

MEAN LENGTH OF UTTERANCE IN MENTALLY RETARDED CHILDREN (BENGALI)

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Dearest Brother,

The everlasting source of my inspiration
who has greatly influenced and motivated
my work and gave me the reason
for looking forward to tomorrow.

CERTIFICATE

This is to certify that the dissertation entitled "MEAN LENGTH OF UTTERANCE IN MENTALLY RETARDED CHILDREN(BENGALI)" is the bonafide work on part fulfilment for the degree of master of Science. (Speech & Hearing) of the student with Register no.m 9114.

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CERTIFICATE

This is to certify that the dissertation entitled "MEAN LENGTH OF UTTERANCE IN MENTALLY RETARDED CHILDREN(BENGALI)" has been prepared under my supervision and guidance.

Mysore
1993



Dr. Shyamala.K.
GUIDE

DECLARATION

I hereby declare that this dissertation entitled "MEAN LENGTH OF UTTERANCE IN MENTALLY RETARDED CHILDREN (BENGALI)" is the result of my own study under the guidance of Dr. Shyamala, K.C. Lecturer Department of Speech Pathology, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier at any University for any other Diploma or Degree.

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CHAPTER-1

INTRODUCTION

"If all my possessions were taken from me with one exception, I would choose to keep the power of speech, for by it I would soon regain all the rest".

Daniel Webster (1985).

Speech is one of the marvellous accomplishments of man, which distinguishes him from other animals. It is the most sophisticated way to communicate with others and to convey one's needs. The language is the core of an effective communicative process. Children in the process of language development go through a variety of universally sequential stages of development with amazing ease unless on interference due to any motor or sensory deficits. Mental retardation is one of the primary culprits of disrupting the smooth course of language development. In mentally retarded children not only is the overall language development retarded, but also the rate at which the language development occurs becomes slower than the rate of their intellectual development.

In an attempt to describe and assess the language production of children, several qualitative and quantitative procedures were adopted. The one which was found to be particularly useful with the clinical population of developmentally disabled children include, computing mean lengths of utterance in words/morphonemes.

It provides an index of syntactic complexity in the child's speech. The mean length of utterance (MLU) has gained a sustained popularity and interest of the professionals for long for its relative ease of use and the precision. It successfully serves as a tool for identifying language delay and deviancy.

In the majority of mentally retarded children, the language impairment is delayed in nature (Strazulla et al 1952, Wood 1957, Poser 1960, Camarate et al 1985, Curtiss et al,1992). Some have also reported that it can be deviant (Menyuk 1971, Schiefelbusch 1972, Ryan 1977 & Kamhi 1984). They are unable to use language efficiently. They may also show inadequacy for language in some or all of following ways:

- 1) Apparent inability to understand the spoken word.
- 2) Impoverished vocabulary.
- 3) Parrot like speech or echolalia.
- 4) Constant repetitions of a few words or phrases i.e. perseveration.
- 5) Poor articulation.
- 6) Primitive grammatical construction in the speech.

Brown(1973) has contributed extensively to the field of assessment of language acquisition. In 1973 he developed five stages of sentence construction that seemed parallel (or mirror) to overall language development.

India offers a highly challenging and interesting ground for studying language acquisition in normals as well as in the clinical population, because of her multilingual environment. However only a couple of studies in MLU (morpheme/word) have been reported in Indian context. Iyer (1992) studied MLU in cerebral palsy and Hiwarale (1992) in the mentally retarded population. The study was done in Kannada- one of the main South Indian language (Dravidian language). No study as such has been reported in this aspect in North Indian languages e.g. Bengali one of the leading Indo-Aryan languages which is the official language of West Bengal. It is spoken by 181 million people (According to 1981 Census. Mathew 1991). Hence the present study was undertaken to see if any predictive trend could be established in the Bengali language acquisition among the mentally retarded population.

Need for the study:

Review of literature reveals that there is only one study available regarding language characteristics of mentally retarded population (Hiwarale,1992). The linguistic proficiencies of mentally retarded children as compared to normals of the same age would enable one to determine the nature and extent of these linguistic deficits. It would also help one to establish the effectiveness of quantitative and qualitative measures of syntactic and morphological development in these children. In India very few language tests are available and they have not been standardized. Most of the tests which are used here are

translations of Western tests and these have to be used with caution in view of linguistic and cultural limitations. The present study would demonstrate the effectiveness of using quantitative and qualitative analysis of language samples obtained from normal and language disordered children (mentally retarded here). It is more practical to rely on language sampling to arrive at details of linguistic proficiencies of normals and language disordered population.

Purpose of the study: The present study was proposed to:

- 1) Compare the MLU values of normal children with that of the mentally retarded.
- 2) Find out relationship between IQ and MLU in the mentally retarded population.

In order to investigate the above aspects, the following null hypotheses were formulated.

Hypothesis:

- (1) There is no difference in MLU values between normal and mentally retarded children.
- (2) There is no relationship between IQ and MLU in the mentally retarded population.

CHAPTER-II

REVIEW OF LITERATURE

Speech Pathologists have been involved in the assessment of children's language since 1950s. The intervening years have brought diversity in the theories and practices of language assessment. Changing views of the nature of language, have spawned new procedures for sampling and describing language and for categorizing deviations from normal language. The history of language assessment have been reviewed by Lund and Duchan(1988). They have traced various stages in development of assessment procedures. This is briefly highlighted in the following section.

During the decade of the 1950s, two approaches to language assessment were developed. The first which we could call "Normative" was the approach taken by Johnson, Darley and Spiestersbach (1952). They emphasized on how normal children at different ages performed on measures like mean sentence length in words, parts of speech used, sentence structure and ratings of verbal output.

The second, contrasting approach to language assessment that emerged at the same time was called "Pathology approach". This approach was based on a medical model. The goal of assessment was to identify the "disease" or underlying cause of the presenting symptoms and to determine the intervention procedure and prognosis.

The 1960s brought new trends in language assessment for speech Pathologist, one of them being the behaviouristic movement. In this approach, language behaviour was seen as developing out of the interaction between the current behaviour of the organism and the environmental antecedents and consequences of that behaviour (Sloane and Mac Aulay,1968). Language response was viewed as under the control of both stimulus and reinforcement.

Another trend which emerged in the 1960s, and is still prevalent is the auditory processing framework (Kirk and McCarthy 1961, Lasky and Katz,1983). This approach combines "behaviourism" and "information processing theory". The general format for auditory processing conceptualization is that information contained in the auditory stimulus proceeds through several encoding steps - reception, perception, categorization storage and later the information is retrieved for future processing. Thus the test batteries or specific tests have been designed to test children's auditory processing abilities such as speech sound discrimination, auditory memory sequencing figure ground discrimination, and auditory closure (Goldman, Fristoe and Woodcock, 1974). The Illinois Test of Psycholinguistic Abilities (ITPA) reflects a behaviouristic orientation by virtue of its focus on the stimulus in some subtests like visual reception, auditory reception, visual and auditory association and verbal and manual expression.

Linguistic approaches to assessment also originated during the early 1960s when several important studies were done by psychologists examining children's language acquisition. Using analytic techniques and terminology of descriptive linguists, researchers in child language began to formulate grammars or rules that both, described and attempted to explain child language. Reports of investigation of normal children confirmed that child language is not merely an accurate or incomplete version of adult language but a unique system governed by its own rules (Ferguson and Slobin,1973). The rules are characterized as making up the child's competence in the various levels of language: phonology, morphology syntax and semantics.

In the mid 1970s emerged the language assessment procedures called semantic emphasis (Lakoff,1971; Mc Cawley,1971). The generative semanticists tried to derive a model for the meaning of words, phrases and sentences. For those studying child language, the emphasis on meaning led to questions about the conceptual bases of first word and two words combinations (Clark,1977; Nelson,1974; Rosch,1973). The semantic emphasis allowed a deep structure that was meaning based, such as having semantic cases (Antinucci et al,1973) semantic relations (Brown,1973), semantic features (Clark,1977) etc.

As a result of the focus on semantics, there was renewed interest in Piaget's Cognitive Theory, leading to a cognitive emphasis in assessment. They tried to associate the stages of cognitive development to those of language development.

Clinicians attempted to identify which sensorimotor understandings were precursor to language learning during the early period (birth to 2 years) of life in normal children (Miller et al,1980). The assessment focused on whether the language impaired child had the necessary prerequisite of cognitive knowledge for language learning.

The 1970s brought a new change. The realization that sentences derived their meanings from the contexts in which they occurred was known as the pragmatic approach. The same word or sentence could mean something different in different settings. Assessment procedures called "the speech act approach" involved input of intentions to children by looking at the form of the act as well as its results.

The 1980s however brought mainly two important perspectives. First one was "the context of the interaction". The assessment approach focused on various aspects of interaction; the ways interactants cooperated in conversation, especially with regard to turn taking; the ways they performed activities together, and the effect of the language style of the interactants on children's language learning (Ferguson and Snow,1977).

