

MANUAL ON DEVELOPING COMMUNICATION SKILLS IN MENTALLY RETARDED PERSONS

A UNICEF
supported project

T.A. SUBBA RAO



NATIONAL INSTITUTE FOR THE MENTALLY HANDICAPPED

(Ministry of Welfare Govt. of India)

MANOVIKAS NAGAR, P.O.
SECUNDERABAD-500 009. A.P. INDIA.

MANUAL ON DEVELOPING COMMUNICATION SKILLS IN MENTALLY RETARDED PERSONS

A UNICEF supported project

T.A. SUBBA RAO



NATIONAL INSTITUTE FOR THE MENTALLY HANDICAPPED

(Ministry of Welfare, Govt. of India)

Manovikas Nagar, P.O.

Secunderabad - 500 009, A.P., INDIA

Author :

T.A. Subba Rao

Principal Investigator of the

Project on Development of Communication Skills in Mentally Retarded Persons

Contributors :

Research Assistants

Kavitha Narasimhan

Sourav Mukhopadhyay

M. Ramkishan

Raju Pratap

Copyright © 1992

National Institute for the Mentally Handicapped

Secunderabad - 500 009.

First Published in 1992 with financial assistance from UNICEF

Reprint -1994 (NIMH)

IMPORTANT

Any part or full of this publication may be reproduced in any form including translation into Hindi or any regional language with written permission from NIMH for the purpose of teaching, training and research without making profit out of it.

Artist : **K. Nageshwara Rao**

Printed at :- Sree Ramana Process, Secunderabad. Hello : 811750

MANUAL ON DEVELOPING COMMUNICATION SKILLS IN MENTALLY RETARDED PERSONS

(A UNICEF supported project on
Development of Communication Skills)

Project Team :

Principal Investigator

T.A. Subba Rao, *Lecturer in Speech Pathology & Audiology*

Research Assitants :

Ms. Kavitha Narasimhan (18.9.89 to 12.4.90) **Mr. Ramkishan** (16.10.90 to 5.8.91)
Mr. Sourav Mukhopadhyay (3.10.89 to 29.7.91) **Mr. Raju Pratap** (28.8.91 to 31.3.92)

Project Advisory Committee

Dr.N.Rathna

660, Double Road
Kuvempu Nagar,
Mysore - 570 023

Dr.N.Shivshankar

Asst. Professor
in Speech Pathology
NIMHANS, Bangalore

Shri P.Jayachandran

Principal
Balavihar Training School
6 Lakshmipuram, St. Madras.

Shri A.Ramacharya

Coordinator
SRC AYJNIHH,
Manovikas Nagar, Bowenpally,
Secunderabad - 500 011

Dr.Vasantha

Lecturer in Speech Pathology
Osmania University, Hyderabad - 500 007

NIMH Representatives :

Dr.D.K.Menon.

Director

Dr.Jayanthi Narayan

Asst. Prof. of Spl. Education

Dr.T.Madhavan

Asst. Prof. of Psychiatry

Dr.Saroj Arya

Asst. Prof. in Cl. Psychology

Mr.N.C.Srinivas

Speech Pathologist

NATIONAL INSTITUTE FOR THE MENTALLY HANDICAPPED

(Ministry of Welfare, Govt. of India)

Manovikas Nagar, P.O.

Secunderabad - 500 009, A.P., INDIA

Acknowledgements

We sincerely acknowledge the assistance of the UNICEF in providing finance for the project and all the other support. We thank the Director, NIMH, the Accounts Department and the Administrative staff for all their cooperation during the entire project period.

We acknowledge the sincere efforts put in by Ms.Kavita Narasimhan, Mr.Sourav Mukherjee, and Mr.Ramakrishna,M., all research assistants at various stages of the project period. We are thankful to Mr.Raju Pratap, the research assistant, who stayed with us till the completion of the project for his involvement.

The members of the project advisory committee have given us the necessary guidance and encouraged the progress of the project work. We deeply acknowledge their important role in the final outcome of the project work. We thank the management of the special schools - Thakur Hari Prasad Institute for Research and Rehabilitation of the mentally handicapped children, Dilsukhnagar, Hyderabad Unit for mentally retarded persons, Andhra Mahila Sabha, Vidyanagar, Hyderabad and Manochaitanya, East Marredpally, Secunderabad, all in twin cities for allowing us to conduct our field testing work in their special schools. All the special education teachers who participated in the field testing, were highly motivated, inquisitive and helpful. They have given us the invaluable feedback, which has gone into the final shaping and preparation of the manual. We are highly indebted to them for their support.

We would like to thank Mrs.Madhu Rani, Lecturer in English for sparing her time in reading the English version and bringing it to readable English standards.

The Hindi translation of the manual was done by three eminent and well motivated experts. We thank Mrs.Aarti Hora, Ms.P.Nagarani and Dr.Meera Dubey for completing the work within the short time and doing an excellent job. Dr.D.Vasantha, Osmania University and Mrs.Gayathri, Lecturer in Applied Linguistics, Central Institute of Hindi, Hyderabad have prepared the list and description of Hindi phonemes. We deeply acknowledge their help. Mrs.Gayathri has also helped us by reading many portions of the Hindi version of the manual and suggested important modifications. Dr. Meera Dubey has spent many hours modifying the Hindi translation of the manual. Without her scholarship and patience, Hindi version of the manual would not have been ready. We thank all these persons for making the Hindi translation readable.

We sincerely acknowledge the secretarial support provided by Ms.Nagarani,P. Stenographer, amidst of her regular hectic work. Mr.A.Venkateswara Rao, Stenographer also has done his part in secretarial work of the manual, we are thankful to him also.

Mr.N.C.Srinivas and Mr.G.Mohan Murthy, Speech Pathologists actively have taken part in field testing of the NIMH-natural gestures and Language Assessment Tool, both of which are used in this manual. We sincerely thank them. We also thank the Department of Information and Documentation, NIMH for all their help. We thank Mr.Surya Prakasam for helping us in statistical analysis.

The most important contributors to the work done are probably, our clients - mentally handicapped children, through whom we learnt and improved our understanding of their communication problems. Without this experience, it would be impossible to compile this manual. We hope that they will receive better services for their communication problems, through this work. This probably is the only way we can repay them!

We thank all the persons who helped us complete the work successfully. We invite comments/suggestions from the readers for improving forth coming editions of the manual.

T.A.SUBBA RAO
Principal Investigator

C o n t e n t s

About this manual	(i)
Chapter-1	.. Mental Retardation	Page 1
Chapter-2	.. Basic terms and concepts	Page 17
Chapter-3	.. Speech sound production	Page 39
Chapter-4	.. Acquisition of speech and language by normal children	Page 83
Chapter-5	.. Communication and language problems in mentally retarded children	Page 121
Chapter-6	.. Assessment of speech and language difficulties	Page 135
Chapter-7	.. Language and communication intervention	Page 265
Glossary of terms	Page 373
References	Page 379
List of <i>additional</i> readings	Page 382

About this Manual.....

As persons concerned with the Mentally retarded children - we wish to help them to become as independent as possible in their life. Deficits in communication, language and speech can seriously slow the mentally retarded person's march towards independence.

It is not surprising that there is a demand for helping children *speak* better and better. This role traditionally was assigned to a Speech Pathologist / Speech Therapist, many times assuming that speech therapy is done within the four walls of the clinic. Times have changed and with it ideas too! It can now be emphatically said that the major contact points for the mentally retarded persons - the parents and special educators, can be equally effective, in teaching communication skills to mentally retarded persons. Currently available training programmes for special education teachers include very little information, mostly theoretical on speech and language aspects of mental retardation. There also is a paucity of resource material in this area. Moreover limited number of speech pathologists are available and are mostly confined to major cities. Hence a need for consolidating information from *difficult-to-get* text books becomes important. This manual is an attempt to bring some of the ideas - from the field of speech-language pathology to the special education teachers, in helping mentally retarded persons communicate better. The role of the speech pathologist is mainly viewed as that of a facilitator. The general aim of the manual is to act as a stimulating guide to the special education teachers.

The specific aims of the manual are,

1. To provide special education teachers, the information relating to language and communication problems in mentally retarded children.
2. To help special education teachers synthesize important information, such as language development in normal children in order to build up effective assessment and intervention strategies.
3. To orient them to the strategies of observation in natural settings and eliciting information from parents in order to obtain appropriate baseline data.

4. To help them in designing and implementing a detailed and multi purpose communication intervention programme suitable to the classroom and other environments.

The special education teachers who are the target population for this manual, shall be with one year diploma in mental retardation (DMR) or equivalent. The need for training before using the mannul was evaluated during the process of field testing. The field testing has revealed that there is no significant differece in using the manual by the special educators who had received the training and who had not received the training before using the manual. Hence a prerequisite additional training is not compulsory. However, such a precēding training programme will enhance the use of the manual.

The manual contains in all seven major chapters, which cover topics of basic information, assessment and intervention. Chapter one contains introduction to mental retardation, which could act as refresher topic. Chapters two, three and four have information which is basically required in order to carryout assessment and intervention. The major topics covered are, terminology, speech sound production, and normal language development. Chapter five describes the communication problems of the mentally retarded persons. Chapter Six, on assessment introduces the concept of assessment for intervention. Various areas in which assessment is needed and tips on how to collect the data are discussed in detail, alongwith case examples. Proformae of assesment are also given. Chapter seven, covers intervention for speech, language and communication deficits, emphasizing both verbal and nonverbal modes. It is hoped that these topics stimulate the thought processes of already creative special educators, to incorporate the messages into their daily use. All the chapters contain self tests and key to self tests to enhance learning. The language used in the manual is simple and appropriate figures and pictures are also provided.

Suggestions and comments, if any, are welcome to enhance the usefulness of the manual.



CHAPTER - 1

Mental Retardation

One of the unifying features of our life is the ability to communicate with the people around us. Ability to communicate effectively requires the integration of abilities a person has to understand what, when and how to communicate, skillfully handle different people and environments and the ability to learn from experience. Hence it may not be surprising that children with mental retardation present varying degrees of deficits in communication. It is necessary to provide help to these children in learning to communicate better. In other words understanding communication problems in mentally retarded children requires a thorough understanding of the child and its environment. Understanding the concept of mental retardation, will provide the necessary starting point.

Objectives

The purpose of this chapter is to describe the concept of mental retardation and highlight the major characteristics. The specific aims are,

1. define mental retardation,
2. describe characteristics of mentally retarded persons, the causes of mental retardation and the preventive measures,
3. introduce the topic on communication problems in mentally retarded persons,

Mental Retardation*

Mental Retardation or Mental Handicap refers to a

* A major portion of this chapter is adapted from the NIMH manuals on mental retardation. The manuals are: (1) Mental retardation - A manual for guidance counsellors, (2) Mental Retardation A manual for psychologists. These were developed as a part of the UNICEF funded project on *Development of Training Manuals* completed in 1988. Copies of the manuals are available from NIMH on request.

condition that slows down mental and physical growth. A mentally retarded child is slow or lacking in the development of mental functions when compared to those children of his age level. Therefore a ten year old mentally retarded child may exhibit behaviour like that of a three or four years old child depending on his/her level of retardation.

Very often a mentally retarded person is confused with a mentally ill person

More often than not, a mentally retarded person is confused with a mentally ill person. But they are not the same. Mentally ill people have normal development of physical and mental abilities. It is a disease that can occur at any age even among highly educated people. Mental illness can usually be cured with medical help. Whereas mental retardation is a condition which cannot be cured. But these persons can be helped to learn many skills necessary for living.

Definition of mental retardation

There are many definitions of mental retardation. The most commonly used by all the professionals is the one given by American Association on Mental Retardation (AAMR),

Mental Retardation refers to significantly sub-average general intellectual functioning resulting in or associated with concurrent impairments in adaptive behaviour and manifested during the developmental period (Grossman, 1983)

As can be seen the definition includes essentially three components to call a person as Mentally retarded. They are,

1. Significantly subaverage general intellectual functioning,
2. Deficits/impairment in adaptive behaviour, and
3. Manifested during developmental period

The first component of the definition, significantly subaverage general intellectual functioning means that the individual has an IQ score of less than 70 on one of the individually administered standard intelligence tests.

The second component of the definition points to deficits in adaptive behaviour. Adaptive behaviour is defined as the effectiveness with which a person meets the standards of personal independence and social responsibility expected of his age and cultural group. These reflect in the development of sensory motor skills, communication skills, self help skills, and socialization in early childhood; application of reasoning and judgement in mastery of environment, social skills in childhood, and adolescence; and vocational and social responsibilities in adult life. Any deficiency in these aspects will be considered as a deficit in adaptive behaviour. For instance, if a three year old child with no physical defects does not walk or a 10 year old child does not have toilet control or an 18 year old boy does not identify a five rupee note or a 50 paise coin, it is considered to be a deficit/an impairment in their adaptive behaviour.

The third component of the definition focuses on the onset of the condition - the developmental period, which is considered to be below the age of 18 years.

In short, a person to be diagnosed as mentally retarded, should essentially have his intellectual functioning significantly below average, which results in or is associated with impairments in adaptive behaviour and should have acquired the condition before the age of 18 years.

Classification of Mental Retardation

The objectives of classification are,

1. formation of an acceptable, uniform system throughout the world,

2. helping in diagnostic, therapeutic and research purposes, and
3. facilitating efforts for prevention.

There are different methods of classification of mental retardation. They are medical, psychological and educational as given in table-1. The medical classification is based on the cause, the psychological classification is on the level of intelligence and the educational classification on the current level of functioning of the mentally retarded person/child.

The common methods of classification are medical, psychological and educational

Table-1
CLASSIFICATION OF MENTAL RETARDATION

Medical	Psychological	Educational
Mental retardation due to		
1. Infections and intoxications	1. Mild, IQ between 50-69	1. Educable
2. Trauma or physical agent	2. Moderate, IQ between 35-49	2. Trainable
3. Metabolism or nutrition	3. Severe, IQ between 20-34	3. Custodial
4. Gross brain disease (post natal)	4. Profound, IQ below 20	
5. Unknown prenatal influence		
6. Chromosomal abnormality		
7. Gestational disorder		
8. Psychiatric disorder		
9. Environmental influence		
10. Other influences		

Various classifications provide an understanding of the level at which mentally retarded persons function with respect to his condition, education, appropriate behaviour and degree of independence. The characteristics of the mentally retarded persons vary depending upon the level of retardation. The terms currently used to describe the various degrees of mental retardation are mild, moderate, severe and profound (from psychological classification).

