"I believe that we can better understand and make significant contributions to mental retardation, as clinicians and as researchers, if we make a number of distinctions within the cognitive realm and follow their implications".

NORMAN A. MILGRAM
INTRODUCTION

Language can be defined as a socially shared code or conventional systems for representing concepts through the use of arbitrary symbols and rule-governed combinations of those symbols. Both speech and language are the parts of the process of communication. Speech sounds or phonemes combined in various ways to form the language units which are used for communication. Speech involves voice quality, intonation, and rate. Speech sounds are meaningless strings of sounds without attached meaning. The relationship between linguistic forms, such as sounds, meaning and use is specified by language. Communication is the process of exchanging information and ideas between participants, that is, the speaker and listener. The process involves encoding, transmitting, and decoding of the intended message.

Communication develops through the process of speech production and comprehension. Speech production is a process by which a speaker turns a mental concept into spoken utterance. The process of speech production includes how the speech units are accessed, selected, manipulated and organized into hierarchical structures. Comprehension is a cognitive function and is preceded by the physiological activity of hearing the spoken signal. The capacity to select the spoken words from the mental storage is needed to perceive the heard signals. This is done through a series of mental operations and the brain recognizes the heard signal whether it is meaningful or not. Comprehension of the heard sounds depends on prior development of sounds together with the
knowledge of vocabulary, syntax and the rules for language use. Vocabulary aids to recognize the meaning of words (lexical access) whereas syntax determines how the grammatical units of a sentence are analyzed to obtain larger units of meaning. The rules for language use formulate the speech context. Every normal child has a capability to develop language. The child has physiological set up for being exposed to the normal processes of language acquisition in a normal environment.

It has been estimated that approximately 40% of learning capacity is linguistic ability. Useful and constructive communication is essential to the social, emotional, intellectual and spiritual growth of any child. In order to communicate, an individual needs to have certain skills and capacities such as sensory abilities to receive the stimuli, motor abilities to produce speech sounds. Well developed speech organs and adequate processing skills are needed to connect the auditory symbols (what is heard) to meaningful words and sentences. The organs of speech include the respiratory system, phonatory system, and the articulatory system. Respiratory system consists of lungs, the muscles of lungs and the trachea which provides air stream required for the articulation of speech sounds. Phonatory system is the sound producing system. It consists of larynx or sound box and the vocal cords which determine the pitch of the voice. The articulatory system consists of pharynx, oral cavity and the nasal cavity. Sounds are modified in different places of these cavities.
Image 1.
Speech organs

Image 2
Glottis and vocal cords
0.1 Neurology of Communication

Human brain is divided into three parts; Cerebrum, Cerebellum and Medulla oblongata. The largest part of the brain is cerebrum. It begins with the eyebrows and extends to the middle of the skull. Cerebrum is divided into two hemispheres known as the right and left hemispheres. The right side of the body is controlled by the left hemisphere and the left side is controlled by the right hemisphere. Human speech is specialized in the left hemisphere of the brain. Geschwind (1970) noted that 97% of language disorder instances are due to injuries to the left hemisphere (cited in Rajimwale, Sharad. 2005). The right hemisphere is associated with spatial tasks, music perception and visual and tactile responses. Studies show that lesions in the right hemisphere result in changes in vocabulary selection and unusual syntactic construction. It means that the right hemisphere has role in the processing of extra-linguistic aspects of language; such as semantic processing, auditory comprehension of language including nouns and verbs etc. The left hemisphere processes the linguistic meaning of prosody i.e., the rhythm, stress, and intonation of connected speech while the right hemisphere processes the emotions conveyed by prosody. Corpus callosum connects the right and left hemispheres to allow for communication between the hemispheres.

There are four major lobes located all over the brain which are connected with each other. They are,
1. Frontal lobe

2. Parietal lobe

3. Occipital lobe

4. Temporal lobe.

Frontal lobe is the seat of thinking. Motor area located in frontal lobe involved in the movements of different parts of the body. Parietal lobe includes the sensory area which receives sensation from skin muscles, and other sense organs such as eye, ears, nose etc. Temporal area controls hearing through the auditory area. Visual area is situated in the occipital lobe.

Image 3

Language areas of the brain
In the early part of 19th Century, a German anatomist Franz Joseph Gall put forth theories of localization that is different human abilities and behaviors are traceable to specific parts of the brain. He suggested that frontal lobes of the brain are the locations of language. This notion led to establish the theory of phrenology.

In 1861, in the meeting of society of Anthropology in Paris, Bouillard’s sun in law Ernest Auburtin described about the theory of frontal lobes. Paul Broca, a young surgeon was a hearer of that meeting. After this meeting he treated two persons who were having lesion on left frontal lobe followed by speech defect. From this, he found that the left frontal lobe controls speech. Later the area, that is, the anterior lobe of the left hemisphere was known by the name, Broca’s area. Broca’s area is responsible for the production of language.

In 1874, Carl Wernicke, a German neurologist reported an area located in the posterior part of the left temporal lobe near the auditory cortex. This is called Wernicke’s area which is the area of language comprehension.