The second perspective examined language in terms of its event context. Bruner's (1975) work on routine events during the child's first year of life was extended by Nelson(1981) to the study of children's acquisition of event knowledge. Hence this perspective was also called the "event focus approach".

It is evident from this brief historical review that divergent views of language assessment and intervention have evolved from a variety of sources. A number of procedures and tests have been developed by different authors to provide general indices of various linguistic elements for an entire sample. The one which was found to be the most popular and useful with the clinical population of developmentally disabled children include computing MLU in words/morphemes. It is a standard and objective procedure to describe and quantify speech and language characteristics of children. It provides an index of syntactic complexity (McCarthy, 1954), Brown (1973). Nice was the first person to introduce MLU in terms of words as early as 1925. But Brown repopularized the MLU and did extensive study in this field. Recently researchers have looked for factors influencing MLU, ways of computing it, the method of eliciting a representative samples for MLU, its relationship with age and other procedure like MLR, to evaluate the reliability and validity of MLU as a measure of grammatical complexity. There are various language tests which take into account MLU as a measures including Bankson language screening test (1977). Test for Auditory Comprehension of Language (Carrow-Woolfolk,E.1985). North-Western syntax screening test (Lee,L. 1971) Carrow elicited language inventory (Carrow,E. 1974), oral language sentence imitation screening/diagnostic tests (Zachman et al,1977a, 1977b).

Brown(1973) first found that children who are matched for MLU are much more likely to have speech that is at the same level of constructional complexity upto the MLU of about four. He observed that chronological age was not a good predictor of language development. He found that children acquired the different grammatical constructions at widely varying rates (Brown & Frazer,1963).

MLU in terms of morphemes was to provide a satisfactory index for comparison between children and a sensitive measure of a child's language development over time.

Brown(1973) has reported the existence of 5 stages of language development which are designated with Roman numbers and are as follows:

Stage-I: (1.75 mean morpheme unit).

Semantic role and syntactic relation. In this stage the child uses noun-verbs sequences such as "mummy give".

Stage-II: (2.25 mean morpheme unit).

Grammatical morphemes and modulation meaning. The child starts to change word endings to portray grammar as in "mummy giving".

Stage-III: (2.75 mean morpheme unit).

Modalities of simple sentences. The child begins to use questions and imperative forms for e.g. "mummy is giving?".

Stage-IV: (3.50 mean morpheme unit).

Embedding; the child begins to use complex sentences for instance: "What is mummy giving now?".

Stage-V: (4.00 mean morpheme unit).

Co-ordination: The child may use connectors and more functions as in "mom's giving".

Brown (1973) did not imply that stages were discrete, but rather that the linguistic development was continuous and that the stages allowed comparison and characterization at different levels of language proficiency.

de Villiers and de Villiers (1973) smoothed the original MLU intervals to 0.5 morphemes while retaining Brown's stages (1973). These smaller stages were useful in characterizing advances, especially in inflections for the "3-4 MLU" range.

In Brown's (1973) stages, the (3-4) range was too wide to capture the rapid development during this age. Many authors have supported and agreed that MLU is the best measure for language sophistication (Foss and Hakes, 1978; Chapman and Miller, 1981; Peterson, 1990; Scarborough et al, 1986; Shriner and Sherman, 1967).

Given that the present trend is to study individual differences in language development rather than their similarities, some authors believe that MLU will lose its popularity as a measure of linguistic maturity (de Villiers & deVilliers, 1982). However, we cannot make judgements about

normalcy of individual differences until a comparison is made and MLU could be one of the index by which the grammatical competencies of two more children are comparable. There are several intra and extra individual variables that can affect the MLU results. These have been explored by various researchers in various times. Some of the intra individual variables include, age, interest in the topic, familiarity with the topic, linguistic skills, etc.

The important extra-individual variables include demographic and cultural variables, methods of eliciting MLU, situational variables, conversational role of the examiner etc. (Cowan, Weber, Haddinett and Klein 1967, Shriner 1969, Sharf 1972, Wells 1979, Longhurst & Grubbs 1974).

Age and MLU: MLU has been found to be significantly influenced by age (Braine,1963), Miller and Erwin (1965); Bloom(1968), Bowerman (1973), Miller and Chapman(1981), Brown (1970), Klee & Fitzgerald (1985), Wells (1985) purports that two children having the same MLU need not have the same C.A. They vary greatly in rapidity with which they progress grammatically and for that reason C.A. is a poor index of linguistic level.

Miller and Chapman (1979) investigated the relationship between C.A. and MLU in 123 children of (17-59) months old and reported high correlation between these two. But the variability of MLU and C.A. increases with advancing C.A. and higher MLU.

Miller and Chapman (1981) showed that the match between observed MLU and predicted MLU in a study of 230 children could be highly valid upto the age of 5 years.

Extra-individual variables:

1) Methods of evoking language sample as a variable:

Barrie Blackley et al(1978) reported published studies by Mussel White & Rogister (1978) in which the variability of MLU was examined. Musselwhite compared language samples obtained with three variations of a conversation method, whereas Rogister used story telling tasks to obtain the samples. They concluded that MLU seemed to be essentially stable with speaking tasks. However, compared with the results of these two experiments, the result of MLU-M matched subjects showed great disparity, suggesting that the disparity could be due to two different methods of eliciting a language samples.

James and Button (1978) conducted a study on seven children with language disorders with three different stimulus conditions- the children talked about toys brought from home, taken from clinic stock and in the third condition, no toys were provided. Results indicated that stimulus condition had no significant effect to children's MLU scores. The familiar toy and no toy conditions were more efficient in eliciting scorable utterances for MLU measures than clinic toys.

2) Elicitor variables:

Martlew, Connoly & Mc Clead(1978) studied the speech of a boy of 5-6 years in three different conditions - playing alone,

playing with one or two friends and playing with his mother. The MLU was found to be lowest when alone (3.5) slightly higher when playing with friend (3.7) and highest when playing with his mother (4.3).

Oswang and Carpenter(1978) compared language samples elicited by mother and by clinician for young language impaired children. They reported that the mother generated more utterances for the child than the clinician within a restricted time period.

Tomasello, Farrar & Dinner (1984) correlated MLU of children at two stages - Stage-I (MLU-1.7, Mean age=24 months) and Stage-II (MLU-2.8, Mean age=25 months) while interacting with familiar and unfamiliar adults. Results indicated that the MLU for Stage-II children did not change for both familiar and unfamiliar interacters whereas Stage-I children produced utterances with higher MLU's with familiar interactions. The reason for this was attributed to the possibility that the Stage-I child may have been less aware of the conversational cues and hence relied as general social cues like familiarity of the interactor.

Wellen(1985) studied the mother-child interaction of 24 young children (2.4 years to 2.6 years) under two conditions. In one situation, mothers were alone with their younger child, and in other condition,an older sibling was also present. Results showed that younger children reduced their number of utterancs by half during the interaction with the mother in presence of an

older sibling than with mother alone condition. So the author concluded that the presence of older siblings may influence the language young children hear and produce.

Rondol(1980), Killarney and Mc Cluskey (1981) and Hiadek and Edwards (1984) found either fewer and/or shorter conversations between fathers and young children as compared with mother and young children.

Tomasello et al(1990) compared the conversation of mother and father with their children of 1-2 years age on 24 children with special attention to breakdown-repair sequences. Results showed that child and father experienced more communication breakdown than did child and mother. The reason for this was attributed to the possibility that the father requested clarification of their children more often than did their mothers. Mothers used more specific queries than the father. Fathers also failed to acknowledge child utterances more as often as the mother.

3) Situational variable:

Scott & Taylor (1978) studied on a range of linguistic levels for 12 normal children in a clinical setting and in home setting. Comparison of the samples revealed that children with an average utterance length (of 4-5 morphemes) produced significantly longer utterances in home setting. Kramer et al(1979) also reported the same.

Longhurst & Grubb (1974) compared the language samples of 24 children. They had IQ of 79 & 45. Four situations were created i.e. object elicitation, picture elicitation, adult-child and examiner general conversation and child to child conversation. Results showed that average performance of all IQ level 79 subjects was higher than the IQ level 49. Authors reported that the MLU was fairly constant from situation to situation.

Kuczaj(1983) found considerable differences in relation to crib speech MLU as compared to social context speech with the latter showing more stability. Those findings point to the fact that situational variables do influence MLU values.

Prizant and Rentschler(1983) studied utterances of 4 male language impaired children (8-10 years) of age across three conversational situations. Results revealed consistent differences of MLU-M across these three situations.

4) Language as a variable:

Kuaal et al (1988) divided 15 Spanish speaking children into groups according to MLU and found that MLU values derived from 15 Spanish children were higher than MLU derived from comparable English children. This was attributed to morphological difference in Spanish and English.

Other variables found to influence MLU include social and economic status, emotional status of child, time of the day, physical conditions of the child, dialects and sex.

