: tʃʊnəne ke lɪe: kəhɪje:/**

/ab/ /Apako/ /ek/ /kram/ /me/ /juTAe/ /gae/ /citr/ /diKAe/ /jAenge/, /inhe/ /dhyAn/ /se/ /deKiye/ /Apako/ /in/ /citron/ /kA/ /sahI/ /kram/ /yAd/ /raKnA/ /hogA/. /die/ /huwe/ /citron/ /me/ /se/ /sahI/ /kram/ /ko/ /cune/.

(noT: /pahale/ /kewal/ /pahalI/ /pankti/ /ko/ /diKAie/, /bacce/ /ko/ /pAnc/ /sekanD/ /kA/ /samay/ dIjiye/. /usake/ /bAd/ /pahelI/ /pankti/ /ke/ /citron/ /ko/ /Dak/ /kar/ /bacce/ /se/ /sahI/ /kram/ /ko/ /cunane/ /ke/ /lie/ /kahiye/)

Now you will be shown pictures arranged in a sequence, look carefully at them, you must remember the correct sequence of these pictures beacuase later you must select the correct sequence from the bottom pictures.

(Note: First cover the pictures of the bottom row and show only the first line, give the child five seconds time. later ask the child to pick the correct sequence)

126. ....

127. ....

128. ....

129. ....

1. AUDITORY PERCEPTION

A. Auditory memory

Instructions: कहे गए वाक्य या शब्द को उसी क्रम में दोहराना है.

(नोट: आइटम 136, 137 तथा 138 में मौजूद शब्दों को ऐसे अन्तराल पर बोले जिसमें प्रत्येक सेकंड में दो शब्द ही बोले जाए| अधिकतम स्कोर (एक/1)के लिए, दोहराया हुआ वाक्य बोले गए वाक्य के समान सही रूप में होना आवश्यक है, अन्यथा शुन्य/0)

***/k*əhe gəe: ʋakjə ja ʃəbɖ̪ ko: ʊsi: krəm me: ɖ̪o:hərana hɛ:/ /no:t ə/ / ə: ɪt əm 136 137 ʈ̪əʈ̪ʰa 138 me: mɔ:dʒu:ɖ̪ ʃəbɖ̪õ: ko: e:se: anʈ̪əral p ər bo:le dʒ ɪs əme pr ə ʈ̪je:k seˇkəɖ̪ me: ɖ̪o: ʃəbɖ̪ hi: bo:le dʒ əe:/ / ə ɖ̪ʰɪkəʈ̪əm sko:r e:k ke; lɪe: ɖ̪o^{h}rajə: hʊə: ʋakyə: bo:le gəe va:kj ke səma:n səhi: ru:p me: ho:n ə: ə:ʋəʃjək hɛ:, ənjəʈ̪ʰə: ʃʊnjə/**

/kahe/ /gae/ /wAkya/ /yA/ /Sabd/ /ko/ /usI/ /kram/ /me/ /doharAnA/ /hai/.

(/noT/: /AiTam/ 136,137, /tathA/ 138 /me/ /maujUd/ /Sabdo/ /ko/ /ek/ /sekanD/ /ke/ /andar/ /do/ /Sabd/ /kahie/ /aur/ /pure/ /skor/ /ke/ /lie/ /Sabdo/ /ko/ /sahI/ /kram/ /me/ /doharAnA/ /AwaSayak/ /hai/)

You have to repeat the sentence in the same sequence.as said by me.