Ideally, classification and labels are used only for administrative purposes such as availing of social benefits like travel concessions, maintenance allowance, job reservation and so on.

Ideally, classification and labels should be used for administrative purposes

For an educator the focus should be on the current level of functioning of the child which would help the educator to further develop programme for training the child towards social competence to be as independent as possible in the society.

Characteristics of persons with mental retardation

Describing the characteristics of a person with mental retardation is difficult because all the retarded individuals do not have the same characteristics and no single child has all the characteristics also. However, it is important that a teacher is aware of the various characteristics so that she can plan her educational programming accordingly.

Physical characteristics

1. Generally they have a *marked delay in their developmental milestones* when compared to normal children, such as their sitting, standing, walking, talking and so on. Mildly retarded children usually have their physical characteristics close to their normal peers. Some of the

moderately retarded and severely retarded ones may have clumsy gait and poor motor coordination. The profoundly retarded individuals usually have associated physical handicaps and many a time, they are non-ambulatory.

The profoundly retarded individuals usually have associated physical handicaps

2. The physical characteristics also depend on the causes and the clinical features of the individual. For instance, the one with microcephaly has a very small head with receding chin and forehead, while the one with hydrocephalus has a very large head. A child with Down syndrome has very distinct features such as slanting eyes, flat nose bridge, flabby skin, little finger turned inwards, wide gap between big toe and the next toe and fissured tongue. Those with mental retardation with cerebral palsy will have spasticity or stiffness of the limb or limbs and may have drooling of saliva.
3. A small number of mentally retarded persons have dual or multiple handicap such as impairment in visual, hearing or motor abilities.

Social characteristics

The social characteristics are prominent in a retarded child. This is so, because of the discrepancy between his abilities and the expectation of the society from him. Some of these characteristics are as follows:

1. One commonly found characteristic among mentally retarded children *is short attention, and lack of concentration*. They may switch from one activity to another without completing any one of them.
2. There are also those retarded persons who are lethargic, do not get motivated to do any task

or continue to do the same task or have *difficulty in switching from one activity to another.*

3. Some of them *exhibit problematic behaviours which are either self injurious or harmful to others.* Self injurious behaviour includes hand biting, pulling own hair, nail biting, eye poking, beating on the face, banging head on the wall or floor and so on. Those that are destructive or harm others are, beating and pinching others, throwing things, tearing clothes, and breaking articles. Other problematic behaviours include running away from home, stealing and so on. Most of such behaviours can be controlled by systematic intervention.

Most problematic behaviours in MR children can be controlled by systematic intervention

4. There are some retarded persons who are *indifferent to their surroundings* and do not respond when communicated with, though they may not have hearing problems. Irrelevant laughing or talking is also found with some retarded persons.
5. While the mild and some of the moderately retarded ones can perform regular jobs they are trained in, *their problem solving ability will be poor* and are found incompetent in taking decisions independently. Even if their work skills are good, many tend to lose their jobs due to poor social competence.

Speech and language characteristics

Delay in Speech and language development is an important characteristic of mental retardation. About 80% of the mentally retarded persons have problems in speech, language and communication. The range of communication problems include - problems in

understanding others speech , difficulty in speaking, and no speech at all. Some of the common characteristics are listed below.

1. About 40% of the mentally retarded children are *non-verbal* that is they do not speak. Some of them use few words and gestures for basic communication.
2. Mentally retarded children have *limited knowledge* of the objects, persons and actions in the environment leading to restricted language capacity.
3. Mentally retarded children may show *difficulty in understanding* others speech except for daily routine commands. They generally fail to understand indirect questions, stories, jokes, sarcasms etc.
4. Some mentally retarded children use words separately but are *unable to combine them to form sentences*. They may use simple sentences which may sound like telegraphic messages.
5. When mentally retarded children speak, *clarity or intelligibility is affected* many times due to articulation defects. This makes understanding of their speech difficult.
6. Some mentally retarded children *echo other's speech utterances* (echolalia) in part or completely.
7. Some of them speak in sentences but the *sentences may be gramatically poor*, used in inappropriate situations and may sound stereotyped.
8. Many of the Mentally retarded children *fail to ask questions*, face difficulties in starting and ending a conversation.

Majority (more than 80%) of MR children present problems in speech, language & communication

Mentally retarded children have problems in understanding other's speech.

9. Most of the mentally retarded children although can hear normally are considered to be *poor listeners*. Some children show problem in hearing also. The ear infections are common in Down's Syndrome Children.

It is essential for the teachers to keep in mind the characteristics of every child she deals with, because she is required to plan teaching programme based on the child's around profile.

Prevalence of Mental Retardation

Approximately 2% of the population is considered to be mentally retarded. There has not been a prevalence study in the country except for a few sample surveys. It is difficult to estimate the number of mentally retarded persons as they are not readily recognizable.

Approximately 2% of the population is considered mentally retarded

Causes and Prevention

There are various factors that lead to mental retardation.

These causes can be preconceptional, prenatal, natal and post natal factors. The major factors are mentioned below:

Preconceptional factors

These include factors before a woman conceives. Some of the preconceptional factors are history of mental retardation in the family of either the husband or the wife, maternal age at conception and history of infertility or repeated abortions.

Maternal age of conception should preferably be between 20 and 30 years

Prenatal factors

Factors affecting during pregnancy are called prenatal factors. This includes infections in the mother such as jaundice, chicken pox and measles especially in the first three months of pregnancy; injury to the abdomen of the mother due to accidents; X-ray exposure of the abdomen especially in the early months, drug intake without medical advice, attempted abortion; mother getting fits during pregnancy and Rh blood incompatibility and so on. Rh blood incompatibility is a result of maternal and foetal blood being different from each other as mother being Rh negative and the child Rh positive. Pregnant women consuming alcohol and tobacco is harmful to the growing foetus during pregnancy. Chromosomal aberrations also cause mental retardation. At conception an extra chromosome may be formed resulting in Down's syndrome. Maternal malnutrition is reported to be one of the causes for the birth of a retarded child.

Drug intake without medical advice is dangerous during pregnancy

Natal causes

Natal causes are those factors that affect the child during birth. This would include premature delivery, prolonged labour, when the oxygen supply to the child's brain may be insufficient thus damaging the brain, abnormal presentation of the baby at delivery, too small sized pelvis of the mother to allow easy birth of the baby, inappropriate use of forceps or improperly attended delivery by untrained persons and delayed birth cry of the baby.

Delayed birth cry may result in brain damage

Post natal causes

The post natal causes or the factors affecting after the birth of the child leading to mental retardation are many. These include low birth weight, metabolic

disorders, brain fever or meningitis, encephalitis, epileptic fits, measles, chicken pox, head injury, poor nutrition and jaundice in infancy and childhood.

Prevention

The primary steps towards prevention of mental retardation is to have regular medical check up during pregnancy, intake of healthy and nutritious food, being careful to avoid contact with people who have infections such as measles and chicken pox and avoiding physical trauma or accidents such as carrying heavy weights or reaching for objects which are at a height. If the parents choose to have an abortion it should be conducted by medical personnel. If the elder child is retarded, it is better to get medical advice before having another child. It is advisable to restrict the maternal age of conception between 20 and 30 years.

Regular immunization is a good preventive measure atleast in some cases

The delivery should be attended by trained persons and ideally, conducted in the hospitals where facilities are available in case of emergency. The mother should make it a point to have the delivery in a hospital especially if her previous child is already mentally retarded due to birth trauma.

After the birth, the child should be duly immunized against tuberculosis, poliomyelitis, diphtheria, whooping cough and tetanus. Care must be taken to see that the child does not develop high fever leading to loss of consciousness. Prompt medical attention should be given to keep the temperature reduced. Epileptic fits should be attended by doctors immediately and the medicines prescribed should be given regularly. If there is a delay in the development of the child such as sitting, standing, walking or talking, immediate professional attention should be sought.

Associated problems

Some mentally retarded individuals may have associated handicaps. In such a case, he is called multiple handicapped. An individual with more than one of the four handicaps, namely, physical, hearing, visual and mental is classified under multiple handicap. Such children grow, learn, and develop much more slowly than any other group of children with single handicap. They need intensive training to perform even the most basic skills necessary for survival.

Cerebral palsy with mental retardation is one of the commonest forms of multiple handicap. Cerebral palsy is a condition characterised predominantly by motor disturbances and incoordination of movements of various degrees of severity. Multiple handicap individuals constitute a heterogenous group. The differences among these individuals are greater than their similarities.

Cerebral palsy with mental retardation is one of the commonest forms of multiple handicap



SUMMARY

1. The AAMR definition of mental retardation gives the components of mental retardation as significantly subaverage intelligence, impairments in the adaptive behaviour and manifestation before the age of 18 years. i.e. in simple words mentally retarded people are low in intelligence and cannot fully adapt themselves to a given situation.
2. The medical, psychological and educational classification of mental retardation are based on the cause, intellectual level and current level of functioning respectively.
3. Apart from the social and behaviour problems some of the mentally retarded persons have physical problems also.
4. About 80% of the mentally retarded persons have some form of communication problem. The range of communication problems are varied.
5. The prevalence of mental retardation in India is estimated to be 2% of the population.
6. There are a number of causes for mental retardation which can be grouped into preconceptional, prenatal, natal and post natal.
7. Some of the mentally retarded persons have associated handicaps, namely, visual, hearing, physical or medical problems such as epilepsy, hyperkinesia, nutritional disorder or psychiatric disturbances.



SELF TEST - 1

I. Answer the following Questions appropriately :

1. The components of AAMR definition of MR are
 - a. _____
 - b. _____
 - c. _____
2. Most widely used classification is _____ classification.
3. Match the following
 1. Severe
 2. Mild
 3. Moderate
 4. Profound
 - a. IQ 50-69
 - b. IQ 35-49
 - c. IQ Below 20
 - d. IQ 20-34
4. The features of mental retardation include all of the following except
 - a. slow reaction
 - b. suicidal tendency
 - c. difficulty in understanding
 - d. unintelligible speech
5. All of the following can cause mental retardation except
 - a. Brain fever in the child
 - b. Black magic and/or Karma
 - c. Difficult delivery
 - d. Poor nutrition during pregnancy
6. The common problems of a mentally retarded child in communication are -(write any four)
 - a. _____
 - b. _____
 - c. _____
 - d. _____

II. Study the following statements carefully. Specify whether they are *true* or *false*:

7. Medicines cannot cure mental retardation . True/False
8. Mental retardation and mental illness are same. True/False
9. Mentally retarded children do not have problems in communication. True/False

KEY TO SELF TEST - 1

1. a : *Significantly sub-average general intellectual functioning*
b : *Deficits/impairments in adaptive behaviour*
c : *Manifestation during developmental period.*
2. *Psychological*
3. *1-d, 2-a, 3-b, 4-c.*
4. *b : It is a feature of mental illness.*
5. *b*
6. a) *Difficulty in understanding other's speech.*
b) *Unable to combine words into sentences*
c) *Poor listening skill*
d) *40% of the do not speak.* } *any four problems can be given*
7. *True*
8. *False. See text for explanation.*
9. *False. 80% of them do have problems in communicating.*



CHAPTER-2

Basic Terms and Concepts

All sciences have their own terms and concepts. Which enables the professionals to exchange ideas more efficiently and quickly. Similarly, in further reading of the manual, understanding of certain basic terms and concepts is necessary.

Objectives

The objectives of this chapter are to,

1. explain the concept of communication and its functions,
2. explain the concept of language and its various components,
3. compare the terms such as speech vs language, normal vs abnormal speech, verbal vs non-verbal communication, listening vs hearing, etc.,
4. describe other important terms such as assessment, intervention, semantic intention, pre-requisites, etc.

Communication

When an infant cries, mother picks her up. The child calls the teacher and teacher attends to the child. A mentally retarded child tugs the teacher's dress to get attention. The act common to all these situations is communication. Every living being communicates.

Communication is essential for every living being

Example: Dogs communicate through tail movements, scent, barkings etc.

Human beings communicate to share ideas, feelings, desires, emotions and for sheer pleasure. We observe and take part in several communicative interactions everyday. It serves to maintain relationships amongst us. We all are either giving or receiving information throughout the day.

Generally, communication is an active and intentional process. The speaker intentionally transmits information (message) and the listener intentionally receives it and subsequently they may exchange their roles. It is also possible to communicate without intending to do so.

Eg: Displeasure, which we want to hide, gets expressed through eyes, body postures, tone etc.

The message can be transmitted in different modes. Rather, we use every possible sensory modality in communication. Figure 1 illustrates the modes of communication.

Communication is mainly an active and intentional two way process of exchange of messages

Examples of communication modes using Hearing

Speaking, siren, alarms, morse code, telephone etc.

Examples of communication modes using seeing

Reading, Writing, gestures, facial expression, body postures, telegrams etc.