A review of the literature thus reveal that the reports on MLU as a measure of grammatical competence is ambiguous due to the methodological variables and criterion adopted to score the language samples.

MLU was initially studied as a production variation within a given person. It is however, an established fact that linguistic output will depend to a large extent on linguistic input. Research focus was thus shifted to establish how the MLU of mothers and fathers influenced the MLU values in the child's production. Brown and Bellugi(1964) reported that the utterances of parents to young children were short syntactically and simple semantically. The parents frequently repeated these well formed utterances. This view was also supported by Hoff(1990).

Most studies report that MLU of adults measured in adult child interactions considerably shorter than in adult-adult speech (Drach 1969, New Port 1975). In fact, a mothers utterances became even shorter when her child first began producing intelligible words (Phillips 1973, Lord 1975).

deVilliers and deVilliers(1982) reported that mother's MLU was longer when speaking to 8 month and 28 month old children as compared to 18 month children. This could be due to the fact that 18 month old children start to respond with a word or two words, hence the mother's focus would be to elicit a verbal response. For the other age group, mothers focus would be to catch and maintain attention of the child.

Murray et al(1990) however opined that the mother's ability to fine tune her early linguistic input occurred earlier more specifically during the second half of the last year of development and could be predictive of her child's later receptive language functioning.

Computation of MLU/MLR:

MLU is computed by analyzing the language samples from the child's spontaneous speech, elicited or narrated speech using pictures, from general conversation. It could also be accomplished by directing him to answer the question asked regarding the story.

Literature reveals controversy regarding the sample size to be collected for analysis. It ranges from as low as 15 sentences to as high as 1000 sentences per child. Schneiderman(1955), Griffith and Miner (1969) said that as few as 15 sentence could serve to provide data for reliable estimates of MLR and a length complexity index (LCI).

Majority of authors suggested the use of 50 spontaneous utterances for measuring MLU (Mc Carthy, Templin, 1957), Darley & Moll 1960, Minifie 1963, Shriner,1967, Ezell and Goldstein,1969, Cole 1989, Scherer & Olswang,1989).

According to Minifie et al(1963) 3 separate 50 response language samples within a three week period and mean of 5 long utterance should be considered. This would also take into account day to day variations within a speaker.

Lackner (1968) suggested the use of 1000 spontaneous utterances per child in both normals and language impaired population and then compare their grammar and determine their complexity.

Brown(1973) and Nicchuis et al(1984) suggested that at least 100 utterances, and then mean of 5 long and 10 long utterances respectively should be taken for measurement.

Bruce (1989) opined that MLU can be computed by analyzing 5 consecutive intelligible utterance.

Darley and Moll (1960) collected 50 responses from 150 children and calculated the MLR from 5, 10, 15, 20, 25, 35 & 50 responses. They concluded that 25 responses were adequate for most descriptive purposes, although the highest reliability was obtained from 50 responses.

Wells (1979) used 24 samples of 90 second duration with 20 minutes interval between two samples.

Wellen (1985) used the strategy as follows:

Story narrated to the child inserting 30 questions about the story. Klee (1989) used the sample of 20 minutes mother-child conversation.

Rules for computing MLU:

The procedure is outlined by Brown(1973) and modified by Chapman & Miller (1975).

Brown counted 100 utterances by omitting the first page of transcription. He counted repetitions as two morphemes instead of one. All compound words like proper names, ritualized reduplications were counted as single word like birthday, pocket book etc. An irregular past form of a verb was counted as one morpheme (like got, did, etc.) He omitted fillers and stuttered words from his count. Lund & Duchan (1988) followed the same rule.

Several authors made attempts to see the correlation between age and MLU. MLU was positively correlated with C.A. (Spriesterbach 1958, Brown 1974, Miller and Chapman 1981). Attempts are continuing to determine such a direct correlation exists in the language disordered population and to what extent. Spriesterbach (1958) studied children with cleft palate and found their MLU to be decreased as compared to age matched normals. This finding was also replicated in studies conducted by Faircloth (1975) and Pannbacer (1975).

Singer (1976) did a comparative study of grammatical development in age matched normals and cerebral palsied children and compared them on quantitative and qualitative basis. It was found that cerebral palsied children not only spoke less during a given unit of time but used few age appropriate forms and grammatical categories than the non brain injured.

Miller and Chapman (1981) studied the relationship between age and MLU-M in a sample of 123 middle to upper middle class children aged (17-59) months. Findings showed a significant

correlation ($r=0.88$) between age and MLU upto the age of 5 years but variability increases with increasing age.

Klee and Fitzgerald (1985) presented conflicting evidence. They reported a very low correlation (0.26) of (2-4 years) age group. They concluded that age and MLU relationship was not consistent over the entire age range.

Wells (1985) found that MLU(M) rose predictably with age for his 128 subjects until it levelled off at about 3. He also found that MLU(m) correlated quite highly with linguistic measures of development upto that age.

Klee et al(1989) studied the relationship between age and MLU of 24 normals and 24 specific language impaired cases age range of (24-50) months. Result showed that age and MLU score were significantly correlated in the normal ($r=0.75$) as well as in language impaired children ($r=0.77$). It also showed that predicted MLU of the language impaired group was lower than that of the normal group across the age range.

As evident from the review of literature, there appears to be a dearth of literature regarding MLU and syntactic complexity in both normals and the language disordered population. Few studies reported on the language disordered population by Singer(1976), Coggins et al (1983) and Klee et al(1989) suggest that the MLU and syntactic complexity could serve as important tool to differentially diagnose a group of language disordered children from a group of normals.

Indian Study:

Only two Indian studies were done in this aspect i.e. MLU in the mentally retarded and cerebral palsied children till now.

Hiwarale(1992) done a comparative study on MLU and sentence complexity index in the speech for 20 normals and 10 mentally retarded (5 mild and 5 moderate mentally retarded) in the mental age range of (4-11 years).

Results showed up as follows:

- (1) No relation was found between age and MLU in the normals.
- (2) When the mentally retarded group as a whole considered no relation was evident between IQ and MLU. However if mild and moderate groups were considered separately, MLU increased with the increase in IQ in the mildly retarded group.
- (3) Speech and language delay and deficits were present in both the mild as well as moderately retarded group.
- (4) Though all the grammatical categories were acquired, they had not been utilised to their maximum potential. Sometimes even incorrect usage was noticed indicating that all the grammatical categories were not fully mastered.
- (5) There was not much difference in terms of usage of grammatical categories in the mildly and moderately retarded group.

- (6) The overall pattern of language in the mentally retarded population followed the normal trend with few individual quantitative and qualitative exceptions.
- (7) Misarticulation, slurred SP, repetitions, hesitations, perseveration, neologisms and simplification of syntactic structures were seen in the mentally retarded group but they were found more in moderately retarded group. These however it was felt, needed further exploration.

Iyer (1992) has done similar study on ten cerebral palsied children in the age range of 4-11 years which revealed:

- (1) MLU(W) is always less than MLU(M) in both groups.
- (2) Normals do not show a corresponding increase in MLU(w) and MLU(M) with increase in the age beyond 4 years.
- (3) Results obtained with age as a variable in the cerebral palsied group presented a confusing picture and age does not emerge as a variable for attainment of grammatical complexity as measured by MLU.
- (4) Severity of neuromuscular involvement and type of cerebral palsy are other variables probably affecting MLU values.
- (5) In both groups, nouns were always produced more frequently than pronouns. The normals exhibited the following order, arranged in decreasing frequency of occurrence in the sample. Nouns, verbs, pronouns, adjectives, Kinship terms, connotations, negations, quotatives, interrogation,

reduplication, affirmation and onomatopoeia. In C.P. children the order is, nouns, verbs, pronouns, adjectives, kinship term, adverbs, negation, interrogation, conjunction, onomatopoeia, quotation, affirmation and reduplication.

The speech and language in the mentally retarded children:

It is most essential to have a normal functioning brain to develop speech and language normally. When a neurological impairment is found in the areas responsible for language development the capacity for language is also impaired. One of the most striking features in mentally retarded children is poor speech and language development. Study of language behaviour in the retarded population is relevant for two basic reasons:

- (1) Language behaviour and mental retardation have been explicitly related since the time of Mead(1913).
- (2) Language illustrates the pseudo sophistication and partial accuracy of our thinking about retardation.

Literature has consistent reports on delayed speech and language development in retarded population (Strazulla 1953, Wood 1957, Poser 1960 & Moorhead et al 1961).

Bangs(1961) opined that mental age is particularly useful in predicting articulation proficiency in retarded population. Lyle(1959) observed that language in moderately retarded children is characterised by failure to reach a conceptual level of language achievement.