The four major regions of the left hemisphere that play a crucial part in decoding and encoding of language are the following.

1. Signals are transmitted through the auditory nerve and discriminated (decoded) in the primary auditory area of the temporal lobe.
2. The interpretation or understanding the meaning of speech involves in Wernicke’s area located in the posterior portion of the left superior temporal gyrus.

3. Broca’s area in left inferior frontal gyrus is responsible for the decoding of language.

4. Verbalization is mediated by regions of the Frontal lobe. Specific and important aspects of linguistic activity are commonly associated with different brain areas such as,

   a. Retention of sequential verbal material is associated with the inferior region of the dominant temporal lobe.

   b. Comprehension of logical or grammatical relationships associated with the dominant parietal-occipital and frontal regions.

   c. Expression of rhythm of speech is associated with the posterior area of Right hemisphere.

   d. Repetition of speech words is associated with arcuate fasciculus, the pathway, connecting the left temporal and frontal speech areas.

   e. Naming the visual confrontation is associated with the dominant temporal, parietal, occipital and with Broca’s area in the dominant frontal lobe.

The production of language requires the production of syllables and the ability to shift from one syllable to the next. The production of
individual syllable is a function of pre-motor regions while the ability to shift from one syllable to the next includes circuits in the posterior parietal cortex. Regions of the frontal lobe are involved in the production of grammar, verb and syntax.

When one reads loudly, information first goes to the primary visual cortex. From the primary visual cortex, information is transmitted to the posterior speech area, including Wernicke's area. From Wernicke's area, information travels to Broca's area, then to the Primary Motor Cortex.

When one repeats the word which is heard, the information first goes to the primary auditory cortex. From the primary auditory cortex, information is transmitted to the posterior speech area, including Wernicke's area. From Wernicke's area, information travels to Broca's area through arcuate fasciculus and then to the Primary Motor Cortex.

The interpretation or understanding of the meaning of speech involves Wernicke's area located in the posterior portion of the left superior temporal lobe. Language requires processes of memory. The brain should have the capacity to store words, and it must be able to access the words. Nouns are probably stored in the posterior temporal cortex and verbs are stored in the frontal cortex. Language representation changes with experience. Posterior temporal regions process words and pronounceable non-words. Automatic and well practiced verbal output depends up on the insular cortex, where as the novel speech generation requires the frontal and posterior temporal cortex.
0.2. Normal Language Development

In normal language development, speech appears only after a relatively sophisticated non verbal communication system has been established. This pre speech mode includes cry, eye contact, facial expression and gestures. Crying of a baby conveys some significant linguistic communication. An infant can make controlled sound within the first few months of life by making cooing sounds, laughs, cries, gurgles etc. These are the immediate antecedents of communicative speech. It is the inflection and intonation of the adult talk that is easily imitated by children. Thus they unknowingly lay the basis of the speech they are going to learn shortly. The very young baby utters far more vowels than consonants. The first vowels pronounce normally. The front vowels and the back vowels become more frequent as the child grows. Consonants first appear as glottal and velar sounds formed in the back of the mouth. The order of development of the consonants progresses from the back to the front of the mouth. (Rajimwale, Sharad,.2005).

Usually the babbling stage starts by six months of age. In this period, children typically engage in ‘vocal play’ manipulating pitch, loudness, etc. This stage is called marginal babbling. At about seven months, infants start to make extended sounds that are chopped up rhythmically by oral articulations in the syllable like sequences, opening and closing their jaws, lips and tongue. This is called canonical babbling. Next the child learns to repeat the sounds or reduplicates them. This stage is called ‘talking’ where others hear the child saying baba, boo-boo, la-la
etc. In this stage, parents help the child in associating sounds with objects by taking the advantage of talking such as ‘meou meou’ for cat, bow-bow for dog etc where these animals are seen. This is called indicating behavior. The child also learns symbolization during this stage. i.e., when the child hears dogs barking or something like that, the child says bow-bow. This is called symbolization process.

During babbling children show intonational features in a very broad sense pointing to their capability of learning by imitation. So the babbling stage can be called as pre-linguistic period preparatory to the growth of language. By the end of their first year, most children have mastered the ability to say a few simple words. These single word utterances are used to mean a whole sentence. i.e., one word functions as a sentence. This stage of child’s language development is known as holophrastic stage. In this stage the child is not equipped to use syntactic construction, therefore, the meaning of a sentence is to be found in one word. Children are most likely unaware of the meaning of their first words, but soon they learn the power of those words as others respond to them. Then they start to use words which are in the form of ideomorphs. That is, the child makes their own words to refer something.

eg: /tu tu/ to refer cockroach

/Brr/ to refer vehicles

At the age of eighteen months most children can say eight to ten words. After a while, they start to use single words like a complete
meaningful sentence, accompanied by some gestures which look like a telegraphic message. But the articulation of the sound will be distorted by substituting or replacing some sounds.

eg: šuu > /cuu/ 'shoe'
paisa > /paicca/ 'paise'

At this telegraphic stage of child’s speech development, the utterances are totally free from tense, pluralization or other grammatical categories. At the age of two, they put the words together in crude sentences such as /paala/ ‘more milk’ /appam taa/ ‘give food’. During this period, children rapidly learn words that symbolize or represent objects, actions and thoughts. At this age, they also engage in representational or pretend play. At the ages of three, four and five, a child’s vocabulary rapidly increases, and he or she begins to master the rules of language.