Television, dance, drama, movie

Examples of communication modes using the senses of touch and smell

Shakinghands, kiss, hugging, punching, slapping, Smell of burning

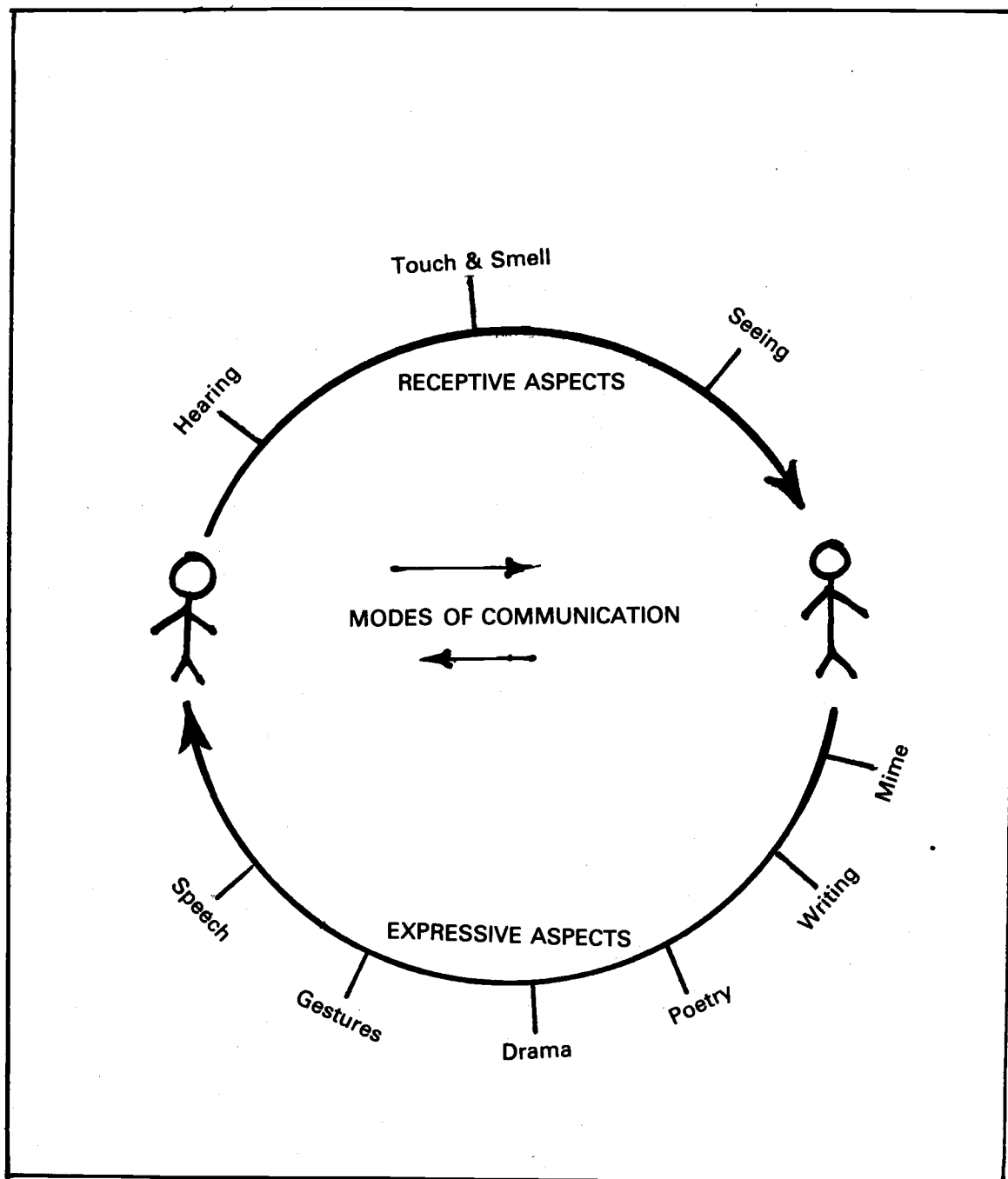


Fig.2.1 Modes of Communication

We can communicate in many ways. Whatever may be the mode we do not communicate for no reason, as even an idle talk has a purpose to kill time. People communicate for different reasons. These are known as *functions of communication*.

Functions of communication

We communicate to satisfy our needs which keep on changing from time to time. We not only satisfy our needs, we get information, we interact with people and so on. These functions which are used in every day communication situations are arranged in table-1.

These functions are used in every day communication situations. As discussed so far, during a communication act, exchange of information occurs. This exchange of information is not possible without a tool which should be common to both speaker and listener. Man invented language for this purpose. Language is common to a given group of individuals and a given society. Language makes communication more easy. Language is discussed in the next section.

Table-1
FUNCTIONS OF COMMUNICATION AND LANGUAGE

Communication Functions	Meaning	Examples
1. Instrumental	To satisfy one's needs	<i>I want water</i>
2. Regulatory	To control other's behaviour, persuade, convince, correct, criticize, threaten, demand others, etc.	<i>Do not lie</i>
3. Interaction	To greet, express various social routines and to mix with other fellows	<i>Good morning, Thank you, etc.</i>
4. Personal	To be aware of one's self and to regulate one's own behaviour	<i>I shouldn't do that way</i>
5. Heuristic	To seek information, concept formation relating to development of ideas and knowledge	<i>Who is our new P.M.?</i>
6. Imaginative	To involve in imagination fantasy, artistic use of language, to comment or think about language	<i>You smile like a flower</i>
7. Informative	To convey information, protest, anger, madness, hurt, etc.	<i>Speech & language are different</i>


Language

Language is the main vehicle for communication. Language is a set of arbitrary symbols (mainly conventional) used by a group of people for the purpose of communication. Understanding of language requires the explanation of terms *symbol* and *arbitrary* which are given below.

Symbol : Symbol is a code that stands for or represents an object, an action or a person. Examples of symbols are words and hand gestures. Symbols are arranged in an order making use of a set of rules. These rules are shared by the community and are arbitrary.

Language is a system of symbols shared by a group of people

Arbitrary : The symbols of language are arbitrary, ie., there is no inherent one to one relationship between the particular spoken, written or signed word and the corresponding object, idea or class of objects it symbolizes.

Eg: Symbol	Object
Apple	

As language is the main vehicle for communication, language essentially has same functions as that of communication (refer table-I). Just like communication which has different modes, the language has different parts. These parts deal with what to say(Content) , when to say (use), and how to say a word or a sentence(form). These parts are called as components of language. We will be able to communicate efficiently by making use of these components. (Figures 2.2 and 2.3 show the major components of language).

Form - deals with the structure of language - how to form words and sentences grammatically.

Content - deals with the meaning part of language - What to say or the content of the message.

Use - deals with the usage of language - where, when, with whom and for what purpose language is used.

Example: In the statement - *I am Mukesh.* form is 'pronoun + Verb + Noun', content is conveying one's name; and use is fulfilling the purpose of introduction.

As can be observed in fig.2.2 and 2.3; the major components are further sub-divided. Each of these terms are explained briefly for a more clearer understanding of *Language*.

Phonology

Phonology studies the range of speech sounds a native speaker uses while speaking and how they are produced. In addition it also studies the rules that are used while combining speech sounds. Although some speech sounds are common across languages, different languages have different number of speech sounds.

Phonology studies the range and rules for using speech sounds in a language

Example: English language has 43 speech sounds.
Telugu language has 47 speech sounds.

Speech sounds can be further sub-divided depending on their nature and production as consonants and vowels (Chapter 3 deals with speech sound production in detail).

Morphology

Morphology deals with the rules for combining speech sounds to form words, i.e., it is concerned with internal structure of words. It studies the rules governing creation of words from roots, prefixes, suffixes, etc.

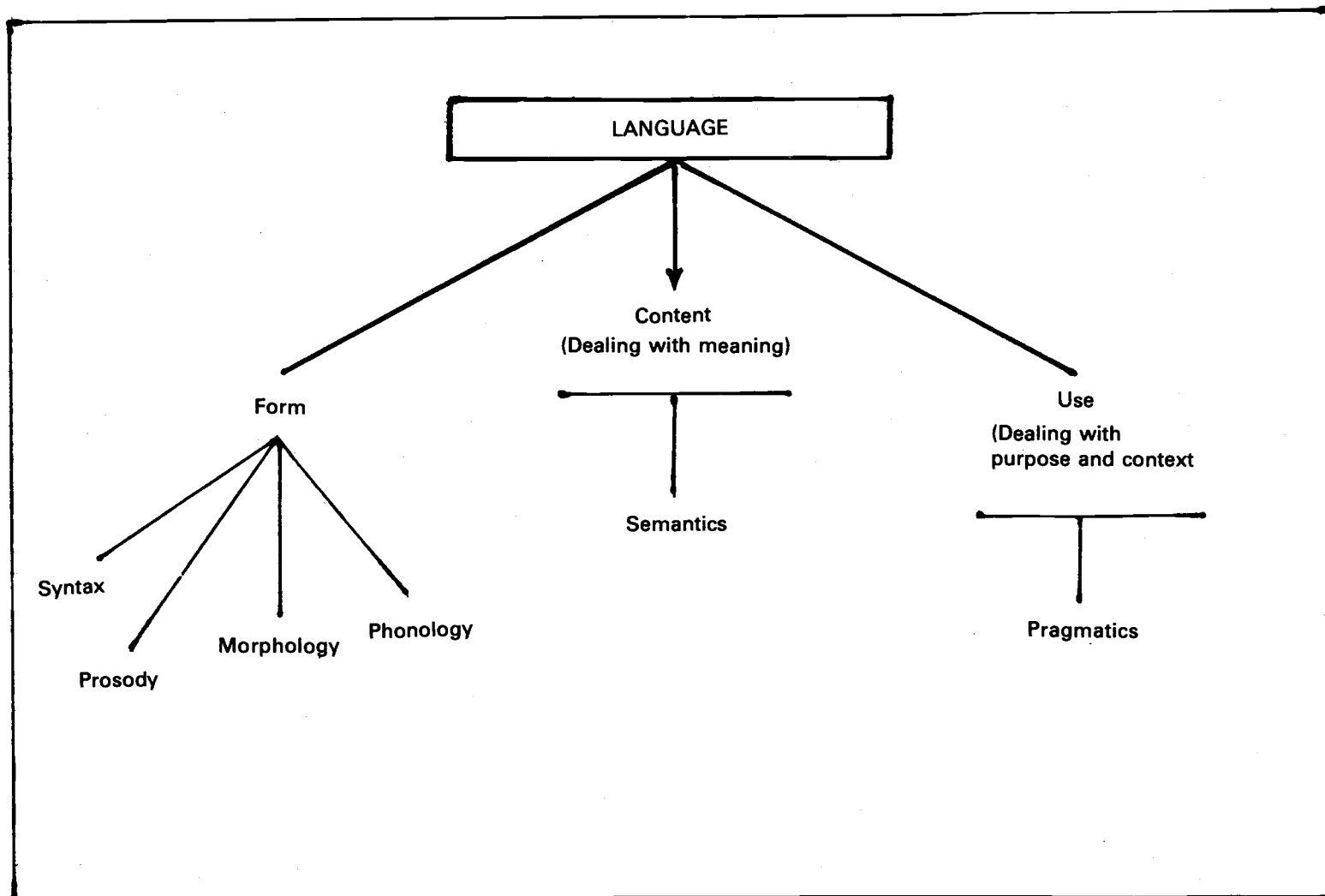


Fig.2.2. Components of Language

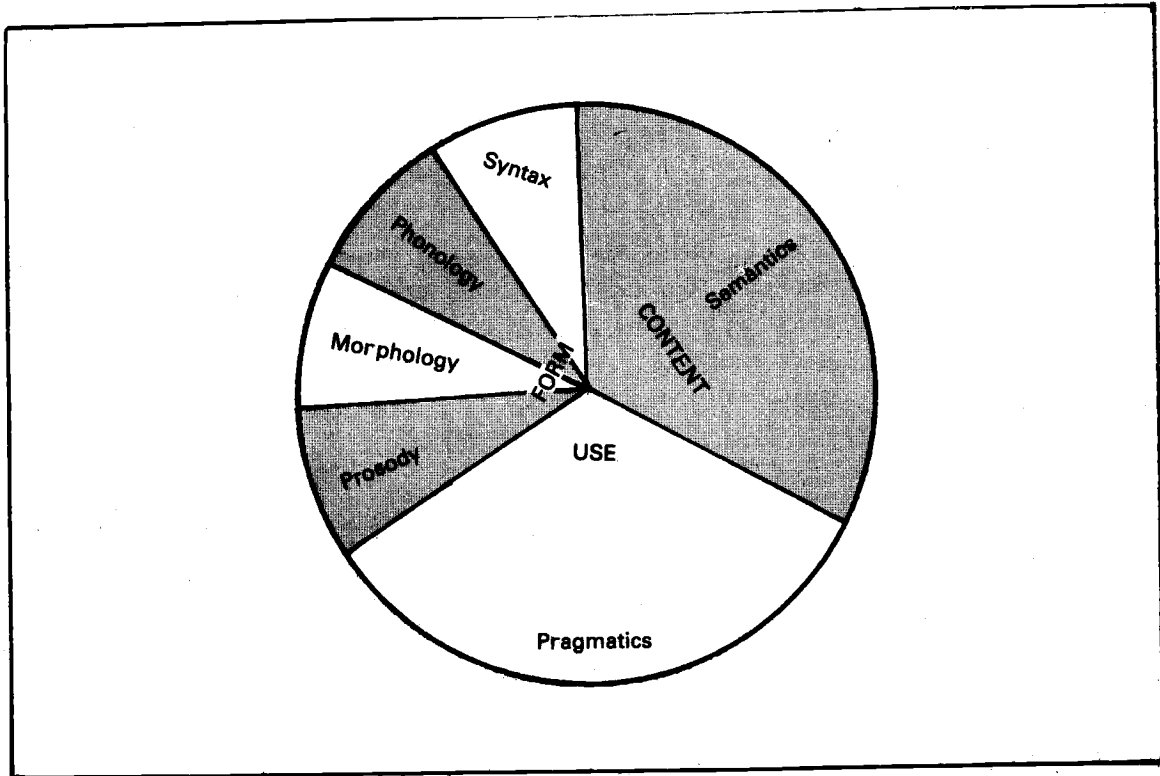


Fig.2.3. Components of Language

Example: *Pstklr* is not a word in English language
Kapaka is not a word in Telugu language,
 as these combination of speech sounds
 is not meaningful.

***Morphology - Rules for
 combining speech
 sounds to form
 meaningful words***

Morphemes like chair, table, boy, etc. can be used independently. Morphemes like un__, __ful, __ness (in English) are not meaningful on their own, but when attached to words they become meaningful, (eg. unlike, useful). These part words like un__, __ful, etc., are known as grammatical morphemes.

Syntax

Syntax refers to the grammatical aspects of a language. It deals with word order, inflections and relationships between words. Syntax describes the rules that speakers use in forming and in understanding sentences. Syntactic rules specify which strings of words are acceptable and which are not. Without syntactic organisation, language would be an incoherent jumble of words. For example, *Dog is a faithful animal* is a syntactically acceptable sentence. Whereas *Animal dog a is faithful* is not an acceptable sentence. Another aspect of form component is *prosody*, which studies the impact of speech melody, i.e., tone, rhythm, stress, etc., on the words of a sentence. These are further described under suprasegmental features.

Syntax - Rules for combining words to make sentences

Semantics

It is the study of language meaning and how it is acquired. The semantic component of language includes meanings as well as rules for linking meaning with words and word sequences (phrases and sentences). Semantics is particularly concerned with the relationships between language and knowledge of the real world of objects and events. The most important point to remember about language meaning is that words do not represent things, they represent ideas about things. For example, the word *dog* in a language refers to a domestic four legged barking animal. It is possible to have a grammatically correct sentence which semantically may not be acceptable, for example, / *eat sky*.