Karlin(1953) states that in aphasia, a previously normal individual who has sustained brain damage and the deterioration in language function is one of the outstanding signs. In the mentally deficient, the outstanding feature is the allpervasive lack of development of the intellectual functions of the brain and language defect is actually a secondary symptom. Karlin & Strazulla(1953) observed that many of the retarded children showed poor attention span, accompanied by fatigability and distractibility. To a great extent these symptoms resembled the symptom complex seen in aphasia. Luria (1960) reported that retarded children are unable to use language efficiently to mediate language experiences. They cannot fixate the significance of experience as normals do and thus failure is in the expression of neurodynamic disturbance of the "2nd signalling system".

Studies of language and cognitive development in the retarded children suggest that in the overwhelming majority of cases, levels of language ability are at or below the same child's level of functioning in the other cognitive domains. (Beegly & Cichetti 1987, Miller 1988). However, we also find literature which are contradictory to this view. Bates & Bellugi (1989) have reported in their study on two children with Williams syndrome that the linguistic abilities are better than the other, earlier developing cognitive skills.

Mentally retarded children may show inadequacy for language in some/all of following ways:

- (1) Apparent inability to understand the spoken word.
- (2) Impoverished vocabulary.
- (3) Parrot like speech.
- (4) Constant repetition of a few words or phrases i.e. perseveration.
- (5) Poor articulation.
- (6) Primitive grammatical construction in the speech.

Some researchers have also pointed out that there is a qualitative differences in the language of mentally retarded. Their use of morphemes differ (Menyuk,1971) and as mental age increases, some differences are also observed in the use of inflectional forms (Schiefel Busch,1972).

A study of semantics (Sammel, Barret & Binnett 1970) indicated that when retarded and normal subjects of the same mental age were compared on the word-association tasks, the retarded failed to shift from synonyms to antonyms at the same mental ages as that of the normals. This is an indication of deviant language development. Ryan (1977) found that vocabulary improved more quickly than did the grammar in the retarded.

Apart from these they also showed lack of abstract thinking, paucity of ideas, irrelevancy of ideas etc.

CHAPTER-III

METHODOLOGY

Twenty normal children in the age group of 5-12 years and 10 mentally retarded children with the mental age of 5-12 years ($X=9.5$ years) were studied. The mentally retarded children were divided into two groups based on the degree of retardation of the AAMD (1975) given in Appendix-2 classification. Among these 10 mentally retarded children, 5 were taken as having mild ($IQ=56.66$) and 5 of moderate ($IQ=40-50$) retardation. Out of the 20 normals, 10 were female and other ten were male. Among the mentally retarded 6 were male and 4 were female subjects.

Each of the retarded subjects were attending schools for the mentally retarded. The subjects were chosen from Howrah and Calcutta cities and all of them had Bengali as their mother tongue. They all belonged to middle socio-economic status group.

Criteria for selection of subjects: All subjects had hearing sensitivity within normal limits (i.e. 20dBHL). None of the subjects from either group had any history of visual, auditory or neurological abnormalities. All subjects had mental age falling within the range of 5-12 years and TQ of mentally retarded group falling within 40-66 on psychological assessment using SFB and CMMS. All the subjects in this study had minimal exposure to therapy (< 6 months) or no therapy at the time of the study.

Method of data collection:

The data was collected after building up rapport with the children and only when the child was free and comfortable with the investigator. Spontaneous speech elicited/narrated speech using picture cards like common story of primary school level for e.g. grapes are sour, thirsty Crow, Rabbit and Tortoise, etc. were used. Action picture cards were also used to collect the language sample. Each child was seen individually by the investigator in a familiar environment (usually school set up).

Verbal responses were audiotaped for all the children. Each session lasted 20-30 minutes or longer depending on the child's comfort. Each child was tested to elicit 100 utterances of spontaneous and elicited speech. The task was undertaken in the mornings when the child was most active.

Recording of speech samples:

The verbal responses were collected or recorded for investigator-child, teacher-child and investigator-teacher-child interaction.

Positive reinforcement were used for each session (either sweets/verbal praise or pictures were used).

The data for recording:

- (1) Spontaneous speech: It was recorded in the school/home set up. The child's interaction with the investigator or

teacher in natural free play with toys and picture car were recorded. Same toys and pictures were used for a children.

- (2) Narrated/elicited speech: Story telling and describi pictures.

CHAPTER-IV

RESULTS AND DISCUSSIONS

The present study is aimed at examining the mean length of utterance and syntactic complexity of a group of normal and mentally retarded children. 20 normal children and 10 children with mental retardation in the age group of 5-12 years served as subjects for the study. Spontaneous speech and elicited/narrated speech using picture cards were collected as language samples. The 100 utterances collected from each of these subjects were analyzed for mean length of utterance (in morphemes and words) and syntactic complexity. Analysis was done using standard grammar book by Roy (1976). The results are discussed in the following section.

1. Results for MLU (Morphemes) and MLU (Words):

(a) Results in Normals:

TABLE-1 shows the distribution and the mean of MLU (Morphemes) and MLU (Words) as a function of age in the normal subjects.

TABLE-1:

| | Age | MLU(Morphemes) | MLU(Words) |
|----|---------|----------------|------------|
| C1 | | 4.89 | 2.58 |
| C2 | 5-6 yrs | 4.60 | 2.71 |
| C3 | | 4.71 | 3.17 |
| C4 | | 5.37 | 3.09 |
| C5 | 6-7 yrs | 5.13 | 3.15 |
| C6 | | 4.89 | 2.68 |

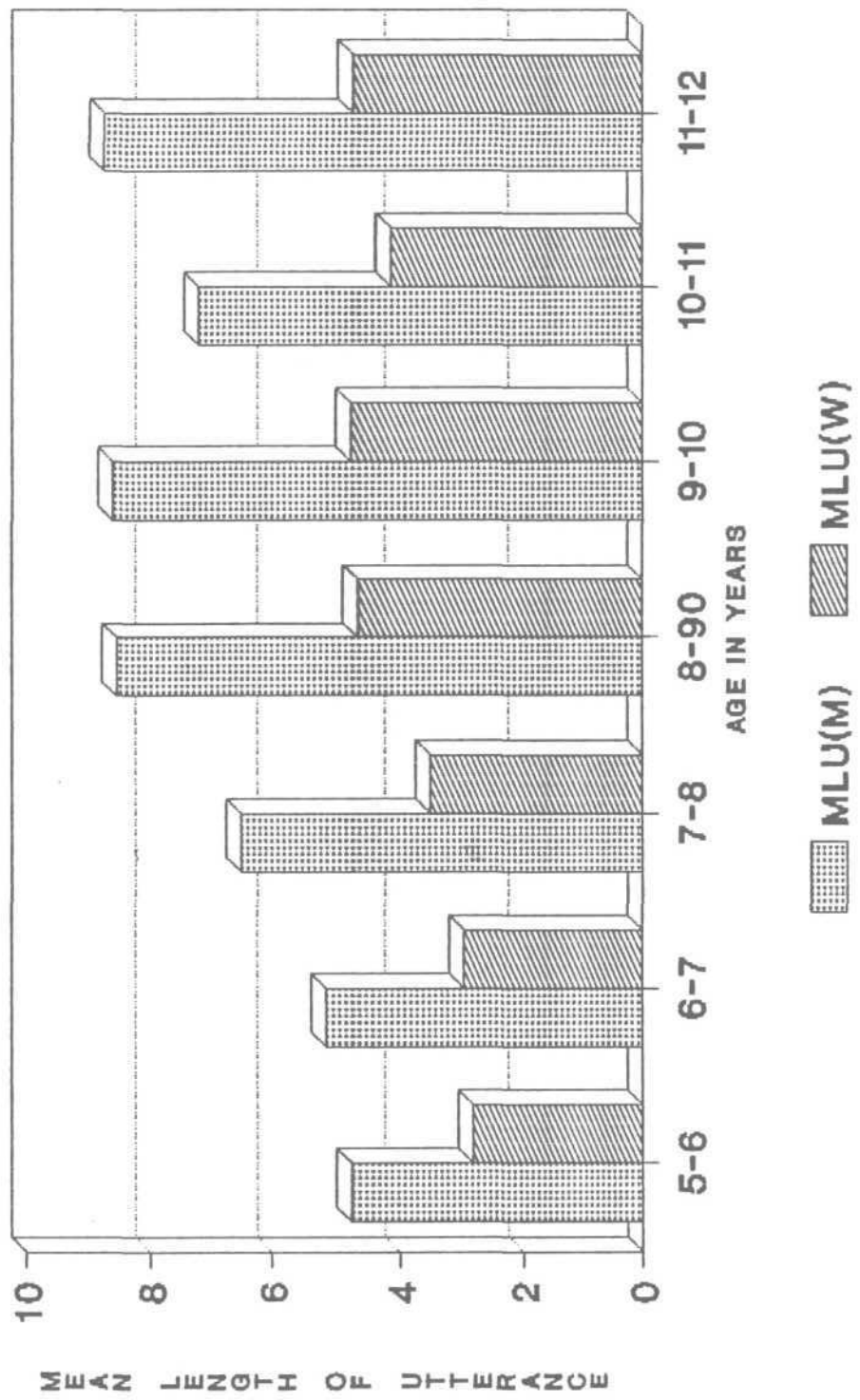
| | | | |
|------|-----------|------|------|
| C7 | | 4.60 | 2.69 |
| C8 | | 6.42 | 3.53 |
| C9 | 7-8 yrs | 6.90 | 3.56 |
| C10 | | 8.18 | 4.30 |
| C11 | | 8.16 | 4.54 |
| C12 | 8-9 yrs | 8.95 | 4.82 |
| C13 | | 8.56 | 4.55 |
| C14 | | 9.17 | 4.96 |
| C15 | 9-10 yrs | 8.69 | 4.53 |
| C16 | | 8.01 | 4.73 |
| C17 | 10-11 yrs | 6.42 | 3.53 |
| C18 | | 8.03 | 4.74 |
| C19 | 11-12 yrs | 9.35 | 4.86 |
| C20 | | 8.16 | 4.54 |
| MEAN | | 6.96 | 3.86 |

From the above Table it is clear that MLU (Morphemes) was always more than MLU (Words).