An amazing feature of language development is the speed with which it is acquired. The first word is spoken at about 12 months, by two years of age most children have vocabularies of about 270 words and this increases to 2600 words at the age of six. Children generally use syntactically correct sentences by the age of 3 and highly complex constructions by the age of five. Similarly, in the beginning some pronunciation problems are common. They cannot pronounce aspirated sounds. Instead of that they pronounce its corresponding voiceless or voiced sounds.

eg: katha > kata ‘story’
While pronouncing clusters, they usually simplify the clusters into single consonant or geminated sounds or they modify the cluster by inserting a vowel in between the consonants.

eg:  
*skuul* > *suul* ‘school’
*pakše* > *pace* ‘but’

In the stage of grammatical development, they start by repeating same words such as bye bye, ta ta, ka – ka, etc and then to connect two different words. In this period, they can use nouns, words, and then adjectives and so on. But they have some problems with connecting words, link morphs or case markers. At the age of 2 ½ - 3, they gradually get most of these grammatical categories. Questions and negative transformations of the sentences also start to use during this time.

**Table 1**

**Milestones in child’s Development**

<table>
<thead>
<tr>
<th>Age</th>
<th>Developmental milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Months</td>
<td>Smiles at others</td>
</tr>
<tr>
<td>3 Months</td>
<td>Head control</td>
</tr>
<tr>
<td>6 Months</td>
<td>Sitting</td>
</tr>
<tr>
<td>10 Months</td>
<td>Standing with support</td>
</tr>
<tr>
<td>12 Months</td>
<td>Standing without support</td>
</tr>
<tr>
<td>12-14 Months</td>
<td>Walking</td>
</tr>
<tr>
<td>3 Years</td>
<td>Toilet control</td>
</tr>
<tr>
<td>Age</td>
<td>Language Level</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Birth</td>
<td>Cries</td>
</tr>
<tr>
<td>2-3 Months</td>
<td>Cries differently in different circumstances, Coos in response.</td>
</tr>
<tr>
<td>3-4 Months</td>
<td>Babbles randomly</td>
</tr>
<tr>
<td>5-6 Months</td>
<td>Babbles rhythmically</td>
</tr>
<tr>
<td>5-6 Months</td>
<td>Respond to name</td>
</tr>
<tr>
<td>6-11 Months</td>
<td>Babbles in imitation of real speech, with expression</td>
</tr>
<tr>
<td>12 Months</td>
<td>Says 1-2 words, imitates familiar sounds, understands simple instructions</td>
</tr>
<tr>
<td>18 Months</td>
<td>Uses 5-20 words, including names</td>
</tr>
<tr>
<td>Between 18 Months and 2 Years</td>
<td>Says two word sentences, Vocabulary is growing</td>
</tr>
<tr>
<td>2 Years</td>
<td>Can use up to 270 words</td>
</tr>
<tr>
<td>2 ½ Years</td>
<td>Says short sentences</td>
</tr>
<tr>
<td>Between 2 and 3 Years</td>
<td>Identifies body parts, Starts to use pronouns</td>
</tr>
<tr>
<td>Age Range</td>
<td>Language Development</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3-4 Years</td>
<td>Combines nouns and verbs</td>
</tr>
<tr>
<td></td>
<td>Vocabulary develops into 450 words</td>
</tr>
<tr>
<td></td>
<td>Matches 3-4 colors, knows big and little,</td>
</tr>
<tr>
<td></td>
<td>Makes some plurals</td>
</tr>
<tr>
<td>Between 3 and 4 Years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can tell a story, sentence length of 4-5 words</td>
</tr>
<tr>
<td></td>
<td>Vocabulary of about 1000 words,</td>
</tr>
<tr>
<td></td>
<td>Knows nursery rhymes</td>
</tr>
<tr>
<td>4-5 Years</td>
<td>Uses past tense, Identifies colors and shapes</td>
</tr>
<tr>
<td></td>
<td>Uses more Question forms</td>
</tr>
<tr>
<td></td>
<td>Vocabulary of about 1500 words</td>
</tr>
<tr>
<td>Between 4 and 5 Years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sentence length of 5-6 words,</td>
</tr>
<tr>
<td></td>
<td>Vocabulary of about 2000 words</td>
</tr>
<tr>
<td></td>
<td>Knows spatial relations like top and far</td>
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<tr>
<td></td>
<td>Knows address, uses all types of sentences</td>
</tr>
<tr>
<td>5-6 Years</td>
<td>Vocabulary of about 2000 words</td>
</tr>
<tr>
<td>6 Years</td>
<td>Vocabulary of about 2600 words</td>
</tr>
</tbody>
</table>
0.3 Reasons for Delay in Language Development

Evolution and development of the capacity of concept formation and the need of exchanging information have necessitated the development of communication. There is a general relationship between mental maturity and the level of speech development. Since the retardate children have comparatively low Intelligence Quotient, the speech and language development of them is delayed considerably. The child’s communication is considered delayed when he is noticeably behind his peers in developing language skills. Normal children are usually able to communicate effectively, and have well established patterns of speech. But normally speech is slow to emerge in young retarded children. Many cognitive abilities such as perception, retention span, conceptualization and representation are said to be affected in one sense or another, in retarded, which inhibits language acquisition.