Semantics - Relationship of symbols to objects and events (meaning)

Pragmatics

Pragmatics deals with the language from the point

of view of users. It deals with the set of rules that determine who says what to whom in which circumstances, i.e., pragmatics deals with the study of use of language. For example, a request for water is carried out differently at home as compared to a hotel. Different sets of words and styles are used.

Pragmatics - Rules for using language in a social context with a purpose

Some of the pragmatic rules that govern a social interaction include preparing for and maintaining conversation, correcting errors made, giving and taking information, opening and closing a conversation, changing topics, turn taking, understanding the listener and the context, etc.

Speech

Speech is the most efficient and frequently used mode of language expression. Speech is a set of verbal codes, the commonest codes are spoken words. Words are combined in specific ways to convey meaning. Speech is produced with the help of speech mechanism structures like tongue, jaw, lips, etc. in a complex coordination with the nervous system. Speech based on the language is useful. Otherwise it may sound meaningless.

Speech is language dependent, without language speech would be meaningless

As can be seen in Figure 2.4 the three major aspects communication, language and speech are inter related. Communication is much more than using language and speech. Language involves more than speech and speech without language is not meaningful.

Normal and Abnormal Speech and language

Speech and language of a person are accepted as normal, if they resemble the speech and language of a majority of the people of same age, sex,

culture, socio-economic and educational level. The speech and language are abnormal when these criteria are not met.

Speech and language of a person can be considered abnormal when they are very different from the speech and language of other people, so that they attract attention (unpleasant) and interfere with communication (difficult to understand).

Non-verbal communication

Communication involving speech is called verbal communication. Communication involving modes other than speech are considered as non-verbal communication modes. An example of a well developed non-verbal communication is *American Sign Language*.

Humans do not communicate by words alone. Large portions of messages involving feelings are carried by body language like, our dress, facial expressions, eye gaze and hand gestures etc. Gestures may occur alone or along with speech. But usually a series of facial movements accompany and supplement speech. Sometimes particular non-verbal methods may be developed to supplement or augment the speech communication.

Non-verbal communication methods facilitate verbal or speech communication in normally speaking persons

Phonation

The process of vocal tone production is called phonation. In phonation, the major organs involved are two membrane like structures in the voice box (Larynx) called as vocal folds. When these vocal folds move across the air way they meet in the centre and block the outgoing air and move away under pressure resulting in alternative opening and closing of the air way. This disturbance of air

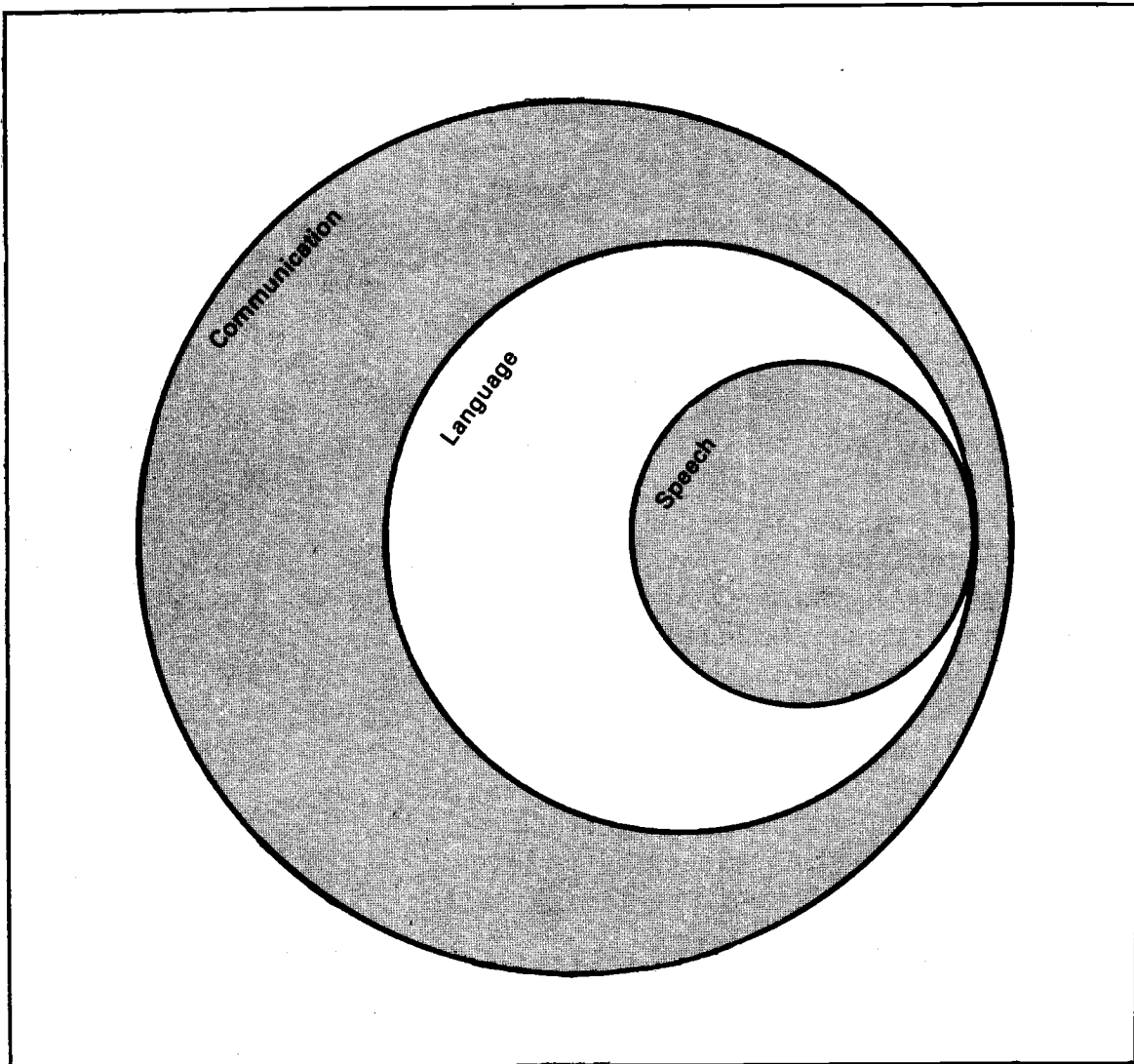


Fig.2.4. Relationship between language, speech and communication

column and movement of vocal folds causes voice. This process of producing hum or buzz from the vibration of vocal folds is called as phonation or voicing.

Articulation

The process of production of speech sounds is called articulation. This involves incredibly fast obstruction or diversion of the air stream and vocal tone by the tongue, lips and jaws. The resultant sounds can be grouped into two major categories, namely, vowels and consonants. All the speech sounds are described as where and how the air stream is obstructed by the structures in the vocal tract.

During speech, sounds are not produced separately but in chains to form words

Suprasegmental features

Suprasegmental features are features like tone, rhythm, stress, intonation, etc., which act upon the words and sentences making our speech more colourful. With the help of these features sometimes we can change the meaning of the sentence. Without these features the sentences would be monotonous and lack variety. Features like stress and intonation decide whether a sentence is a question, request or a statement. Shifting the intonation can change the meaning of a sentence. They also reflect the attitude and the emotions of the speaker.

Fluency

Fluency refers to speech flow or the ease with which words and sentences emerge from a speaker. The characteristics that determine speech flow are the continuity, rate and timing. When these aspects are not appropriately used speech fluency gets affected

resulting in broken continuity, high rate of speech or inappropriate timing. Some of these features are part of all our speech. Children during their language development go through a stage known as normal non-fluency around the age of 3-4 years.

Hearing

Hearing is the reception of sound by the ear and its transmission of message to the central nervous system. Hearing keeps people in touch with their surroundings which is the major route through which we learn language. Hearing also cautions us against dangers. Beginning from birth throughout life hearing helps us in constantly monitoring our environment.

Hearing is a physiological activity carried out by the ear

Hearing impairment deprives the child of essential verbal stimulation necessary for language development. The amount of hearing loss that would hardly be considered problematic to a child of a normal intelligence may be a quite serious problem for a mentally handicapped child. Majority of Down's syndrome children have some amount of hearing loss and ear infections.

Listening

Hearing and listening are not one and the same processes. Listening is attending to the sounds heard with the object of interpreting their meaning. The Process involved in listening is mainly psychological. Whereas in hearing, the process involved is mainly physiological.

Listening is hearing with the purpose of interpreting meaning

Pre-requisites for speech & language development

Children from their birth, till adult life develop speech and language in an orderly and systematic

process. This speech and language acquisition moves from early reflexive crying to using well formed sentences. This process of acquisition is not an easy task, and for this, a child needs to possess some essential skills and structures which are called as pre-requisites. Both nature (biological) and nurture (environmental) factors are involved in this process. The four groups of pre-requisite factors are (i) biological, (ii) Processing (cognitive), (iii) social, (iv) linguistic bases.

Both biological and environmental factors are important for development of speech and language

Receptive language

Receptive language refers to understanding of spoken or written words and sentences, i.e., the words and the meaning intended are linked by the person on hearing or seeing. The most common modes are listening and reading.

Expressive language

It is the process of using either spoken or written or signs to indicate various meanings and needs to the listeners. The most common modes of expression are speech and writing.

Ideomorphs

Ideomorphs or the child made words are consistent sound patterns that are unique to the child. Some ideomorphs are the extensions of earlier jargon like utterances of the child. Example of an ideomorph is *dudu* or *lala* for milk. These ideomorphs precede acquisition of adult like first words.

Semantic intentions

Ideomorphs and words are used by children for intending several meanings like request, rejection,

etc. The child may use the same word to mean different things in different situations. Such different meanings intended by the child are referred to as semantic intentions. Gradually the child learns to express more and more intentions as language development progresses.

Children use same words to intend different things/ meanings in different situations

Assessment

The communication and language assessment is a systematic approach to measure and evaluate a child's skills, capabilities and limitations in communication. This may be often achieved by tests of various kinds while in other cases careful recording and observation of general and more specific skills may be more appropriate. Ideally, however, test data backed up by first hand observation should produce a more balanced picture. Assessment is done to help us in selection of various teaching strategies and activities for intervention and also helps in knowing possible outcomes of intervention. Assessment is an ongoing process and continues even during intervention.

Systematic observation is an useful assessment tool

Intervention

It is an intentional attempt to make the individual to improve the existing communicative behaviours and to facilitate the development of new communicative behaviours.

Information from the assessment and normal speech and language development contributes in designing and executing an intervention program.



SUMMARY

This chapter discussed various terms and concepts which may help to understand the manual efficiently. The major terms and concepts covered are communication, language, speech, hearing and terms related to understanding normal language development, assessment of speech and language and intervention. The descriptions of other terms will appear in the manual as and when they occur.



SELF TEST - 2

I. State whether the following statements are *true or false*

1. Generally, communication is an active and intentional process. True/False
2. Speech is the most efficient expression of language True/False
3. Hearing is mainly a psychological process. True/False
4. Communication involving modes other than speech are considered as verbal communication. True/False
5. Intervention is an intentional attempt to facilitate the development of new communication behaviours and appropriate use of existing communication behaviours. True/False

II. Choose the best answer

1. Language has the following components
 - a) Form, pragmatics, and use
 - b) Phonology, Morphology, Syntax and Use
 - c) Form, content and use
 - d) None of the above
2. American Sign Language is an example for
 - a) Verbal communication system
 - b) A combination of verbal and non-verbal communication system
 - c) Non-verbal communication system
 - d) None of the above.
3. Speech and language of a person are normal if they resemble speech and language of persons
 - a) - of same age and sex group
 - b) - of same culture group
 - c) - of socio-economic and educational level
 - d) - of same age, sex, culture, socio-economic and educational level.
4. Assessment is done to
 - a) know child's strengths and weaknesses
 - b) select various teaching strategies and activities for intervention
 - c) select goals of intervention
 - d) know possible outcome of intervention
 - e) all of the above.

III. Match the following

- | | |
|---|--|
| a) Few functions of communication | i) Rules for using language in a social context with a purpose |
| b) Suprasegmental features | ii) Continuity rate and timing of speech |
| c) Factors which decide fluency of speech | iii) Rhythm, intonation, stress, pause time, etc |
| d) Pragmatics | iv) Instrumental, regulatory, interaction, etc |

IV. Fill in the blanks with appropriate words and phrases

1. The way of air stream interruption in the mouth while producing consonant sounds is known as _____ .
2. Phonation is the process of _____ production during speech.
3. Listening is attending to sounds with _____ and it is mainly a _____ process.
4. Pre-requisites of communication are classified into four groups namely, _____ , _____ , _____ and _____ .
5. Ideomorphs are _____ .



KEY TO SELF TEST - 2

I.

1. *True*
2. *True*
3. *False. Hearing is mainly physiological process whereas listening is a psychological process.*
4. *False. Communication involving modes other than speech are non-verbal communication. Verbal means speech.*
5. *True*

II.

1. *c - Namely form, content and use. These can be further sub-divided.*
2. *c*
3. *d - Refer to the explanation in the text.*
4. *e - Refer to the text.*

III.

- a - iv
- b - iii
- c - ii
- d - i

IV.

1. *manner of production*
2. *vocal tone*
3. *a purpose of interpreting meaning; Psychological*
4. *biological pre-requisites, cognitive skills, social basis and linguistic bases.*
5. *child made words*



CHAPTER -3

Speech Sound Production

Majority of complaints parents make regarding the speech of mentally retarded children relate to unclear speech. What normally parents refer to is the child's difficulty in producing speech sounds correctly. This may be due to the person's inability to produce sounds correctly in all the situations or the person may not have acquired the speech sound at all. Before one attempts to help such children it is essential to know how normal persons produce various speech sounds and by what age range normal children acquire the ability to produce these different speech sounds. This information could be used to assess and plan for helping mentally retarded children to improve their speech sound production. In other words, provide *articulation therapy*.

Unclear speech among mentally retarded children is a common complaint

Objectives

The objectives of the chapter are to help the reader to,

1. understand that speech sound production is not the job of speech mechanism alone,
2. identify the places and the manners in which different speech sounds are produced,
3. understand by what age normally children acquire different speech sounds,
4. appreciate the difference in producing speech sounds separately and while speaking in words and sentences.