The group of normal children ranging in the age from 5.4 years to 11.3 years with the mean age of 8.1 years had a mean MLU(m) of 6.96 and mean MLU(w) of 3.86.

It is apparent from the Table-1 that MLU did not increase consistently with increase in age for both MLU(M) and MLU(w).

One child (C10) in the age group 7-8 yrs had high MLU(M) i.e. 8.18 as compared to other two children in the same age group. Subject C14 (9-10 yrs) showed a high MLU value of 9.17 while subject C20 (11-12 yrs) showed 8.16 MLU(M). This lack of corresponding variation in MLU(M) and MLU(w) with increase in age also shown graphically (Graph-1). This finding supports the conclusion of Miller and Chapman(1981) that the variability in MLU increases after 5 years of age. This study also supports the previous study by Hiwarale (1992).



GRAPH-1: AGEWISE DISTRIBUTION OF MLU(M) AND MLU(W) IN NORMALS

b) Result in the mentally retarded population:

Table-2 and Table-3 shows the distribution and mean of MLU(m) and MLU(w) as a function of IQ in the mentally retarded population with mean mental age of 7.8 years.

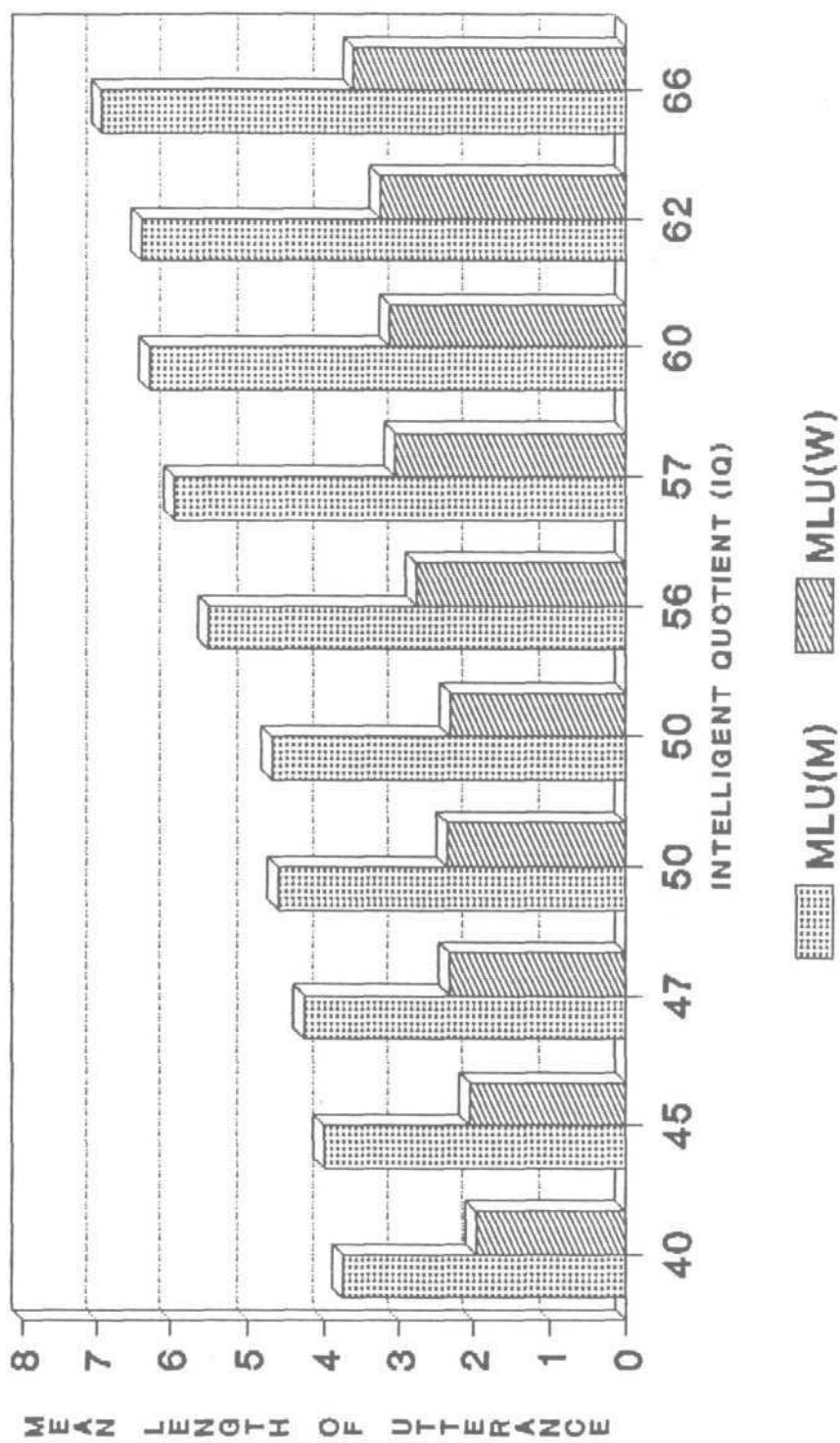
TABLE-2: Mild mentally retarded

| No. | IQ | MLU(m) | MLU(w) |
|------|------|--------|--------|
| S1 | 66 | 6.93 | 3.61 |
| S2 | 62 | 6.38 | 3.25 |
| S3 | 60 | 6.28 | 3.12 |
| S4 | 57 | 5.95 | 3.05 |
| S5 | 56 | 5.51 | 2.76 |
| MEAN | 60.2 | 6.21 | 3.15 |

TABLE-3: Moderate mentally retarded

| No. | IQ | MLU(m) | MLU(w) |
|------|------|--------|--------|
| S6 | 50 | 4.68 | 2.30 |
| S7 | 50 | 4.60 | 2.34 |
| S8 | 47 | 4.26 | 2.31 |
| S9 | 45 | 4.00 | 2.04 |
| S10 | 40 | 3.75 | 1.96 |
| MEAN | 46.4 | 4.42 | 2.19 |

From the above table it is apparent that MLU(M) was always more than MLU(w).



GRAPH-2: DISTRIBUTION OF MLU(M) AND MLU(W) IN THE MENTALLY RETARDED POPULATION AS A FUNCTION OF IQ.

In the group of mildly mentally retarded population IQ ranging from (66-56) with mean IQ of (60.2) had a mean MLU(M) of (6.04) and mean MLU(w) for this group was found to be 3.15. For the moderately retarded population IQ ranging from 50-40 with mean IQ of 46.4 had a mean MLU(M) of 4.42 and mean MLU(w) was found to be 2.19.

It is apparent from the Tables 2 & 3 that MLU decreased with reduced IQ, when mentally retarded were considered on the whole as one group. This finding was true for both MLU(M) and MLU(w). This finding is also depicted graphically (Graph-2). This finding supports the previous study by Beegly and Cicchetti & Miller (1988).

From the Table 2 & 3 it is clear that MLU(M) was higher than MLU(w) for both the mildly and moderately retarded group.

Mildly retarded group had both MLU(M) and MLU(w) higher than the moderate retarded group. But this difference is not very high and statistically it is not significant (at 0.05 level). This variation could not be explained by the variables considered in the present study. Extraneous variables like age at which intervention was done, the amount of home training etc. could not be controlled.

c) Comparison between normals and the mentally retarded population:

On comparison from Tables 1,2 & 3 for the normals and the mentally retarded population (mild & moderate) it is apparent

that the value of MIU(m) was higher than MLU(w) and as expected it is statistically significant (at 0.05 level) in each of these groups. Between group comparison showed that both mildly and moderately retarded group population were deficient as compared to the normals. The mean MIU(m) in the mentally retarded population is 5.23 and that the normal subject's MLU(m) was 6.96, MLU(w) in normal was 3.86 where as in the retarded population it was found to be reduced to 2.67 words.