Deviations in language are found in all levels of language structure in mental retardation, the evidence suggests that structural deviations such as wrong grammatical substitutions and insertion of wrong words form a significant aspect of language retardation in retardates. The vocabulary in retardates is found to be conceptually limited as compared to the normal. Another important language problem in them is the reduced sentence length in language performance.

While comprehends, a person first attend to stimuli from the environment, then attach meaning to what is heard, that is, association of meaning with words. Then the heard sound is stored in the memory and
recall and finally generalizing ideas and concepts to various situations. Similarly, in order to express, a person can plan and formulate speech sounds in the brain, select a set of sounds for production in brain, produce words and sequence these words to form sentences. A good stimulating environment is very essential for the adequate growth of language among children. Many of these processing skills are affected or deficient in retarded children. When these essential requirements are missing or defective that will affect the development of speech and language.

Retarded children have delay in developing linguistic functions such as generalization, association, discrimination and manipulation of verbal concepts. They have difficulties in cognitive aspects such as sustaining attention, attaching meaning to inputs, memorizing the symbols, interpreting the message, programming of speech sounds for production and then sequencing output to produce words and sentences. As the language development is closely dependant upon cognitive development, any delay or defect will hamper language acquisition. Delays are seen in both aspects of comprehension and expression.

The language input provided by the care taker strongly influences speech and language development. A good stimulating environment is needed for better development of speech and language. But a retarded child may not get enough opportunities for communication from the environment.
The problems which have been seen frequently, such as ear function, upper respiratory function, structural abnormalities of the speech mechanism like the cleft palate etc also contribute to poor or delayed development of speech and language in mentally retarded children. The findings of such psycholinguistic studies help in evolving developmental strategies and designing suitable language intervention and training programs.

0.4 Language Intervention

As a result of Individuals with Disabilities Education Act, children and adolescents with mental retardation or related developmental disorders are entitled to free and appropriate intervention. An intervention is a planned action designed to modify or prevent an unwanted outcome. The purpose of intervention is the acquisition of new skills and knowledge and also to support the child to use and maintain skills and knowledge they have acquired. Language and communication intervention is a planned attempt to improve the existing communicative behaviours and facilitate learning of new communicative behaviours. It assists the child in developing a desire to communicate and provide the child with a means to communicate in meaningful situations. The basic assumption is that when a child receives an intervention, their language will improve more rapidly than if they received no intervention.

Appropriate intervention should be based on the needs of the child as determined by a team of professionals, address the priorities and concerns of the family and be provided the least restrictive most inclusive
setting, that is, where they have every opportunity to benefit from interacting with non disabled peers and the community resources available to all other children.

Schiefelbusch in 1965 assumes that the mentally interesting experiences, provided by the interaction of the retarded with adults over a time, and proper reward and encouragement of their behavior increase the confidence of the mentally retarded and also add variety and precision to their speech functions. This shows the importance of interaction in the process of language intervention with the mentally retarded. The intervention process includes three elements.

1. Devising the Intervention

Interventions are instructed to meet specific needs. Careful and detailed assessments should lead to realize the nature of child’s problem and thereby establish clear goals for intervention. The most appropriate language intervention method varies depending on the developmental level of the child, type and degree of the child’s problem and their language and communication goals.

2. Executing the Intervention

Executing the intervention is very important. It should be natural and the person who executes the intervention must understand its purpose.
3. Evaluation of the Effectiveness of Intervention

It is important to test the effectiveness of intervention to see the child’s performance improved or not.

Language intervention programmes are based on a proper evaluation of the communicative competence of the retarded. The important thing to be remembered is that the goal of language intervention is not be to turn the child into a perfect product. Rather the aim should be to bring out the best possible product, in spite of inherent limitations.

0.5 Theories of Language Acquisition and Learning

There are various theories regarding language acquisition and language learning. Language acquisition is the natural imbibing of a language involuntarily and language learning is the voluntary action of studying language. There are five major theories of Language acquisition. They are,

1. The Behaviourist view or Learning Theory view:
2. The Nativist view
3. The Interactionist view
4. Cognitive Theory
5. Sociolinguistic Theory
0.5.1 The Behaviourist view or Learning Theory view

Behaviorism is also called the learning perspective where any physical action is a behavior. The behaviourist B.F. Skinner (cited in Taylor, G.R. 2008) suggested that a child imitates the language of its parents or care takers. Successful attempts are rewarded. Therefore successful utterances reinforces while unsuccessful ones are forgotten. There are two traditional learning principles. They are the principle of reinforcement and the imitation or observational learning.

a. Reinforcement Theory

According to reinforcement theory, the parents or other care takers selectively reinforce the child’s babbling sounds that is most like adult speech, by giving attention to these sounds and showing approval when their baby utters them. The way in which adults coach children, when using language by praise and by correcting the children is called reinforcement theory.

b. Imitation Theory

This theory proposes that the child learns primarily through imitation or observational learning. According to this view, the child picks up words, phrases, and sentences directly by imitating what he hears. Then, through reinforcement and generalization, or applying what he has learned to new situations, the child learns when it is appropriate or inappropriate to use particular words and phrases.
0.5.2 The Nativist view or Psycholinguistic Theory

In 1965, Noam Chomsky proposed that children are born with an innate mental structure that guides their acquisition of language and, in particular, grammar. Chomsky termed this structure as a Language Acquisition Device (LAD). According to this theory, the process is biologically determined.