(Note: Items present 136, 137, and 138 must be said at equal intervals in which two words are to be spoken in each second. For maximum score (one / 1), the repeated sentence must be in the correct form as the spoken sentence is, otherwise zero)

130. कार, बड़े, फल, नाच

/k **ar/ /b ədeː/ / pʰəl/ /natʃ/**

/kAr/, /baDne/, /Pal/, /nAc/

131. नारंगी, बकरी, समय, खुदाई

/n**arə̃gi:/ /bəkəri:/ /səməj/ / kʰʊɖ̤ai:/**

/nArabgI/, /bakarI/, /samay/, /KudAI/

132. दरवाज़ा, फर्नीचर, अलमारी, ख़रगोश,

/ ɖ̤ərə ʋadʒa/ / pʰərni:tʃər/ / ələmari:/ / kʰərgoː ʃ/

/darwAzA/, /ParnIcar/, /alamArI/, KaragoS/

133. सीता कार में है

/si:ʈ̤**a kar me: hɛ:/**

/sItA/ /kAr/ /me/ hai/

134. मैं फुटबॉल खेलने के लिए बाहर चला गया

/m**ɛ̂: pʰʊʈ̂bal kʰeləne ke: lɪje bahər tʃəla gəja/**

/mai/ PuTabAl/ /Kelane/ /ke/ /lie/ /bAhar/ /calA/ /gayA/

135. माँ ने राम को घर में हरे रंग का कुत्ता लाने को कहा

/m**ə̃ ne: ram ko: gʰər mẽ həre rə̃g ka kʊʈ̤ta lane ko: kəha/**

/mAn/ /ne/ /rAm/ /ko/ /Gar/ /me/ /hare/ /kA/ /kuttA/ /lane/ /ko/ /kahA/

Instructions: अब जो कहा जएगा आपको वह करके दिखाना होगा |

/ əb dʒo: kəha dʒəe:ga apəko: ʋəh kərəke: ɖ̤ɪkʰana ho:ga/

/ab/ /jo/ /khA/ /Apako/ /waha/ /karake/ /diKAnA/ /hogA/.

136. खड़े हो जाओ और अपने सिर के ऊपर हाथ रखो |

/ kʰə ɖe: ho: dʒə:o: ɔ:r əpəne: sır ke u:pər hə:ʈʰə rə kʰo:/

/KaDne/ /ho/ /jAO/ /aur/ /apane/ /sir/ /ke/ /Upar/ /hAth/ /raKo/

137. बैठ जाओ, अपनी किताब खोलो और अपनी गोद में रखो |

/bɛ: ʈʰə dʒə:o: əpəni: kı ʈə:b ɔ:r əpəni: go:ɖə mê: rəkʰo:/

/bait/ /jAO/, /apanI/ /kitAb/ /Kolo/ /aur/ /apanI/ /god/ /me/ /raKo/

138. मुझे यह किताब दो, दरवाज़े तक जाओ और फिर मेरे पास वापस आओ|

/mʊdʒʰe: jəhə kı ʈə:b ɖo: ɖərəʊə dʒe: ʈək dʒə:o: ɔ: r pʰır me:re: pə:s ʊə:pəs ə:o:/

/muJe/ /yaha/ /kitAb/ /do/, /darwAze/ /tak/ /jAO/ /aur/ /Pir/ /mere/ /pAs/ /wApas/ /AO/

B. Auditory sequencing/Discrimination

Sequencing:

Instructions: अब आप एक कहानी सुनने जा रहे है | उसको सुनने के बाद बताइए की कहानी में क्या क्या हुआ?

(नोट: यदि कहानी उचित क्रम में हो तो पूरा स्कोर दे)

/ əb ap ek kəhani: sʊnəne: dʒa rəhe: hɛ̃/ / ʊsəko: sʊnəne: ke bə:ɖə bəʈə:ıe ki: kəhə:ni: mê kjə: kjə: hʊvə:/

***/no:*ʈə jəɖı kəhə:ni: ʊtʃıʈə krəm mê ho: ʈo: pʊrə: sko:r ɖe/**

/ab/ /Ap/ /ek/ /kahAnI/ /sunane/ /jA/ /rahe/ /hai/. /usako/ /sunane/ /ke/ /bAd/ /batAie/ /kI/ /kahAnI/ /me/ /kyA/ /kyA/ /huwA/?

(/noT/: /yadi/ /kahAnI/ /ucit/ /kram/ /me/ /ho/ /to/ /pUrA/ /skor/ /de/)

राम अपनी साइकिल पर सवारी के लिए गया। जब वह सवारी कर रहा था वह एक पेड़ से टकराया और अपनी साइकिल से गिर गया। एक महिला अपने घर से बाहर आइ| उसके घुटने पर पट्टी बाँधी.