This finding is in agreement with previous findings by Klee et al(1989), where predicted MLU of the language impaired group was lower than normals across the age range studied. These results also support the findings by Hiwarale(1992).

II. Syntactic complexity:

The second aim of the present study was to determine if there is any difference in terms of syntactic complexity between normals and the mentally retarded children. Results were analyzed under three sub-categories as follows:

- (1) The number of single word and compound words in the 100 utterances studied.
- (2) The order and frequency of lexical/grammatical categories in the sample analyzed.
- (3) The order/arrangement of lexical/grammatical categories within an utterance.

1). (A) The distribution of number of compound words in the 100 utterances studied in normals and mentally retarded.

Table-4 shows distribution of the number of compound words for normals as well as mild and moderately mentally retarded in the total number of utterances studied i.e. 100.

Results obtained in the normals revealed that as age increases the use of compound word also increases with few exceptions as in the case C11 and C18. In the mentally retarded population it was seen that they used compound words less frequently than normals. This was true for mild and moderate group of children. But the usage of compound words were higher in mild group of mental retarded children than moderately retarded children.

This can be explained in conjunction with sentence length also. Normal children use longer and complex sentences than mild or moderate mentally retarded children. And mild group of mentally retarded had longer sentences than the moderately retarded group.

TABLE-4: Distribution of number of compound words in 100 utterances in the normal, mildly retarded and moderately retarded children:

| No. | Normal | Mild | Moderate |
|------|--------|------|----------|
| 1 | 35 | 34 | 21 |
| 2 | 36 | 41 | 26 |
| 3 | 36 | 42 | 25 |
| 4 | 40 | 41 | 33 |
| 5 | 45 | 46 | 36 |
| 6 | 43 | | |
| 7 | 40 | | |
| 8 | 50 | | |
| 9 | 51 | | |
| 10 | 51 | | |
| 11 | 57 | | |
| 12 | 50 | | |
| 13 | 51 | | |
| 14 | 69 | | |
| 15 | 64 | | |
| 16 | 69 | | |
| 17 | 64 | | |
| 18 | 50 | | |
| 19 | 57 | | |
| 20 | 64 | | |
| MEAN | 51.1 | 40.8 | 28.2 |

1) (B) The order and frequency of lexical/grammatical categories in the normals:

Table-5 shows percentage of lexical/grammatical categories identified for the normal subjects.

From the table it is apparent that percentage of occurrence of verbs and nouns are higher in all the subjects. Other grammatical categories revealed similar findings in all the subjects. On examining the means, it is evident that normals exhibited the following order of grammatical/lexical categories arranged in decreasing frequency of occurrence in the sample i.e. verbs, nouns, pronouns, adjectives, adverbs, post position, kinship, conjunction, negatives and reduplications. This finding supports the study by Hiwarale(1992).

(C) The order and frequency of lexical/grammatical categories in the mentally retarded population:

Table-6 shows the percentage of lexical/grammatical categories in the mentally retarded population.

From the table it is seen that percentage of occurrence of verbs is the highest in all the 10 subjects next were the nouns. In 5 subjects (i.e. C2, C5, C6, C8 & C10) pronouns were more frequent than adjectives and adverbs. In another 5 subjects (C1, C3, C4, C7 & C9) adjectives and adverbs were more common than pronouns. On examining the means, the mentally retarded as a group exhibited following order of lexical/grammatical categories arranged in decreasing frequency of occurrence in the sample.

TABLE-5: Distribution of proportion of grammatical categories in Normals.

| No. | Verbs | Nouns | Pronouns | Adjectives | Adverbs | Conjunction | Reduplication | Kinship | Negation | Post position |
|------|-------|-------|----------|------------|---------|-------------|---------------|---------|----------|---------------|
| C1 | 31.79 | 33.82 | 11.63 | 8.81 | 3.10 | 2.00 | 1.12 | 3.47 | 3.10 | 2.39 |
| C2 | 35.42 | 36.53 | 7.75 | 7.73 | 4.23 | 1.72 | 0.92 | 4.80 | 1.28 | 1.23 |
| C3 | 28.62 | 30.62 | 15.82 | 9.52 | 3.32 | 4.12 | 2.11 | 0.23 | 0.83 | 0.32 |
| C4 | 32.75 | 28.48 | 14.73 | 5.86 | 4.21 | 2.53 | 1.23 | 0.72 | 0.36 | 0.65 |
| C5 | 32.13 | 27.52 | 12.42 | 11.52 | 2.32 | 1.64 | 0.76 | 1.59 | 3.18 | 1.27 |
| | 30.79 | 34.28 | 10.36 | 10.18 | 3.10 | 3.00 | 0.65 | 2.84 | 3.10 | 3.39 |
| C6 | 34.24 | 36.73 | 8.57 | 7.73 | 4.23 | 2.12 | 0.76 | 3.70 | 1.28 | 1.23 |
| C7 | 32.86 | 26.91 | 14.16 | 5.95 | 4.53 | 1.98 | 1.42 | 3.23 | 0.85 | 3.39 |
| C8 | 38.76 | 33.14 | 5.62 | 6.46 | 6.46 | 0.56 | 2.80 | 0.56 | 0.84 | 3.37 |
| C9 | 44.65 | 35.11 | 8.84 | 6.51 | 9.76 | 2.32 | 2.09 | 2.32 | 0.69 | 4.42 |
| C10 | 30.84 | 27.31 | 10.13 | 11.23 | 5.06 | 1.76 | 1.10 | 2.54 | 2.88 | 5.50 |
| C11 | 31.85 | 29.43 | 6.65 | 8.66 | 7.86 | 2.61 | 1.43 | 1.61 | 1.80 | 4.23 |
| C12 | 36.26 | 30.91 | 5.49 | 7.69 | 9.23 | 1.54 | 1.54 | 1.43 | 0.66 | 2.42 |
| C13 | 33.40 | 36.79 | 5.98 | 8.22 | 10.50 | 1.86 | 1.24 | 1.03 | 0.82 | 2.48 |
| C14 | 32.67 | 34.44 | 7.96 | 8.72 | 4.85 | 2.98 | 1.44 | 1.54 | 0.88 | 2.87 |
| C15 | 40.38 | 32.65 | 8.13 | 7.69 | 3.49 | 0.26 | 0.63 | 2.38 | 1.54 | 1.59 |
| C16 | 30.78 | 28.46 | 14.23 | 6.95 | 4.43 | 1.98 | 1.34 | 3.23 | 1.85 | 3.39 |
| C17 | 38.23 | 34.65 | 8.31 | 8.69 | 5.23 | 0.32 | 2.36 | 0.34 | 1.63 | 0.82 |
| C18 | 35.39 | 31.89 | 7.81 | 6.99 | 6.99 | 2.67 | 1.23 | 1.85 | 1.62 | 3.29 |
| C19 | 31.34 | 26.36 | 10.23 | 11.23 | 5.60 | 1.76 | 1.23 | 1.54 | 3.88 | 4.37 |
| C20 | | | | | | | | | | |
| Mean | 34.16 | 31.80 | 9.74 | 8.31 | 5.42 | 1.98 | 1.36 | 2.04 | 1.65 | 2.63 |

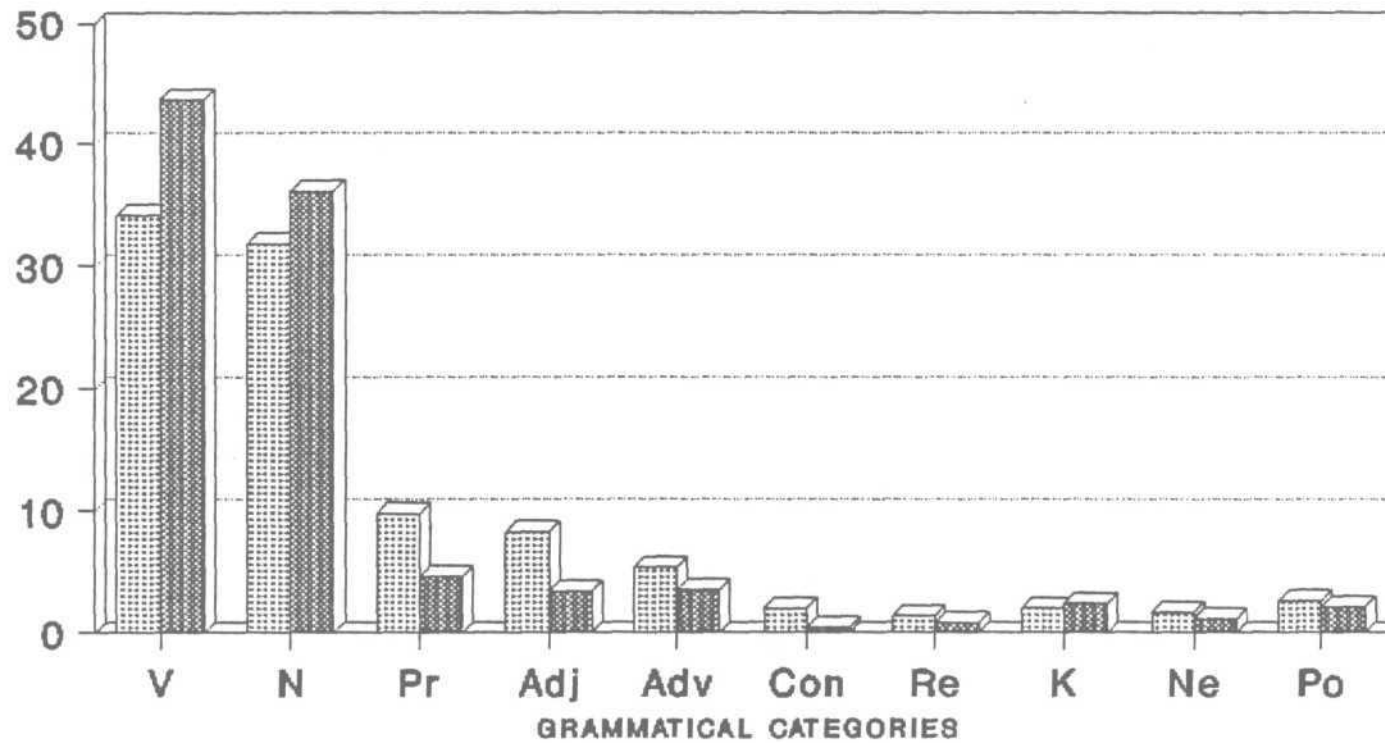
MBLE-6: Distribution of proportion of grammatical categories in Mentally retarded.