Another nativist view is that human beings learn language far more easily and quickly during a certain critical period of biological development. The critical period for language stretches from infancy to puberty during which a child is sensitive to a particular environmental stimulus that does not have the same effect on him when he encounters it before or after this period.

0.5.3 The Interactionist view

The interactionist view says that language is learned in the context of spoken language but assuming that humans are in some way biologically prepared for learning to speak. Interactionists are concerned with the interplay between biological and environmental factors in the acquisition of language. In the interactionist view, normal language develops as a result of a delicate balance between parent and child understanding; when parents speak to children in a way that recognizes how much the children already know and understand, they increase enormously their children’s chance of comprehending a novel message. There are a series of techniques that adults use to facilitate language
acquisition in young children. These techniques include playing nonverbal games, using simplified speech, and elaborating on and rewarding children’s own utterances to help them sharpen their communicative skills.

Similarly, parents facilitate early communication in several other important ways. In the technique of expansion, the adult imitates and expands or adds to the child’s statement.

eg. Child: paalɔ ‘milk’
mother: paalu veeŋoo ‘do you want milk?’
child: um, veeŋam ‘yes, (I) want’
mother: vaavakku ippo paalu taraam ‘will give you milk now sweety’
child: vaavakku paalu veeŋam ‘I need milk’

So the interactionist view hold that although the child is probably biologically prepared for learning language, there is also strong support for the role of environmental input in the child’s development of language. (Charlsworth,R.2010)

0.5.4 Cognitive Approach Theory

The Swiss psychologist Jean Piaget put forward that acquisition of language is placed within the context of a child’s mental or cognitive
development. He argued that a child has to understand a concept before the child can acquire the particular language form which expresses that concept.

0.5.5. The Sociolinguistic Theory

Sociolinguistic analysis centers on the communication unit required to convey information. This unit could just as easily be an entire conversation as a word phrase or sentence. According to sociolinguistic thought, language is used to communicate and does not occur in a vacuum. According to this sociolinguistic approach, the overriding motivation for language and language acquisition is effective communication.

The sociolinguistic model considers the communication effectiveness of language within the linguistic and nonlinguistic context. From a developmental perspective, therefore, the role of the child’s communication partners is crucial. Language acquisition, therefore, is a process of socialization, that is social interactions and social relationships provide the needed framework that enables the child to decode and encode language form and content.

0.6 Theories of Language Learning

The foremost theories of language learning include,

1. Association Theories of Learning
2. Cognitive Theories of Learning
0.6.1. Association Theories of Learning

Association theories stress the significance of ‘Association’ or ‘connection’ or ‘Bond’, which exists between stimulus and response. One single stimulus is capable of triggering off a number of responses in the organism. The Associationists claim that doing or undoing of a response-pattern is intimately related to the strength or weakness of this ‘Connection’. When the stimulus is repeated again and again, an association between the stimulus and the response develops. But when the stimulus is withdrawn and its frequency of occurrence is decreased, the resultant bond between the two gets weakened. Prior experience and reinforcement have great significance.

a) Trial and Error Theory of Learning or Connectionism

Thorndike proposed a theory called the trial and error learning or learning by selecting and connecting. According to him, learning is an association between sense impressions and responses. There is no place of reasoning or intelligence. It is fully mechanical. Learning is not a sudden process, being influenced by reasoning, intelligence or thinking over the problem. It is gradual and a process that eliminates errors trial after trial. According to this theory, learning is possible only when the learner is motivated to learn. Correct responses can be learnt better because they lead the learner towards the goal and the incorrect responses are eliminated or stamped out, as they do not help to reach the goal.
There are three factors in the process of learning. They are readiness, effect and exercise.

i. Law of Readiness:

Learning requires readiness or preparedness on the part of the learner. Anatomical, psychological and physiological ‘preparedness’ constitute the total ‘readiness’. The second aspect of ‘readiness’ is motivation which makes use of the situations or objects to ‘induce’ an urge in the child for an activity. Awards and rewards are the agents of motivation.

ii. Law of Effect:

This Law is also referred to as ‘Law of Satisfaction and Annoyance’ or ‘Reward and Punishment’. When a modifiable connection between a situation and a response is made and is accompanied or followed by a satisfying state of affairs, that connection’s strength is increased; when a connection is made or accompanied or followed by an annoying state of affairs, its strength is decreased.

iii. Law of Exercise:

This law is also known as the Law of Use and Disuse. The first part says that when a modifiable connection is made between a situation and a response, that connection’s strength is, other things being equal, increased and the second part says that when a modifiable connection is not made between a situation and a response over a length of time, that
connection's strength is decreased. The term 'other things being equal' means, 'satisfyingness and annoyingness of the situation'.

b) Classical Conditioning Theory

Conditioning is the establishment of connection between a stimulus and a response which have no natural connection between them. It is learning at a very simple level, learning which we acquire mostly unconsciously.