/ram əpəni: saıkıl pər səʋari: ke lıje gəja/ /dʒəb ʋəh səʋari: kər rəha ʈʰa ʋəh e:k peɖ se ʈəkəraja ɔ:r əpəni: saıkıl se gır gəja/ /ek məhıla əpəne gʰər se bahər ai/ / ʊsəke gʰʊʈəne pər pəʈʈi: bãɖʰi:/

/rAm/ /apanI/ /sAikil/ /par/ /sawArI/ /ke/ /lie/ /gayA/. /jab/ /waha/ /sawArI/ /kar/ /rahA/ /TA/ /wahA/ /ek/ /peDn/ /se/ /TakkarAyA/ /aur/ /apanI/ /sAikil/ /se/ /gir/ /gayA/. /ek/ /mahilA/ /apane/ /Gar/ /se/ /bAhar/ /Ai/. /uske/ /GuTane/ /par/ /paTTI/ /bAndhI/

139. ....।

140. ....।

141. ....।

Discrimination:

Instructions: अब कुछ चित्रों के नाम कहे जाएंगे| कृपया उन चित्रों को दिखाइए |

/ əb kʊtʃʰə tʃɪt̪ro: ke: nam kəhe jə:êge/ /krIpəja ʊn tʃɪt̪rô: ko: ɖɪkʰaıje/

/ab/ /kuC/ /citron/ /ke/ /nAm/ /kahe/ /jAenge/. /krupayA/ /un/ /citron/ /ko/ /diKAie/.

142. पैर

/p**ɛ:r/**

/pair/

143. ढोल

/ɖʰo:l/

/DOl/

144. चिट्ठी

/tʃɪʈʈʰi:/

/ciTTI/

145. महिला थैला पकड़ी है

/ **məhıla ʈʰɛ:la pəkəɖi: hɛ:/**
/mhilA/ /thailA/ /pakaDnI/ /hai/

146. कुर्सी पर बुढ़िया बैठी है

/k**ʊrsi: pər bʊɖʰɪja bɛ:ʈʰi: hɛ:/**

/kursI/ /par/ /buDiyA/ /baiThI/ /hai/

147. यह काली गाड़ी है

/ **jəh kali: ga ɖi: hɛ:/**

/yah/ /kAlI/ /gAdnI/ /hai/

APPENDIX IV

DISTRIBUTIONS OF PERCENTILE RANKS ACROSS AGE GROUPS CORRESPONDING TO THEIR RAW SCORES

Age Levels / Raw Score	N=30 4.1-4.6	N=30 4.7-5.0	N=30 5.1-5.6	N=30 5.7-6.0	N=30 6.1-6.6	N=30 6.7-7.0	N=30 7.1-7.6	N=30 7.7-8.0
147-150							100	100
143-146						100	88	65
140-142						66	59	37
136-139				100	100	59	27	15
132-135			100	67	58	50	12	6
128-131			82	59	40	32	6	1
124- 127			71	39	13	17	1	
120-123			62	24	1	7		
116-119		100	34	8		1		
112-115		84	23	5				
108-111	100	68	18	1				
104-107	75	46	9					
101-103	50	20	1					
97-100	35	8						
93-96	20	1						
89-92	14							
85-88	1							

APPENDIX V

Abbreviations used in BLST-H

Symbol	Meaning
BP	Body Parts
N	Nouns
V	Verbs
C	Categories
F	Functions
P	Postpositions
C/Q	Colours/Quantity
O	Opposites
PRO	Pronouns
VT	Verb tenses
P/C/S	Plurals/ Comparatives/ Superlatives
SVA/N	Subject verb agreement/ Negation
SR/J	Sentence Repetition/ Judgement of correctness
VM/VD	Visual Matching/ Discrimination
VA/ VS	Visual Association/ Sequencing
AM	Auditory Memory
AS/AD	Auditory Memory/ Discrimination