| Nb. | Verbs | Nouns | Pronouns | Adjectives | Adverbs | Conjunction | Reduplication | Kinship | Negation | Post position |
|------|-------|-------|----------|------------|---------|-------------|---------------|---------|----------|---------------|
| C1 | 48.51 | 46.01 | 0.73 | 1.08 | 1.81 | - | - | 2.17 | 0.72 | 1.45 |
| C2 | 45.29 | 37.18 | 10.68 | 0.85 | 0.42 | - | 0.42 | 4.70 | 1.70 | 0.85 |
| C3 | 43.29 | 36.79 | 3.03 | 3.89 | 3.89 | 0.86 | - | 4.33 | 0.43 | 1.29 |
| C4 | 46.37 | 40.30 | 2.04 | 4.32 | 2.97 | - | - | 3.12 | 0.73 | 1.05 |
| C5 | 46.32 | 37.14 | 4.71 | 3.23 | 3.17 | - | 0.92 | - | 0.99 | 1.23 |
| C6 | 35.73 | 26.59 | 9.69 | 5.81 | 6.64 | 1.10 | 0.83 | 2.21 | 0.83 | 2.21 |
| C7 | 41.23 | 35.38 | 4.30 | 4.00 | 5.53 | - | 1.54 | 1.54 | 1.23 | 2.46 |
| C8 | 46.15 | 36.54 | 3.84 | 1.92 | 2.56 | 0.64 | 1.28 | 3.20 | 0.96 | 4.48 |
| C9 | 39.67 | 30.81 | 3.27 | 5.57 | 4.91 | 0.98 | 1.31 | 2.62 | 0.98 | 2.62 |
| C10 | 43.93 | 34.27 | 4.57 | 3.69 | 3.69 | 0.57 | 1.73 | 0.59 | 2.73 | 3.63 |
| Mean | 43.65 | 36.10 | 4.68 | 3.43 | 3.56 | 0.41 | 0.80 | 2.40 | 1.13 | 2.12 |

Verbs, nouns, pronouns, adverbs, adjectives, kinship, post position, negation, reduplication and conjunctions.

In both of the mentally retarded groups, Verbs and nouns were used more frequently than any other grammatical categories. This trend matched with the normals. Mildly retarded group (C6-C10) tend to use pronouns, adjectives, adverbs, conjunctives, reduplicatives, negatives, post position, etc. in a higher proportion compared to the moderately retarded group. On the other hand moderately retarded group used more nouns, verbs, and kinship terms compared to the mildly retarded group.

% OF LEXICAL GRAMMATICAL CATEGORIES



Normals Mentally Retarded

GRAPH-3: DISTRIBUTION OF PERCENTAGE OF LEXICAL CATEGORIES IN NORMALS AND MENTALLY RETARDED

Comparison between normals and the mentally retarded population:

Comparison between normals and mentally retarded population was undertaken to see if there were any differences among these two groups in terms of the order and frequency of occurrence of the lexical/grammatical categories. Overall there was a reduced usage of grammatical categories by the mentally retarded population than the normals.

In both the groups the percentage of verbs were highest followed by nouns. Mentally retarded population tended to use all the grammatical categories less frequently than normals except kinship terms. Retarded children exhibited kinship terms more frequently compared to the normals. All these above findings support the previous findings in Kannada by Hiwarale(1992).

In summary the following results were obtained:

- (1) There was a qualitative and quantitative difference between the normal and mentally retarded group.
- (2) There were also differences noticed within the mentally retarded group. Moderately retarded group performed differently from the mild group on almost all grammatical categories except verbs and nouns.
- (3) Individual variation was observed for both normals and mentally retarded children in terms of ordering and frequency of lexical categories.

(3). Arrangement of lexical/grammatical categories in an utterance:

A minimum of 5 longest utterance in terms of MLU(m) were analysed for the ordering of lexical categories. The results are presented according to the pattern in these longest utterances in both normals and the mentally retarded children.

Results in normals:

The most common patterns seen in the normals are as follows:

Adj + N + Noun with post position + Verb/Compound verb.

/əktə buʃi ɡʰumətsʰe / ɡətsʰer nɪʃe bose ətsʰe/

"One old lady is sleeping/sitting under the tree".

The use of single word utterances were very rare. The use of compound verb was very frequent for normals. Single word utterances were usually nouns and small percentage of negatives. Sentence structures were generally complex.

The two word utterances were usually containing the following order:

Noun + Verb/Compound Verb.

/tsʰeleʃi khatʃtsʰe/ or /tsʰeleʃi bose ətsʰe/

"The boy is eating/ The boy is sitting".

Three word utterances were usually ordered as follows:

(i) Noun + Conjunction + Noun

/dəl ar bəʃ / or /məʃ ar mənsə/

i.e. "Dal and rice" or "Fish and Mutton"

or

(ii) Adjective + Noun + Verb

/ t̄nkh̄on s̄ial b̄'ablo /

"Then fox thought"

Four word utterances consisted of :

Noun + Adjective + Noun + Verb

/ Pak̄h̄Iṭa æk̄ta paṭa p̄'ello /

i.e. "The bird put down a leaf "

or Adjective + Noun + Noun + Verb

/ æk̄ta ts̄'ele k̄ola k̄'atst̄'e /

"One boy is eating banana".

Five word utterances included following combination:

Adjective + Noun + Adjective + noun + verb

/ æk̄ta gat̄'e d̄uṭo pak̄h̄I t̄'ak̄to /

"Two birds are sitting on a tree"

or Adjective + Noun + Noun + Post position + Verb

/ ts̄'oto ts̄'eleṭI rast̄a dije dzat̄st̄'e /

"The little boy walking on the road".

Results in the mentally retarded:

The sentential arrangement of grammatical categories as well as sentence complexity seen in the utterances of the mental retarded population varied from that of the normals.

(1) Noun + Verb

/horin tʃutʃe/

"Deer is running"

or Kinship + Compound verb

/ma ranna kortʃe/

"Mummy is cooking"

(2) Noun + Noun + Verb

/baltite dzol polʃe/

Water is falling into the bucket.

(3) Noun + Compound Verb

/meye bose atʃe/

"Girl is sitting"

Single word utterances were common which consisted of either noun, verb and kinship.

Two word utterances consisted of :

Noun + Verb

/pakʃi ultʃe/

"bird is flying"

or Adverb + Verb

/tʃakʃon bʃablo/

"Then thought"

or Kinship + Compound verb

/ma bose-atʃe/

"Mummy is sitting"

Three word utterances were usually either -

Adjective + Noun + Verb

|ækt̪a meje kadʒdʒ^he|

"One girl is crying",

or

|siŋho bone t̪^hake|

"Lion lives in the forest"

Four word utterances consisted of

|ækt̪a tʃ^hele gatʃ^he tʃo!tʃ^he|

"A boy is climbing the tree"

Five word utterances included following combination:

Adjective + Noun + Adjective + Noun + Verb

|æk bone d̪uʈo bagh tʃi^hlo|

"There were two tigers in a forest"

Four and Five word utterances were used less frequently by retarded children compared to normals.

The sentence structures were similar for both mild and moderately retarded group. But utterance length were shorter for moderately retarded group compared to mild group. Mildly retarded group used 4-5 word utterance quite frequently but moderately retarded group them used very rarely.