This law is important in educating babies and primary students. It gives importance to repetition. Repetition only can establish relation between unconditioned stimulus and response. This theory provides a suitable method for forming different habits with small children. If repetition is accompanied by praise or punishment, learning becomes long lasting. Praise has a positive role to play in conditioning a child. It strengthens the bond between a stimulus and a response. Punishment is also helpful. But its dose and timing should be cautiously judged.

Conditioning is helpful in the learning of language. Role of picture to teach numbers and words is of vital importance. If a child is taught the word 'cow' with a picture of the cow shown to him, he at later time may recognize a cow and pronounce every word pointing his hand towards the animals. Here relation between the word and the animal was established with the picture. In this way we learn from our day-to-day experiences by conditioning. It is conditioning which enables us to learn habits, culture, customs, social traits and language etc.
c) Theory of Continuous Conditioning or Simultaneous Conditioning by E.R. Guthrie

According to this theory, contiguous conditioning or simultaneous conditioning is the most basic form of learning and all other types of learning can be interpreted in terms of simultaneous conditioning.

The learning theory of Guthrie stresses that the organism responds to various stimuli by contraction of muscles and secretion of glands. These specific responses are called movements of Guthrie. An act is a series of movements associated together by the contiguity of time. For example, the act of running consists of various separate movements of muscles and senses.

0.6.2. Cognitive Theories of Learning

Cognitive theorists believe that the ultimate control of behavior lies within the cognitive structure of a person. In simple terms, cognition is ‘knowing’ the situation fully and bearing its impression in one’s mind. The ‘inner’ self does the activity again before the impulse travels outward to involve musculature. Inner activity is a pre-requisite of any outer experience.

0.6.2.1. Gestalt Theories of Learning and Theory of Insight

The term Gestalt means ‘pattern’, ‘shape’, ‘form’ or ‘configuration’. The Gestaltists have been so named because they believe that our perception of the world is in terms of patterns shapes, forms, or
configurations which are meaningful wholes. These wholes are different and more than the parts they are composed of.

Principles of Gestalt Learning

i) The Laws of Organization in Learning

ii) The Insightful Learning.

iii) Remembering and Forgetting

iv) Rote Memorizing and Understanding

i) The Laws of Organization in Learning

The laws of organization are basic to the Philosophy of the Gestalt. The basic idea of these laws is that the objects in our field of perception are perceived as organized into patterns and groupings. There are a number of factors which operate in these groupings. They are the factors of proximity, similarity, continuation or common direction, common fate and closure.

a. The Law of Proximity

This law states that elements in the field will tend to be grouped together according to their proximity i.e., nearness to one another. Any two events which occur close together in time and space becomes associated if they seem to belong together. The factors of proximity are in constant use in our communication through reading, writing and talking. In these, pauses are used between words and sentences in order
to segregate them into units. Learning and communication will be disrupted if this familiar organization is broken.

b. The Law of Similarity

This law states that items similar in respect of some features such as color, shape etc., tend to be grouped together provided this factor is not overridden by proximity factor.

c. The Law of Common Direction

A set of points tend to be grouped together if they appear to continue or complete a lawful series. The principle of continuation is also used in alphabetic and numerical material to test intelligence.

d. The Law of Closure

This law makes the perceived world more complete than the sensory stimulation. They fill in whatever gap is there in the stimulation. By their action one perceive whole forms not thus disjoined parts. This law also operates in learning and forgetting. This law operates in the remembrance of our learnt materials also. Due to the decay of memory trace more portions of learnt materials become lost with the passage of time. But one stays unconscious to the loss of these details. Because of the law of closer, the gaps in our memory are filled up by other details. That is why, in repeating a learnt story, one do not give the exact details even though think them as exact. Unconsciously, substitution of own details for the details which are lost from the memory will take place.
This happens because it is nature of human mind to stay tense as long as anything perceived or remembered by it is incomplete and incoherent. There is always a tendency in the mind to make the things complete. Thus the law of closure is a very basic law according to which the human mind functions.

ii) Insight Theory of Learning.

This theory is the best contribution of Gestalt psychologists to the psychology of learning.

a) The Theory of Perceptual Re-organization.

According to this theory the learner reorganizes his perception of the environment in such a way that he gets a clue to solve his problems. Grasping of new relationship between the elements which enables to solve the problem has been termed as ‘insight’ and repetition of a successful act after insight is called ‘insightful learning’.

b) The learning Set Theory

Theorists have pointed out that insightful learning is nothing more than a carry over or transfer of previously learned habits of sets to the new situation. The degree of insight is determined by the level of intelligence of the learner. However insight gradually develops with age and experience. Certain environment arrangement is more favorable to insightful solutions.
iii) Remembering and Forgetting

The Gestalters have elaborated their ideas on remembering and forgetting. An initial problem of remembering is how to explain the existence of memory. This is the concern of memory trace theory and the law of association.