Organs involved in speech production

Every day we speak, still we may be unaware of the fact that speech is one of the most complex tasks

that our brain performs. Speech production is complex, because it needs coordination between several systems (respiratory, phonatory, resonatory and articulatory systems), (figure - 3.1 shows the various systems involved) between large number of muscles and among several millions of nerve fibers. The organs which are used for producing speech sounds, for example., tongue, throat, etc., are mainly meant for performing certain primary life sustaining activities, such as breathing, eating and so on. The work of these organs or systems is modified and used for producing speech, that is why speech is called as *secondary function* in humans. A list of main systems and their work in speech production has been summarized in table-I.

Most of us are not aware of the complexity of speech we so easily use

Speech is a secondary function in humans

All the above mentioned systems are controlled by the brain and the nervous system. The speech sounds produced are determined by the particular language environment of the child. Figure 3.2 shows the parts of articulatory and resonatory system. Readers may notice important parts and compare with table-I. The working of these structures in speech production is detailed in the following sections.

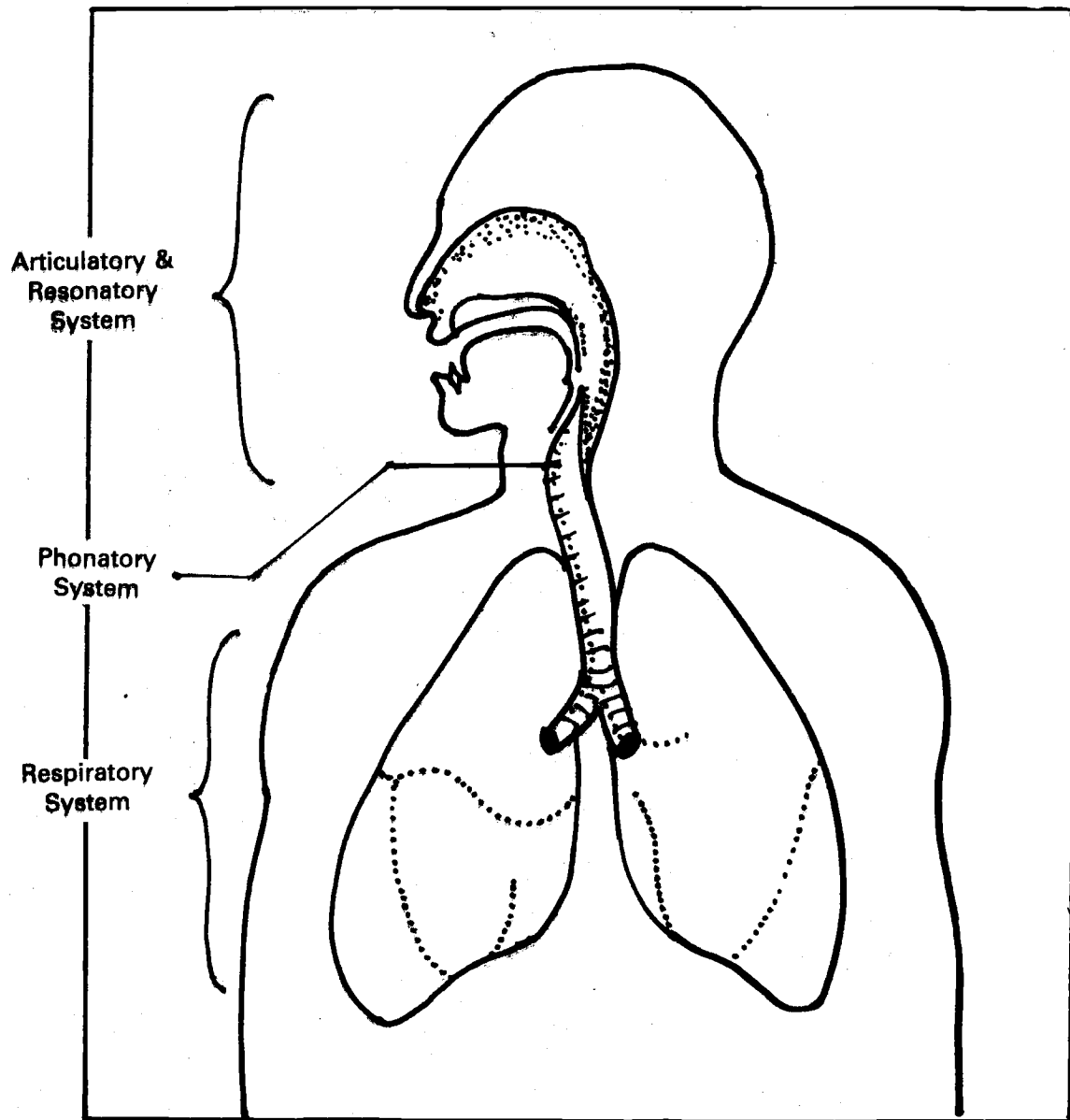


Fig.3.1. Systems involved in speech production

Table-I
VARIOUS SYSTEMS AND ORGANS INVOLVED
IN SPEECH PRODUCTION AND THEIR BASIC PRIMARY FUNCTIONS

System	Main organs	Basic work (Primary functions)	Work in speech (Secondary functions)
1. Respiratory system	Lungs, Bronchi, Trachea	Breathing	Provides the source of air for voice production and other functions
2. Phonatory system	Larynx (vocal folds)	Prevents food from entering into air passage; Creates air pressure for lifting heavy objects, pushing, defecation, etc.	Creates vibration of vocal folds using air flow producing voice
3. Resonatory system	Mouth, Nose, Throat (Pharynx)	Eating Breathing	Provides individual characteristics of speech sounds and the voice
4. Articulatory system	Teeth, Lips Tongue Hard palate, Soft palate (velum)	Chewing Swallowing Sucking	Produces speech sounds-consonants, vowels and their combinations

During the production of speech sounds the speaker performs a series of complex tasks within the brain before the sound comes out of the mouth. These tasks can be sequenced as follows. A person needs to decide something to say; select suitable words to express the idea; (semantic component of language) arrange the words in an order; (syntactic component of language) decide how these words and sentences should be said in a particular situation (pragmatic component of language). Once these tasks are completed the brain orders the muscles of organs of speech production to move. Now speech sounds

are produced and heard (phonology component of language). While producing speech we rely on the information that we listen back which is transmitted to the brain again. This is called as feed back mechanism. The feed back can be *auditory, visual, tactile, kinesthetic* and *proprioceptive*. *Auditory feed back* refers to feed back through the ear and hearing mode. *Visual feedback* is seeing and obtaining information. *Tactile* refers to sensation received by the various articulators touching each other, *kinesthetic* is the sensation of the movement of articulators and *proprioceptive* refers to speed and sensation of movement of articulators. Depending upon the information obtained through these feed back methods in the brain, it will be judged whether any corrections are needed. Figure 3.3 shows the speech production control (feedback) system.

A person needs to perform a series of activities in the brain before producing speech

If the steps of speech sound productions are examined, it will be clearer that the production by mouth is one of the last activities. The major task is selecting *what to say* using these speech sounds. Hence many processes other than speech mechanism are involved in speech production.

The process of speech production

The speech production in humans can be compared with the production of musical tones on a violin. The sound is generated by rubbing a bow on the strings. Sound produced in such a way is boosted in strength by resonance caused by wooden box below the strings. The variety and quality of the tones produced depend on the thickness and vibrating length of the strings and other factors. Similarly, in human being *sound* is generated by vibration of vocal folds which are driven by the air coming from the lungs when we breathe out. This sound is called as *voice*. This voice when it comes out is modified

Speech production in humans can be compared to production of musical tones on a violin

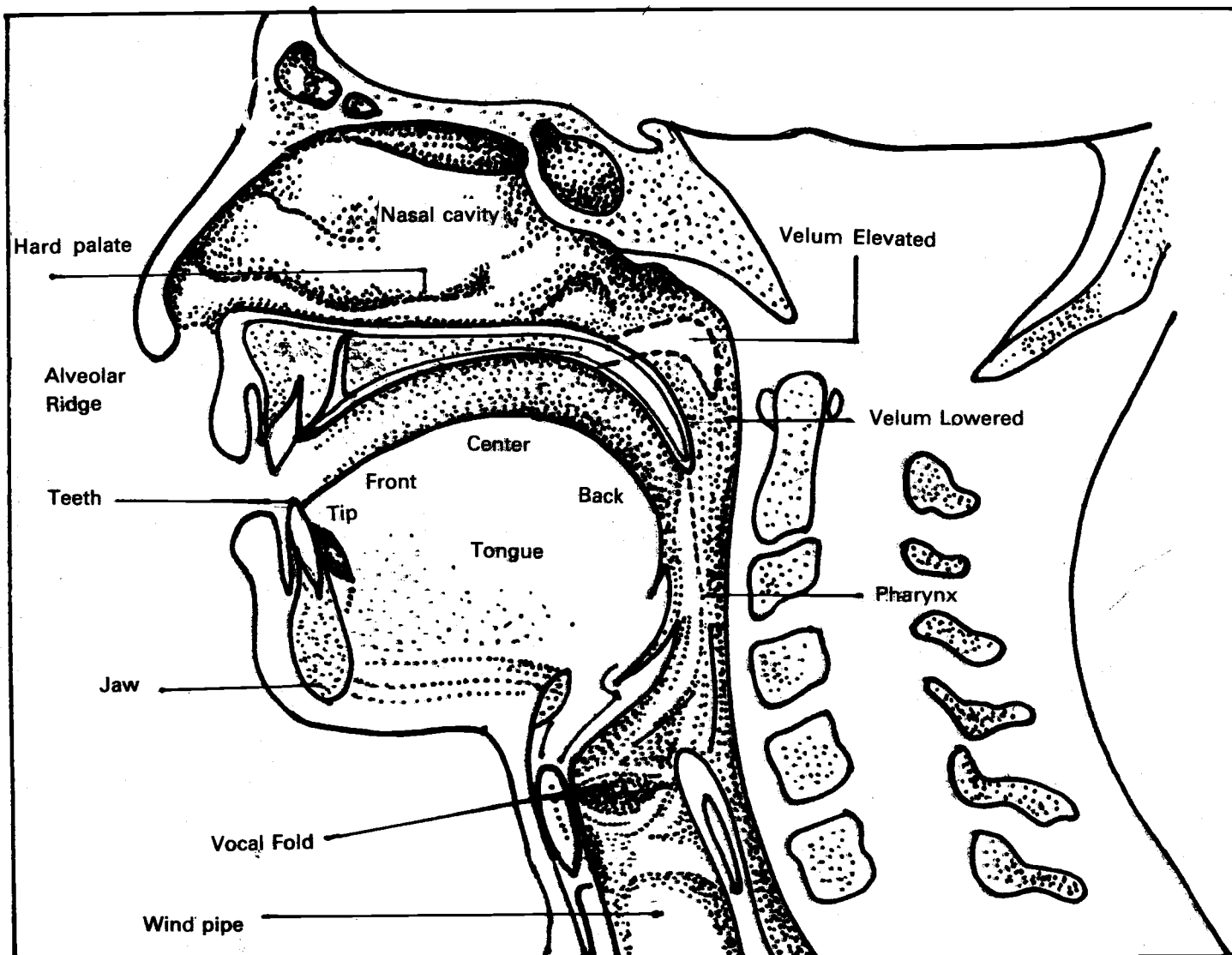


Fig.3.2. Parts of Articulatory & Resonatory systems

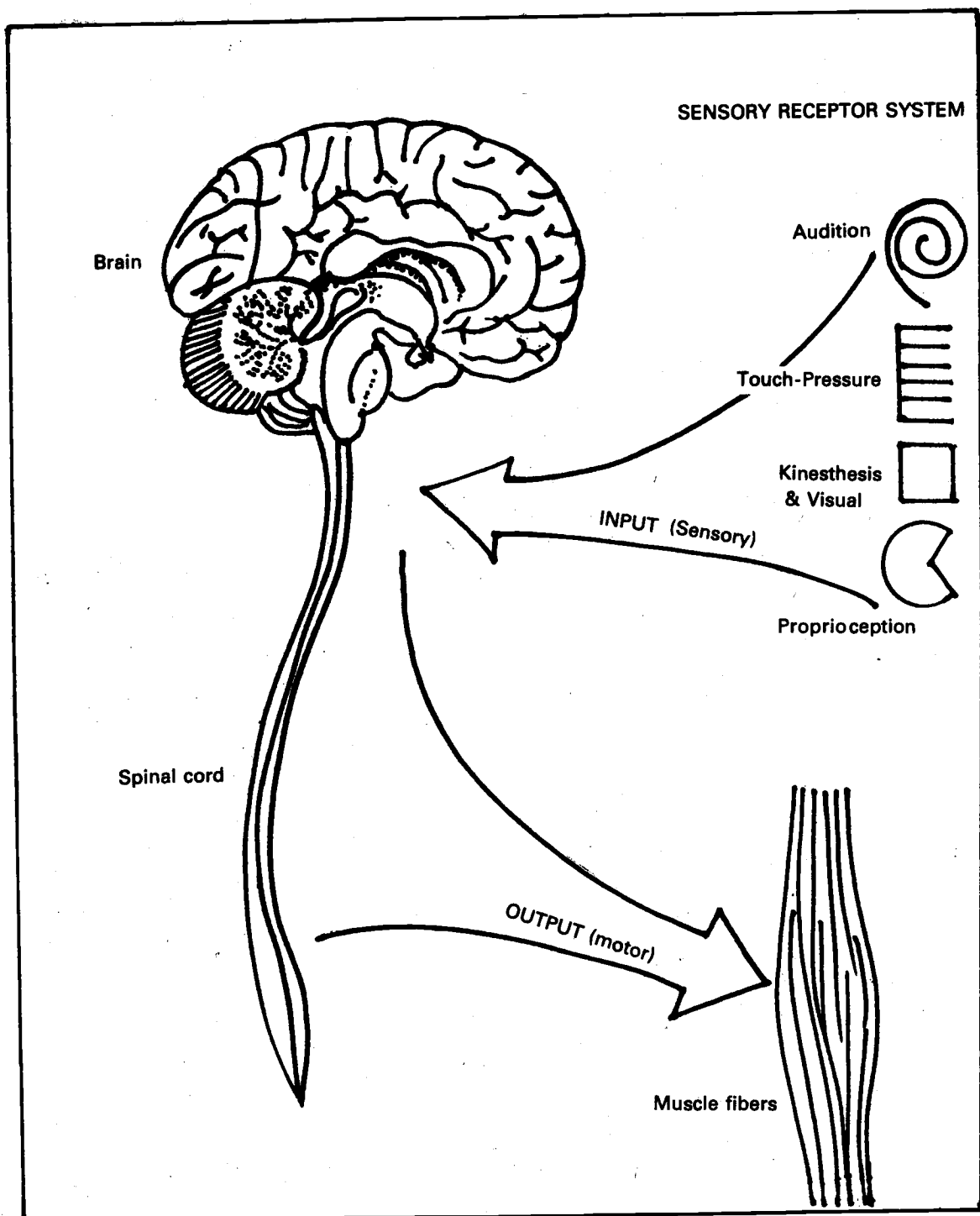


Fig.3.3. Speech production control system

by the resonance action of the mouth, throat, nose and other cavities, which change the shape from sound to sound. Unlike the violin, (in which the wooden box resonator shape is fixed) the resonating cavities in humans change their shape each time different sounds are produced.