Only three children (i.e. S1, S2, S3) in mildly retarded group used 6 word utterance consisting of:

Adjective + Noun + Noun + Post position + Noun + Compound verb

/əkta lok gats^her nitse misti bikri - kort^he/

"A man is selling sweet under the tree"

or Conj + Adjective + Noun + Adjective + Noun + Compound verb

/ar əkta bi^hal idurke tala kort^he/

"And a cat is chasing two rats"

No particular trend was observed when IQ was considered as a variable.

Comparison between normals and the mentally retarded population:

- (1) There were no difference in the arrangement of lexical categories in the mentally retarded group as compared to that of the normals when utterances consisted of 2 or 3 words.
- (2) The occurrence of compound verbs were less common for mentally retarded than normals.
- (3) Mentally retarded children used more of simple and compound sentences where as normals made use of more complex sentence to express the same idea.

Normal children used following utterance like -

/b^hat₁ k^heje skule dzai/

"Having eaten food go to school"

Whereas mentally retarded children used the following

utt /b^hat₁ k^hai o skule dzai/

"Eat rice and go to school"

In summary we can say that the mentally retarded population in general use simplified patterns as compared to the normal children. However few mildly retarded children sometimes used sentence construction similar to that of the normal population. This supports findings of Coggins et al(1983). Thus the results obtained from the three subsection on demonstrating syntactic complexity revealed that their sentence constructions lack the complexity compared to the normals which is in agreement with the previous study done in Kannada language (Hiwarale 1992). 1stage of language development may be as flexible and diverse in their use of language during social interactions as are the normal children.

In Coggin etal (1983) study however subjects were matched on linguistic abilities while the present study considered mental age only.

General characteristics of the mentally retarded group:

Following general characteristics were observed in the present study:

Examination of peripheral-oral structure revealed that the speech mechanism was normal both structurally and functionally in all the subjects except one (S2) who had underbite. One subject (S5) exhibited nasality and another one child (S8) exhibited low pitched hoarse voice. (S2, S5, S6, S7 & S8) had misarticulation interms of omissions, substitutions and distortions. Substitutions of /r/ and /s/ were frequent. Omissions of blends

were common at the word level as well as sentence level. One of the moderately retarded subjects (S7) had slurred speech. Subject (S1) who was mildly retarded had fast rate of speech. Omissions, repetitions and hesitations were common in this particular subject. Diadochokinetic rate and phonation duration were reduced in the mentally retarded children. This could be because most of the subjects did not understand or they felt shy to repeat the syllables rapidly or to phonate as long as they could.

In terms of language behaviour retarded population as a group showed decreased grammatical lexical complexity in their verbal outputs. Spontaneous utterances were more complex and longer in length as compared to the elicited/narrated speech which was generally shorter and simplified. There are many deficiencies in language characteristics were observed and they are as follows:

- (1) Simplification: Mentally retarded population used simplified version. This was seen both at the word level as well as the sentence level. At the word level blends and compound verbs were simplified, e.g. /ponam/ for /pronam/ which means "namaste" or /_{na}Pa_{na}^h/ for /_{na}Prar_{na}^h/ means "Pray"
 /bo_{ts}t_s^he / means "sitting" instead of /bose- at_s^he /

At phrase level the entire phrase was substituted by a single word like /_{ka}at_st_s^he / (means eating) for /_{ba}t_{na} _{ka}at_st_s^he / (mean eating rice).

The mentally retarded children used conjunctions with two simple sentences instead of complex verb forms. One such e.g. seen was /tʃa kʰai t̪arpar b̪əlat̪e dʒaɪ / which means "Drink tea then go for a walk" for /tʃa kʰeje b̪əlat̪e dʒaɪ / which means "Having drunk tea, go for a walk".

(2) Repetition: Repetitions or stuttering like behaviour were observed. Repetition of nouns and adverbs were found for e.g. / tarpar/ which means "then" was repeated 3 times before starting a new sentence. Noun like /Pakh' / which means "bird" was repeated 3-4 times. This although can be related to word finding difficulty, needs further support by more detailed investigations.

Lack of use of pronouns: The mentally retarded children did not use pronouns unless demanded for e.g. instead of first person singular pronoun /amII/ the retarded children used their name. This finding is similar to that of cerebral palsied children (Shyamala 1989).

(3) Response time: Retarded children took longer time to react and it was more obvious for moderately retarded children than mildly retarded. This can be because of lack of understanding of the instructions given to them.

(4) Perseveration: Tendency to perseverate was also noticed in the mentally retarded group, eg./tarpar/ means "then".

(5) Self correction: The tendency to correct self was also seen in two of the subjects. For e.g. the word /bæŋ/ means "frog" was used to describe. /prodʒapotʃɪ/ means "Butterfly" initially. But immediately the correct word was given without being asked to do so.

All these findings supported the previous study done by Hiwarale (1992) as well as the the general trend in the literature on speech and language characteristics of mentally retarded population.

CHAPTER-V

SUMMARY AND CONCLUSIONS

The present study is aimed at determining the mean length of utterance and syntactic complexity in the speech of groups of normals and the mentally retarded population. In the age range of 5-12 years. 20 normal child and 10 mentally retarded children (5 mild and 5 moderately retarded) with IQ range of (40-66) with mean IQ of 53.3 were studied. A language sample consisting of spontaneous and narrated/elicited utterances was recorded from each of the 30 children. 100 utterances for each subjects were analyzed for mean length of utterance and syntactic complexity. Mean length was calculated interms of both words and morphemes. Syntactic complexity was assessed with reference to the frequency of different lexical categories, order and arrangements of these lexical categories in the utterances and the number of compound word usage for both the groups.

Following conclusions were drawn from the results:

- (1) As expected the mean length of utterance in morphemes was higher than that of mean length of uturence, in words for both the normals and the retarded children.
- (2) A positive relationship between IQ and MLU was seen in the mentally retarded group when considered as a whole, as well as when mild and moderate groups were considered separately. MLU decreased with the decrease in the IQ as it was seen in the moderately retarded group.

- (3) No significant relationship between age and MLU in the normals was found.
- (4) Speech and language delay and deficits were observed in both the mild and moderately retarded group in the present study.
- (5) There is a difference in terms of usage of grammatical categories in the mildly and moderately retarded group.
- (6) In the mentally retarded though all the grammatical categories were acquired, it was not used to their maximum potential i.e. they were not found in the same percentage of occurrence as found in normals.
- (7) The overall pattern of language in the mentally retarded population follow the normal trend with few individual quantitative and qualitative differences.
- (8) Misarticulations, slurred speech, repetitions, and simplification of grammatical structures were seen in the mentally retarded group and they were found more in moderately retarded group than in the mildly retarded.

Significance of the Study:

The present study is significant because of the fact that it is the second attempt of its kind in Indian context to describe language samples of normals and retarded children quantitatively and qualitatively and to provide estimates of the difference in these two groups. The procedure used in this study does not rely on formal language testing but rather on language sampling

procedure. If there is any qualitative and quantitative difference in language development in the mentally retarded group relative to cognitive development, intensive therapy is indicated. This type of measure will be useful for documenting baseline performance and monitoring progress within language intervention programme.

Limitation of the study:

- (1) Sample size is limited both in normals and mentally retarded . population.
- (2) Study should be carried out on other groups of retarded population as well as various other clinical groups.
- (3) Study should be done on other Indian languages to see the language effect on MLU and grammatical complexity.

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APPENDIX

SHOWING ADMD (1975) CLASSIFICATION OF MENTALLY RETARDED

| TYPE | IQ |
|------------|----------|
| BORDERLINE | 69-80 |
| MILD | 52-68 |
| MODERATE | 36-51 |
| SEVERE | 20-35 |
| PROFOUND | BELOW 20 |

APPENDIX

RULES FOR COMPUTATION OF MEAN LENGTH OF UTTERANCE [MLU]

- (1) The first 100 utterances were transcribed . Utterance during story narration Was mandatorily included in the count.
- (5) Unintelligible or partially intelligible utterances were omitted from the Count.
- (3) Stutterings (Mark by repeated effort) at a single word) and all repetitions were counted as one word. Repetition for emphasis should be counted as two words.
- (4) Fillers such as mm or oh are not counted, but no, yes etc. were counted as words.
- (5) All compound words were counted as two words if the child used the constituent morphemes separately in two different linguistic context - Eg.Birthday.
- (6) All inflections (possession, plural, tenees) were counted 83 separate morphemes.*
- (7) Imitations and elliptical answers to questions which gave the impression that the utterance would have been more complete if there had been no eliciting questions (Eg. What is that? 'My box' were counted.
- (S) Rote passages such as nursery rhymes, songs or prose passages which have been memorized and which may not be fully processed linguistically by the child were omitted.
- (9) All partial utterances which are interrupted by outside events or shift in child's focus were excluded.
- (10) MLU was calculated using the following formula:

$$\text{MLU (wVM)} = \frac{\text{Number of words/morphemes}}{100}$$