According to Memory Trace Theory, normal processes in the brain are active during the perception stage of learning and there is some modification of the state of issue because of that. These modifications are the memory traces and they store information of the original learning. These traces are in ‘subdued form’. Recall or remembering involves reactivation of a given memory trace by means of cues. Though these traces stay as active usual modifications, they are too low in intensity to enter into our consciousness.

The law of Association theory says that recall of one information leads to the recall of another information associated with it at memorization stage. Association of elements A and B in memory is the result of their being fused into a single unit, unitary concept. After association is formed they do not remain independent concepts joined by a bond. Rather they become fused into a single object or concept according to the laws of organization.

Gestalters take the help of the laws of organization to explain forgetting. They believe that these laws also operate on incoherently and poorly organized traces to transform them overtime into better organized
ones. There are thus continuous forces acting upon memory trace to transform their contents into ‘good gestalt’ i.e., simple well-organized and coherent structures. If the trace transformation is too extreme recollection will be difficult. If trace transformation is minimal, then one may remember the essentials but the details will be different from what was originally remembered.

iv) Rote Memorizing and Understanding

One of the basic tenets of Gestalt psychology is that rote memorization is very ineffective and rarely followed system of memorization in real life situations. In everyday life, people learn things by understanding the meaning of events and materials or by grasping the principle behind them. Rote memorization i.e., memorization by respective drill is used by them in the last, when meaning and natural organization factors are absent.

Educationists and psychologists view that educational implications of the theory of insight is of more importance than those of the other theories. The way in which the theory enriches the educational process is,

1. Creation of Motivation

It is the duty of the teacher to motivate the students to study. Motivation can only get him into action of learning.
2. Proceeding from Whole to the Part.

In the opinion of Gestaltists learning process should proceed from whole of the subject matter to various parts of it. By teaching the topic as a whole unit a complete idea is created in learner's mind. For example in the teaching of language the students should know what a sentence is and then about words, letters etc. includes in that sentences.

3. Emphasis on Understanding.

Learning the mechanical repetitions, learning by note and by trial and error is not considered useful in case of higher studies. For the solution of more complex problems using the insight is essential. In insightful learning there is no fear of time and energy. But insightful learning is not proved fruitful in case of learners having a low intelligence. They can learn better by trial and error method.

The theories so far evaluated all highlight the controversial nature of child language acquisition. These controversies centre on the content and process of language acquisition and provide impetus for further research. Most Linguists do not adhere strictly to one theoretical construct, but prefer to position themselves somewhere between. This apparent ‘fence straddling’ reflects the complexity of language and language acquisition. It is possible to relate the aspects of all the major theories for each child at different stages of language development.

Normal development is not the only intervention guide, but it is one of the most useful tools. Teacher or speech pathologist has to rely up
on many sources of information. According to Schiefelbusch (1978), a teacher or speech language pathologist should be a behaviorist, a pragmatist, a cognitivist, a linguist, a developmentalist and an optimist in order to put together an effective means of teaching Language to children.

0.7 Need and Significance of the Study

Any child living in a communicating world, if having any difficulty in listening and talking, it represents a serious problem that cannot be resolved easily. Language skills are the key skills to help individual to lead an independent life in the community, because most of the day to day activities can be performed through communication skills. It is important to help the mentally retarded children to become independent as far as possible in their life. Even though there is a need, there is no adequate information regarding the communication problems of the retardate children. Present information extends largely to the causes, prevention and treatments. Only a very few efforts have been made in the Indian context to explore the communicative ability of these children. There are only a few studies on their speech and language characteristics. The results show that only speech therapy cannot do much. Studies such as those dealing with the phonological, morphological, syntactic characteristics etc are conspicuous by their absence.

This study gives a general awareness about mental retardation and the communication problems of the retarded to the society and to the
parents. The language intervention program will be effective than traditional type of intervention if it is prepared after the complete analysis of the language problems of the retarded. It will be very useful to the special education schools and all the professionals who are working with the mentally retarded, the parents and all others directly or indirectly related to the retarded children for a general awareness and can improve them in a more meaningful way. It is not possible to expect for a perfect result. Even then, new approaches and a detailed communication program can perform better and can make a lot of changes.

The focus of instruction in special schools for mentally retarded has to be shifted to computation and problem solving instruction. Retardate children will learn to employ cognitive strategies successfully when these techniques were included.

0.8 Statement of the Problem

The language problems of moderately mentally retarded children are taken under consideration for the study. After doing a psycholinguistic analysis of their language problems by preparing an assessment tool, it is targeted to discuss the language intervention program for the moderately retarded children. So the study is entitled as “Language Intervention program for the mentally retarded: A Psycholinguistic perspective”. The term mental retardation is used to refer the so called intellectual disability recently since the study started some years back when the term mental retardation was prominently used.
0.9 Aim and Objectives of the Study

1. To discuss about the language intervention program for the moderately mentally retarded in psycholinguistic view.

2. To prepare a language assessment tool for the retarded in an interdisciplinary way for psycholinguistic analysis that is relevant to the present situation of Kerala.