Cavities like mouth, nose & throat change their shape for each speech sound during continuous speech

Voice production

The major structures responsible for voice production are vocal folds in the Larynx. During voice production, vocal folds come together and close the air way and obstruct the air which is coming out from lungs (on exhalation). As the air gets collected below the vocal folds the pressure increases and forces the vocal folds to open. So a puff of air escapes. Immediately vocal folds close again due to the sudden reduction in pressure of air and elasticity of vocal folds. This opening and closing (vibration) takes place about 100 to 300 times a second during voice production. This way vocal folds vibrate to generate voice. This voice is very weak in strength and does not have the quality to generate words and sentences. As this voice moves upwards, it enters various cavities like throat, mouth and nose. When it comes out of these cavities, its strength is boosted and quality changed. This action of changing strength with quality of voice by the various cavities is known as *resonance*. As different individuals have different sizes and shapes of the cavities above the larynx, the resonance is peculiar to that individual and hence individual voice quality. This voice is used for producing different speech sounds. There are three aspects of voice namely, *pitch*, *quality*, and *loudness*. Pitch is the psychological feeling dependent on frequency. Higher the frequency, higher the pitch and vice-versa. The voice can be produced with high loudness or low loudness. The overall effect of voice pleasantness is quality.

The major structures of voice production- the vocal folds are located in the larynx

Speech Sounds

As noted earlier speech sound production is a complex process. In this process the speech organs move together in a coordinated manner. During these movements, two general types of speech sounds are produced. These are known as *vowels* and *consonants*. The number and the variety of vowels and consonants vary from language to language. In this chapter examples are provided from English and Telugu languages. A set of all Telugu speech sounds are given in the appendices 3.1, 3.2 and appendices 3.3 & 3.4 list speech sound of Hindi. Readers are encouraged to list the speech sounds in their native languages and describe in similar fashion.

Number of vowels and consonants varies from language to language

It is important to remember that speech mechanism movements described for different speech sounds are not fixed. It is possible to produce the same speech sounds with changed or restricted movements due to the compensatory capacity of the speech mechanism. For example, the sound /pa/ is usually produced by closing both the lips. It can also be produced by bringing upper teeth to the lower tip.

Vowels

Vowels are produced by allowing the vocal folds to vibrate as the air flow moves through the mouth which is held in an open and fixed position. The shape of the organs - tongue and lips alters the shape of oral cavity and give different vowels their characteristic sound quality. For eg: Compare shape of the lips and position of the tongue while producing /u:/ as in the word *shoot* and /i:/ in the word *sheet* (see fig.3.4 to compare the relative positions of vowels /i:/ and /u:/). While producing /u:/ observe that the lips are rounded and back portion of the tongue

During vowel production the outgoing air stream is relatively unobstructed

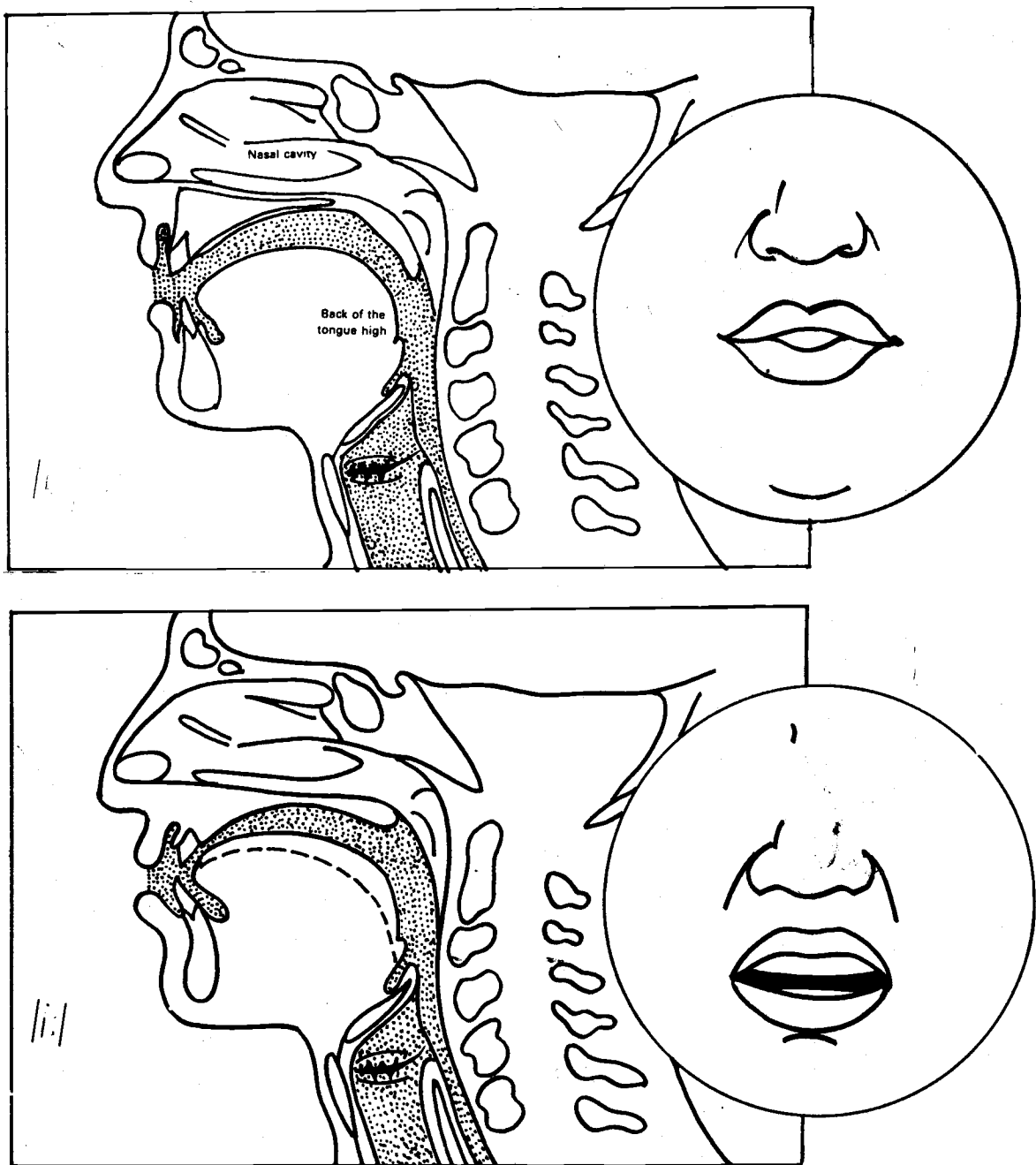


Fig 3.4 The tongue position for the vowels /u/ and /i/

slightly elevated. While producing /i:/ observe that the lips are retracted and the tongue tip is slightly elevated. Common vowels in Telugu and example words are given in table-II,

Table II
TELUGU VOWELS IN THEIR SHORT AND LONG FORMS WITH EXAMPLES

Vowels (short)	Examples	Vowels (long)	Examples
a	<i>amma</i>	a :	<i>aavu</i> (cow)
i	<i>illu</i> (house)	i :	<i>iiga</i> (fly)
u	<i>uppu</i> (salt)	u :	<i>uugu</i> (to swing)
e	<i>ekku</i> (to climb)	e :	<i>eenugu</i> (elephant)
o	<i>okati</i> (one)	o :	<i>ooda</i> (ship)

To describe vowels, the position of tongue and lip shape are important. The common terms used to describe the tongue position are *front*, *central*, *back*, *high*, *mid* and *low*. The lip shape is described as either *rounded* or *unrounded*. The tongue positions are described below.

Front : While producing vowels in this category tongue tip moves either up or down.

Central: These vowels are produced when tongue's middle part is used to produce vowels either by moving up or down.

Each language has different number of vowels.

Back : Here back part of the tongue rises or lowers, compared to the resting position of tongue.

High : This means that tongue moves and stays at higher place than the resting position of the tongue.

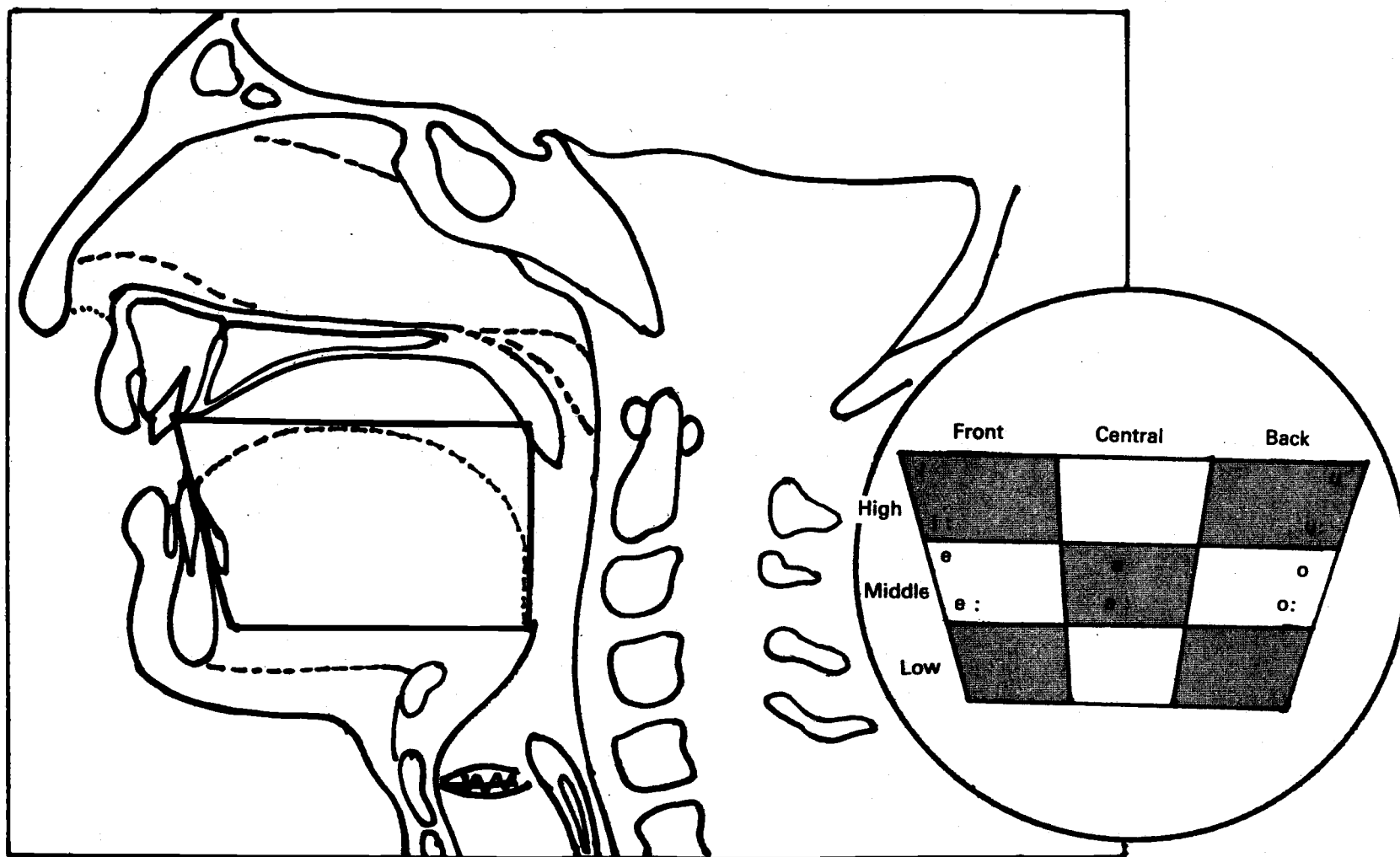


Fig.3.5. Places of production of different Telugu vowels

Mid : The tongue makes no change in its height.

Low : This refers to position of tongue which is lower than the resting position of the tongue.

About 10 vowels and 2 diphthongs are noted to represent standard Telugu language. The description of these vowels is provided in the appendix-3.1.

Figure-3.5 shows the positions of various vowels in the oral cavity, also notice the terms mentioned in the figure.

Consonants

Consonants are produced by narrowing (constricting) one or more parts of the mouth to complete or near closure thus causing disturbance to the flow of air or redirection of air flow. Some of these consonants are voiced and some are unvoiced. During production of some consonants nasal cavity is open. Consonants can be described based on

1. the *place* of production or the place where the constriction of air flow occurs,
2. the *manner* or the way air flows out during production,
3. whether they are voiced or unvoiced.

1. *The place of production* is the point of complete or partial obstruction of the air flow, anywhere from lips to vocal folds during the production of consonants. Depending on the place of production consonants can be classified generally into seven types as shown in

Consonants are the result of obstructions to the outgoing air stream during breathing

The consonants can be differentiated from each other based on their place, manner and voicing during production

Table III
CLASSIFICATION OF CONSONANTS BASED ON PLACE OF PRODUCTION

Places of production	Meaning	Process and structure	Example Sound	Example words
Bilabial	Refers to those sounds produced by both the lips	Lower lip touches upper lip and disturbs flow of air	<i>p, b</i>	<i>pat, ball</i>
Labiodental	Refers to those sounds produced by the lower lip touching upper teeth	Lower lip touches upper front teeth and obstructs air flow	<i>f, v</i>	<i>fan, van</i>
Dental	Category of consonants produced when the tongue tip touches upper teeth	Tongue tip touches upper front teeth	<i>th, dh</i>	<i>thought, that</i>
Alveolar	These sounds are produced when the tongue tip obstructs or narrows air passage by touching inner gum ridge of upper teeth	Tongue tip touches gum ridge of upper front teeth	<i>t, d</i>	<i>*tom, dam</i>
Palatal**	For producing such sounds body of the tongue moves up touching bony roof of the mouth (hard palate) thereby obstructing air flow	Body of the tongue touches hard palate	<i>ch, j</i>	<i>charm, Jam</i>
Velar	These sounds are produced when back of the tongue touches muscular roof of the mouth (soft palate/ Velum, at the back of hard palate) thereby obstructing air passage	Back portion of tongue touches soft palate (Velum)	<i>k, g</i>	<i>kit, gain</i>

Contd.

Table - III Continued

Places of production	Meaning	Process and structure	Example sounds	Example words
Glottal	These sounds are produced when obstruction or narrowing of throat is near to vocal folds	In the throat vocal folds vibrating and throwing a puff of air	<i>h</i>	<i>ahimsa</i>
Retroflex***	In producing such sounds tongue tip is curled back and moves up so that under part of the tongue tip touches hard palate thereby obstructing air flow.	Here tongue is twisted and under part of the tongue tip makes contact with hard palate repeatedly	<i>r</i>	<i>ran</i>

Note: For a list of common consonant speech sounds in Telugu and their description please see appendix-3.2. Hindi speech sounds are described in appendices 3.3. and 3.4.

- * Most speakers of Indian languages retroflex the alveolar /t/ and /d/. Thus in production of words *tom*, *dam*, the tongue curls inside. However, description given above is of native English speakers who use /t/ and /d/ as alveolars.
- ** The term palatal refers in Telugu to alveo-palatal eg: /s/ as in *sankara* (*Lord Shiva*); palato alveolar eg: /sh/ as in *sharatu* (*condition*) and post alveolar eg: /ç/ in *cekka* (*wood*).
- *** Retroflex sounds in Indian languages are shown in writing with a *dot* below, eg: /ṭ/, /ḍ/.

Table-IV
CLASSIFICATION OF CONSONANTS BASED ON THE MANNER OF PRODUCTION

Category	Meaning	Way of production	Example sounds	Example words
Stops (Plosives)	Here the air flow is completely obstructed. Suddenly this obstruction is withdrawn resulting in rushing of air all of a sudden, which was collected behind obstruction	Complete closure at the point of production with sudden release of air	<i>p, t, k</i>	<i>pat, kit</i>
Fricatives	In saying such sounds, there is a narrow passage for air flow. The air rushes out through this narrow passage	Constriction at the point of production causing friction noise as air passes under pressure	<i>s, sh, z</i>	<i>seal, zeal</i>
Affricates	Combination of a plosive followed by a fricative	Complete closure followed by frictional noise as air through constriction	<i>ch, j</i>	<i>cheap, jeep</i>
Nasals	These sounds contain the resonance sound of nasal cavity. To have this resonance sound quality, mouth is completely closed, air is redirected through nose	Complete closure at the point of production followed by rushing of air through nose (all are voiced)	<i>m, n</i>	<i>might, night</i>
Laterals	This refers to those sounds, which are produced when air stream is obstructed in the	Obstruction at the point of production and escape of air through the sides	<i>l</i>	<i>lady</i>

Contd....

Table IV Continued

Category	Meaning	Way of production	Example sounds	Example words
	centre of the mouth and air is diverted to pass through the gap present in the sides.			
Aspirate	These are stops having more air when air is suddenly released	These consonants are formed by closure of the lips/tip of the tongue, the air steam is blocked in the oral cavity and released suddenly.	ph	phone
Trill-/r/	is an example of Retroflex.	Tongue tip touches the gum ridge quickly & repeatedly		<i>gurramu</i>

Note: Indian languages have aspirated versions of many consonants which are produced with increased effort and air escape. eg: /ph, bh, th/

table-III along with the description and examples.

- 2) ***Manner of production.*** The manner is the way in which speech sounds are produced. The air flow can be stopped momentarily or allowed to go through a very narrow passage producing noise. Various manners of consonant production are given in the table-IV along with the description and examples.

- 3) All the consonants are not voiced i.e., all the consonants do not need vocal fold vibration for their production. In *voiced* consonants vocal fold vibration takes place. Whereas in *voiceless* consonants vocal folds vibration does not take place, here the air is directly sent into the mouth. Consonants are distributed based on voicing in Table-V.

TABLE-V
SHOWING PAIRS OF VOICED AND VOICELESS CONSONANTS
DISTRIBUTED AMONGST THE PLACES OF ARTICULATION

	Voiced	Voiceless
Bilabial	b	p
Alveolar	d	t
Retroflex	ɖ	ʈ
Velar	g	k
Palatal	j	c
Post-Alveolar	z	s
Labiodental	v	f

For example /p/ is voiceless and /b/ is a voiced sound. To understand this one has to produce /p/

only without final vowel /a/ and /b/ in similar fashion. It could be noted that vocal cords are silent while /p/ is produced, that is why it is called as a voiceless consonant.

To notice the difference between voiced and unvoiced types, the consonants can be produced in whisper

All the consonants can be described based on the three features, the place, manner and voicing. For example, /p/ is a bilabial, stop and voiceless consonant, whereas /b/ is a bilabial, stop and voiced consonant. Armed with this knowledge one can understand the speech sounds better. By saying each consonant four or five times and noting the place, manner and voicing characteristics the sounds become familiar. Using a mirror to see how speech sounds are produced will help in visualizing the place of articulation of some consonants which are produced in front part of the mouth. It may be remembered that the number of consonant sounds used will vary from language to language and also the places of articulation and the manner in which they are produced. Telugu language has about 36 consonants, which are described in the appendix-3.2.

The number consonants and the way in which they are produced differ from language to language

Other types of speech sounds

Apart from vowels and consonants there are other types of speech sounds such as *semivowels*, *diphthongs* and *clusters*. Semi-vowels are neither vowels nor consonants, eg /w/ as in /wine/. Diphthongs are a combination of two vowels, eg. as seen in /ai/ & /ou/. Combination of two consonants are known as clusters or blends, as in eg. /tr/ in /tree/.

Apart from vowels and consonants speech has other sounds like semi-vowels, diphthongs & blends

Speech sounds in words and sentences

We do not speak using individual sounds i.e., everyday's speech does not contain separated sounds, like /p/, /t/, /k/. Speech is rather combinations or chains of individual sounds and words. Words are formed by chains of individual sounds. Formation

of such chains of sounds and words are governed by rules of that particular language (morphological and syntactic rules). When an adult says a word, speech organs move very quickly from one sound position to another sound position. This requires a complex ability which enables us to say words in a short time. In order to cope up with the demand of the situation articulators do not go into the exact place and manner for each sound. Instead of that, a place nearer to the target is used. As a result a speech sound during continuous speech may not exactly resemble the same sound produced separately. For example : say /g/ separately and watch for the manner and the place of /g/ while saying the words *give, gun, gamble, given, garg* and so on. Notice that /g/ is not the same in all words and does not exactly resemble /g/ produced separately. This happens because sounds are influenced by the surrounding sounds. The influence of one sound on another is called *co-articulation*. For example, /a/ becomes nasalized while saying *mango* which is otherwise not nasalized; /s/ becomes voiced in *dogs*. Co-articulation effect enables the speaker to produce speech without stopping for separate speech sounds. This enables the listener to understand the speech of the speaker, more easily.

During continuous speech we mix the production characteristics of different sounds

Producing words and sentences will not be sufficient for the listeners to understand the speech clearly. Tonal characteristics such as *rhythm, intonation, stress and duration*, make the speech more comprehensible. Moreover situation or the context gives the clue to understand the topic.

Tonal characteristics make speech sounds clear and pleasant

Since factors apart from articulatory ability are needed for making speech clearer, while treating the clarity problems of speech one should not concentrate on articulation alone.

Speech sound acquisition

Children acquire speech sound production gradually over a period of time. Certain sounds appear before others in the child's early words, the /m,b,w,d,n, and /t/ consonants being most frequently used. Most vowels are acquired before consonants and by the age of three years. There are large individual differences and age of acquisition for certain sounds may vary by as much as 3 years. Studies done on English speaking children* report that sounds are first acquired in initial positions of the words. Figure 3.6a provides information on the time or the age at which the consonant sounds first appear in a majority of children.

Bilabials /p,b,m/, glottal /h/, are acquired first followed by velars /k,g/, alveolars /t,d/, dentals /t,d/ and palatals /ch,jh/. The sounds /θ/ as in /*think*/, /d/ as in /*then*/ and /z/ as in /*measure*/ are acquired towards the end. The blends appear after the age of about 7 years.

The speech sounds a child acquires depends on the language that the child is exposed to, during his first language acquisition. It appears that the child follows a sequence in acquiring different sounds, generally less complex sounds appearing before more complex sounds. While acquiring sounds a child goes through a series of approximations before the standard sound is acquired.

A note on speech reception

Like *production*, *receptive* aspects of speech are also complex. The initial stage is the physiological activity of hearing the spoken signal. A person in order to find the heard signals as *speech* should have the capacity to select the spoken word/s from

* Based on Sanders (1972) as quoted in van Riper, C. and Emerick, L. (1990) "Speech correction", pp. 111.

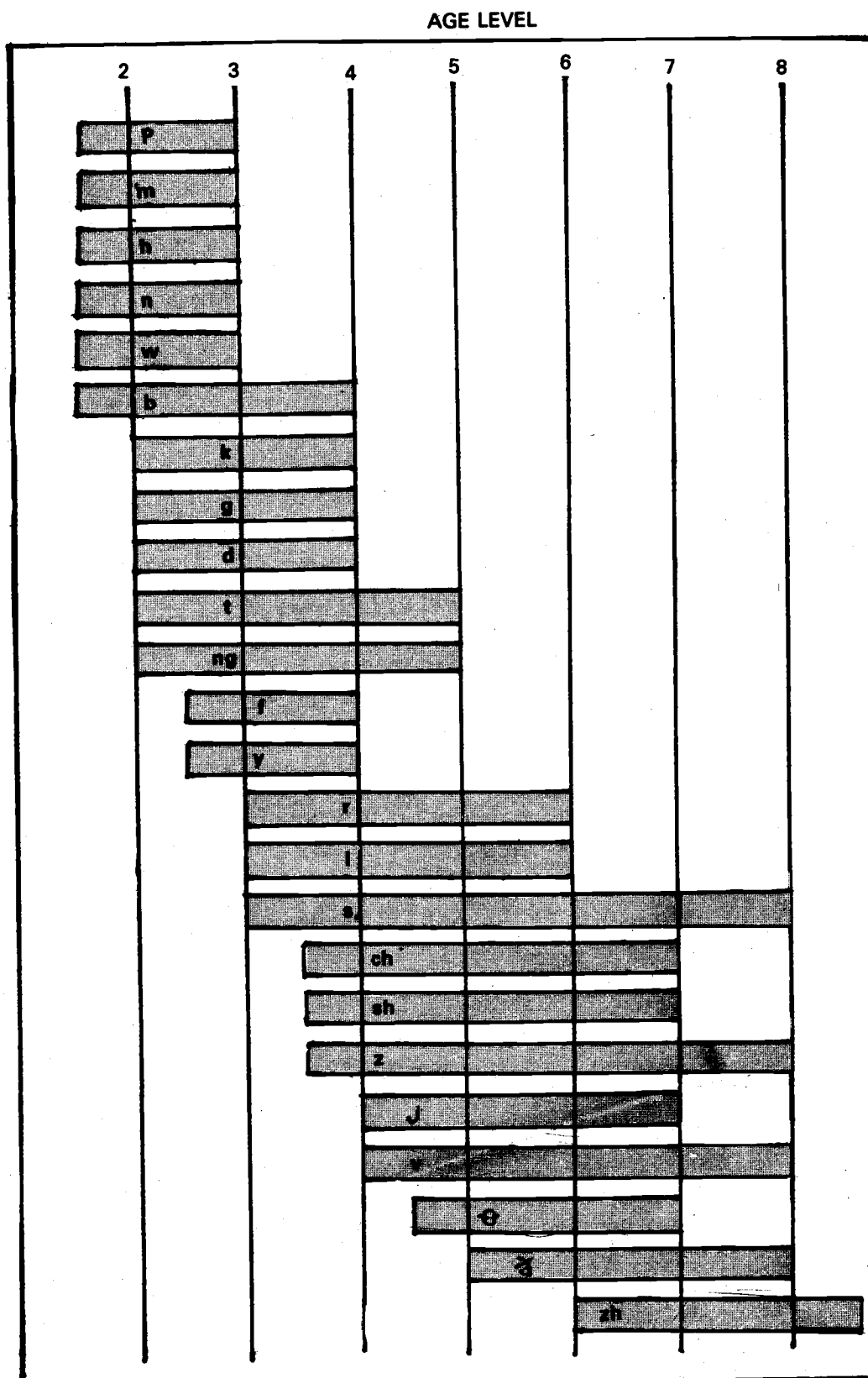


Fig.3.6a. Aquisition of different speech sounds (Sanders, 1972)

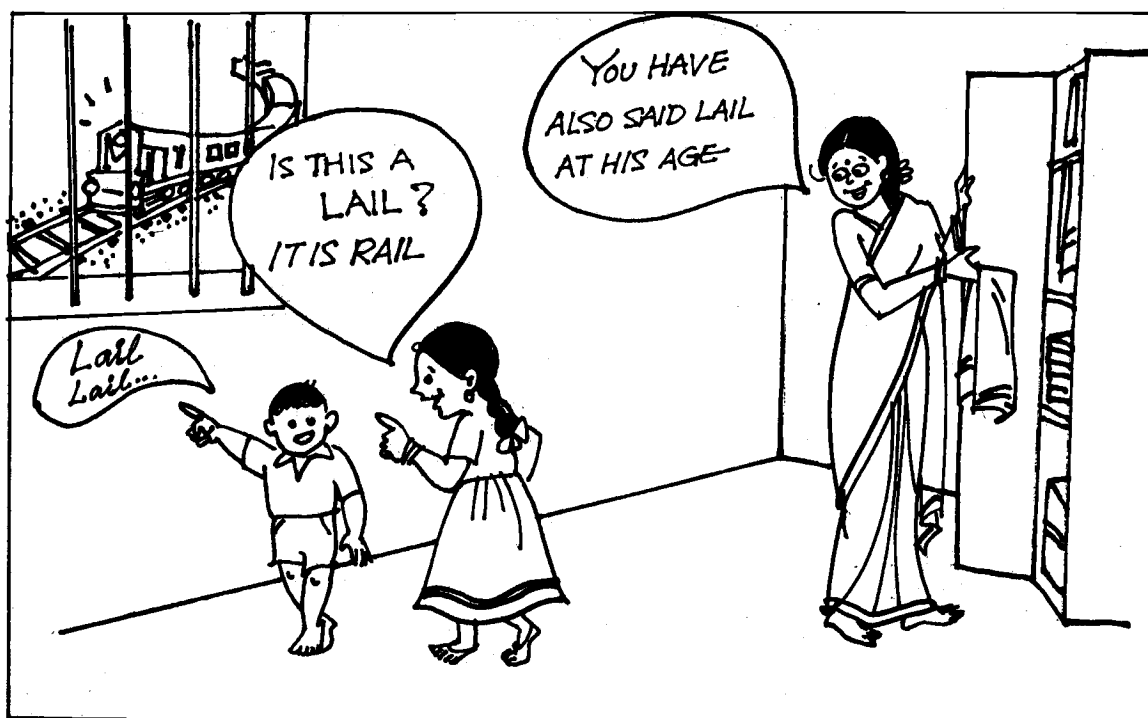


Fig.3.6b. Development of speech sounds

his mental storage. This is through a series of mental operations, and brain recognizes a heard speech signal as meaningful or as not. Children have some innate capacity to recognize sounds as speech. But they must also learn which sound combinations are meaningful in their language - a part of the process of language acquisition. The final stage of reception is characterized by full comprehension of the heard sounds as *language*. This depends on prior development of symbols or codes (words), together with the knowledge of syntax, semantics and rules for language use. As can be inferred, the speech reception ability is part of longer activity of language acquisition. This topic is dealt in detail in the next chapter.