3. To identify different types of errors committed by the mentally retarded children while speaking Malayalam

4. To analyze the communication problems of the mentally retarded psycho linguistically.

5. To study about mental retardation and their communication problems.

0.10 Hypotheses

Speech and Language problems are particularly distinguishing features among mental retardation. While communication they have prominent language problems in all levels of language, that is, in phonological, morphological, and syntactic levels.

As normal children are correcting their Language problems themselves during Language development phase through imitation and reinforcement, retarded children can also be corrected up to a certain extent with the help of a well organized multipurpose Language intervention program. The attention and memory span of the retardates
can be increased with the aids developed through new technologies like computer.

0.11 Methodology in Brief

The study can be explained in different phases. In the first phase, ten moderately retarded children have been selected for the study according to their age, IQ and family history. In the second phase, a detailed developmental history was taken from each child through an interview with parents, teachers and through case records from the institution. In the third phase, a Language Assessment Tool has been prepared and a detailed language assessment has been done. Analysis of the data has been done in the fourth phase. After analysing the actual linguistic problems of the retardates, a language intervention program has been discussed psycholinguistically in the fifth phase.

0.12 Organization of the Thesis

The present study contains introduction, five chapters and conclusion. Introduction gives some basic ideas on communication, its neurological aspects, language developmental stages of normal children, reasons for delay in language development and some key points about Language intervention program. Need and Significance of the study, statement of the problem, Aim and Objectives of the study, Hypotheses, Methodology in brief are also stated. Limitations and suggestions for further research are also included in Introduction.
In chapter I *Mental retardation an overview*, a general discussion about mental retardation including definition, characteristics, prevalence, causes, symptoms, diagnosis, treatment and preventive measures are given. The classifications of mental retardation based on the medical, educational, and psychological and of AAMR are also explained.

Chapter II, *Historical Perspectives* discusses about the history of mental retardation and some related literature about definitions of mental retardation, language development of the retarded, language behavior of the retarded, assessment of language behavior of the retarded and their language intervention.

The methodology of the study is explained in the Chapter III, *Methodology*. It is a qualitative psycholinguistic research in a case study method. So the general information regarding Qualitative research, Case study method and Language Assessment are described in this chapter. The method of sampling and data collection, description of the language assessment tool used for collecting the data, the method of analysis of the data and the problems encountered during analysis and the evaluation procedure are also described in this chapter.

*Case Analysis* which is sorted as IVth chapter includes analysis of the collected data. The case history is given first which includes children’s family history and developmental history. The Language problems of the cases are analyzed linguistically in phonological, morphological and syntactical levels.
The V\textsuperscript{th} chapter, \textit{Language intervention program}, discusses about the psycholinguistic aspects of the preparation and implementation of Language Intervention Program.

Conclusion of the study is discussed. The appendix 1 contains the Language Assessment tool used for the assessment. Appendix 2 contains the sample vocabulary and sentences used for assessment. The stories narrated by the children are given in the appendix 3. Bibliography is given finally.

\textbf{0.13 Limitations of the Study}

1. The sample for the study was selected only from State Institute for the Mentally Handicapped, Pangappara. More generalized results could have been obtained if the sample was selected from throughout the district.

2. The sample selected for the study consists of only 10 cases, which is selected as case study with in this short period. If the study can be done with a larger sample, it can give more reliable results.

3. Another limitation of the study is the short period within which the study was conducted. First the investigator has to be familiar with the subjects. This task takes much time. The assessment through case study method took a lot of time than expected, because the cases show a tendency to withdraw from the interaction if they feel any kind of physical or mental exploitation, feel discomfort or boring, or may take long time for interaction, or they want to attend to anything else or their concentration changes.
0.14 Suggestions for Further Research

It is generally seen that the studies and work done on the development of Language skills of the mentally retarded people are few. More of studies have to be conducted to develop and implement Language programs for their betterment. More discussions from all aspects of medical, psychological, educational and scientific fields are needed. That is, an interdisciplinary mode of work is essential to achieve goals on this field. The researchers should realize the main risk factors associated with Language performance of retarded children. Functional language training of the mentally retarded children should be given more emphasized and the school authority should conform the parental involvement in developing language skills of retarded children.

The present study may open a way to new areas of research. The following suggestions can be considered while conducting studies in related areas,

1. The present study can be repeated with a mass sample taken from all districts of Kerala.

2. The present study is limited to moderately retarded children. A study can be conducted to measure the functional language skills of mentally retarded children of other intelligence levels.

3. A similar kind of study can be conducted to assess the reading and writing language problems of the retardates in different intelligent levels since the present study gave emphasis to communication functions of the language speaking and listening.
4. A comparative study of language development of normal and mentally retarded children can be done to assess the stages of language development and to determine whether the retarded children go through the same stages even at a lower rate of speed.

5. A study can be conducted to find out the effect of the modern technological devices in the development of language skills.