SUMMARY

This chapter described the production of various speech sounds. The description of vowels was presented first and followed by various consonant sounds being described based on place and manner of articulation along with voicing. This chapter highlighted the differences between producing speech sounds in isolation and producing speech sounds in words and sentences. Finally, acquisition of various speech sounds by normal children at different ages was mentioned. A concept of speech reception has been introduced. Detailed description of Telugu speech sounds appear in the appendices 3.1 and 3.2. Similarly Hindi speech sounds are described in appendices 3.3 and 3.4.



Appendix-3.1

VOWEL SOUNDS IN TELUGU

Sound	Description	Examples
i :	Front, high, unrounded long	<i>i:ga</i> (fly), <i>i:du</i> (swim)
i	Front, high unrounded short	<i>idi</i> (this), <i>illu</i> (house)
e :	Front, mid* unrounded long	<i>e:nugu</i> (elephant), <i>e:du</i> (seven)
e	Front mid unrounded short	<i>ettu</i> (lift), <i>ekku</i> (climb)
a :	Central mid unrounded long	<i>a:ṭa</i> (play); <i>a:ru</i> (six)
a	Central mid unrounded short	<i>amma</i> (mother); <i>akka</i> (sister)
o :	Back mid rounded long	<i>no:ru</i> (mouth); <i>ko:ti</i> (monkey)
o	Back mid rounded short	<i>okaṭi</i> (one); <i>ollu</i> (body)
u :	Back high rounded long	<i>u:ru</i> (village) <i>u:gu</i> (swing)
u	Back high rounded short	<i>uppu</i> (salt); <i>uduku</i> (wash)
ae/ai	Diphthong	<i>aidu</i> (five)
au	Diphthong	<i>aunu</i> (yes)

- * Mid - refers to the tongue height in between close and open positions. The term mid is retained for ease of understanding.

Note : Pictures of these vowel production are shown in following pages. It is important to remember that figures shown are only for guidance and should not be taken as prescriptive. Same picture may be used for Hindi sounds description also.

The description of Telugu sounds has been adapted from Kostic, D.J Mitter, A and Krishnamurthy, B.H. (1987)
A short outline of Telugu phonetics , Indian Statistical Institute, Calcutta.



Fig.3.7. Showing Place of Production of /a/

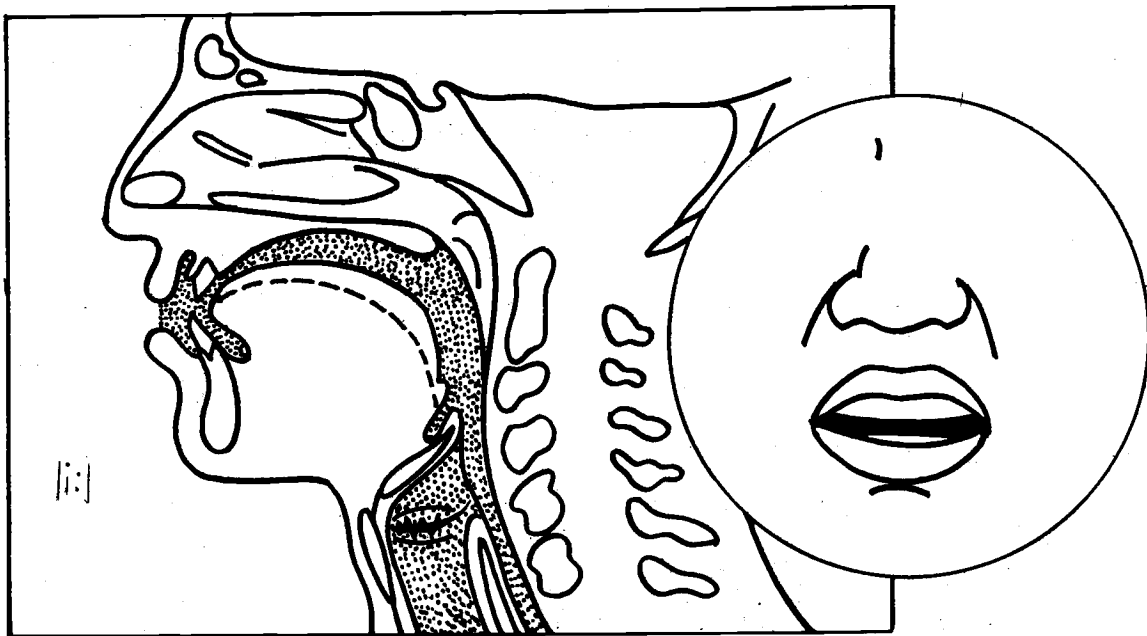


Fig.3.8. Showing Place of Production of /i/



Fig.3.9. Showing Place of Production of /u/



Fig.3.10. Showing Place of Production of /e/



Fig.3.11. Showing Place of Production of /o/

Appendix 3.2

DESCRIPTION OF CONSONANTS IN TELUGU

Sounds	Description	Examples
p	- Voiceless bilabial unaspirated plosive	(as in <i>Palaka-Slate</i>)
p ^h	- Voiceless bilabial aspirated plosive	(as in <i>phalam-fruit</i>)
b	- Voiced bilabial unaspirated plosive	(as in <i>balli-lizard</i>)
b ^h	- Voiced bilabial aspirated plosive	(as in <i>bhu:mi-land</i>)
t	- Voiceless dental unaspirated plosive	(as in <i>ti:pi-sweet</i>)
t ^h	- Voiceless dental aspirated plosive	(as in <i>sthalam-place, space</i>)
d	- Voiced dental unaspirated plosive	(as in <i>da:ri-way</i>)
d ^h	- Voiced dental aspirated plosive	(as in <i>dhar.nam-charity</i>)
k	- Voiceless velar unaspirated plosive	(as in <i>ko:ti-monkey</i>)
k ^h	- Voiceless aspirated plosive	(as in <i>khari:du-price</i>)
g	- Voiced velar unaspirated plosive	(as in <i>ga:li- wind</i>)
g ^h	- Voiced velar aspirated plosive	(as in <i>sangham-association</i>)
f	- Voiceless labiodental fricative	(as in <i>ka:fi:-coffee</i>)
s	- Voiceless alveolar fricative	(as in <i>su:ryudu-sun</i>)
ʃ	- Voiceless alveopalatal fricative	(as in <i>sakti-capacity</i>)
ʃ ^h	- Voiceless palatoalveolar fricative	(as in <i>sharatu-condition</i>)
r	- Voiced alveolar fricative	(as in <i>ra:yi- stone</i>)
h	- Voiced glottal fricative	(as in <i>hastam - hand</i>)
ts	- Voiceless alveolar unaspirated affricate	(as in <i>tsa:kali-washerman</i>)
dz	- Voiced alveolar unaspirated affricate	(as in <i>dzalubu-cold</i>)
c	- Voiceless post-alveolar unaspirated affricate	(as in <i>čettu-tree</i>)
c ^h	- Voiceless postalveolar aspirated affricate	(as in <i>čha:ti-chest</i>)
j	- Voiced postalveolar unaspirated affricate	(as in <i>janam-people</i>)
j ^h	- Voiced postalveolar aspirated affricate	(as in <i>jhanka:ram-hum of bees</i>)
m	- Bilabial nasal	(as in <i>mannu-soil</i>)
n	- Alveolar nasal	(as in <i>ne:nu-l</i>)
ɳ	- Retroflex nasal	(as in <i>wi:na-a musical instrument</i>)
l	- Voiced alveolar lateral	(as in <i>la:bham-profit</i>)
ɭ	- Voiced retroflex lateral	(as in <i>ta:lam-lock</i>)
ɖ	- Voiceless unaspirated retroflex	(as in <i>to:pi-cap</i>)
ɖ ^h	- Voiceless aspirated retroflex	(as in <i>pa:ṭham-lesson</i>)
ɗ	- Voiced unaspirated retroflex	(as in <i>ḡabbu-money</i>)
ɗ ^h	- Voiced aspirated retroflex	(as in <i>gu:ḡhaca:ri-spy</i>)
w	- Voiced bilabial frictionless semivowel	(as in <i>we:ḡu-finger</i>)
y	- Voiced alveopalatal frictionless semi-vowel	(as in <i>ya:tra-pilgrimage</i>)

Note : Pictures showing major places and manners of production are given in the following pages.

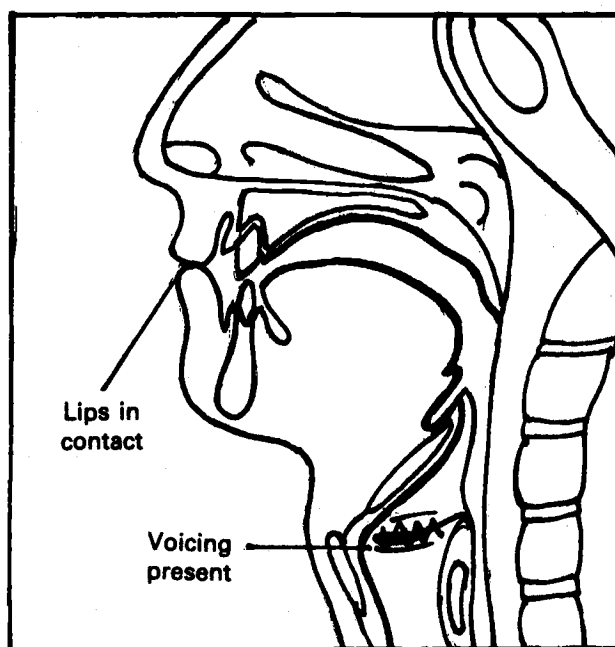
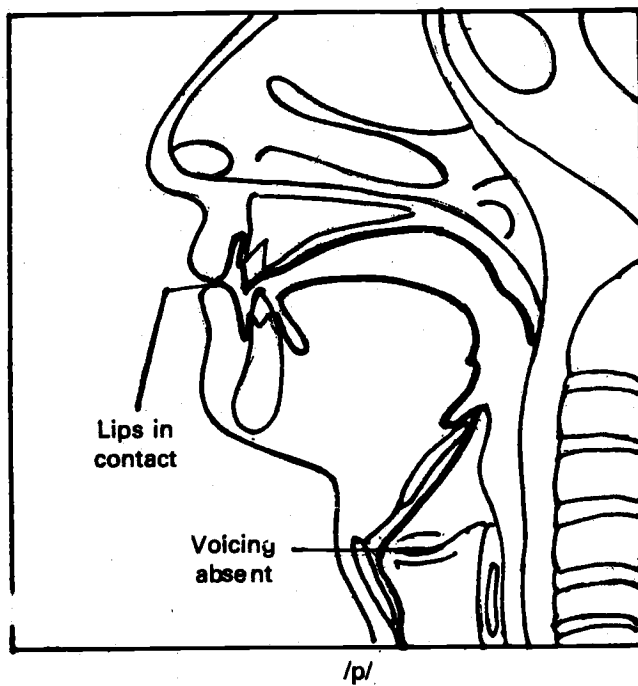


Fig.3.12. Place of Production of bilabial consonants /p/ & /b/

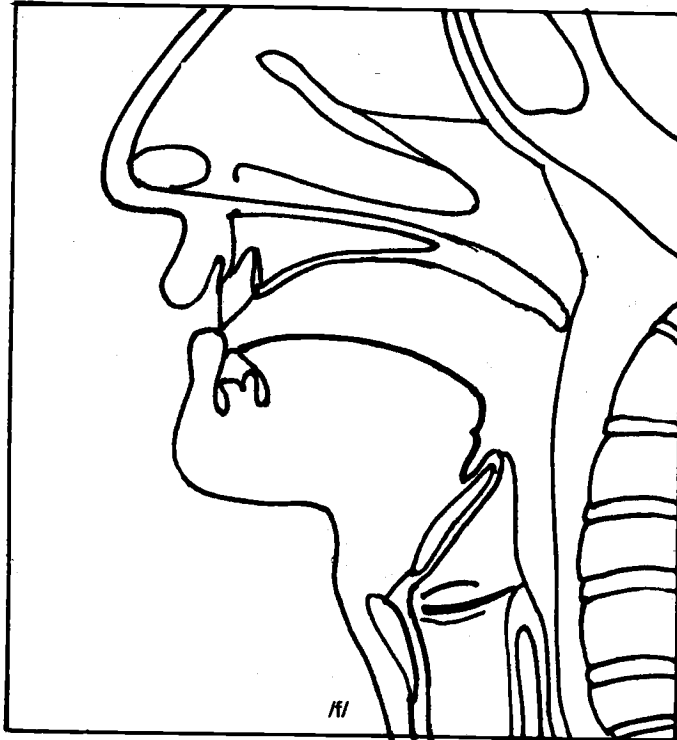


Fig.3.13. Place of production for labio-dental consonants

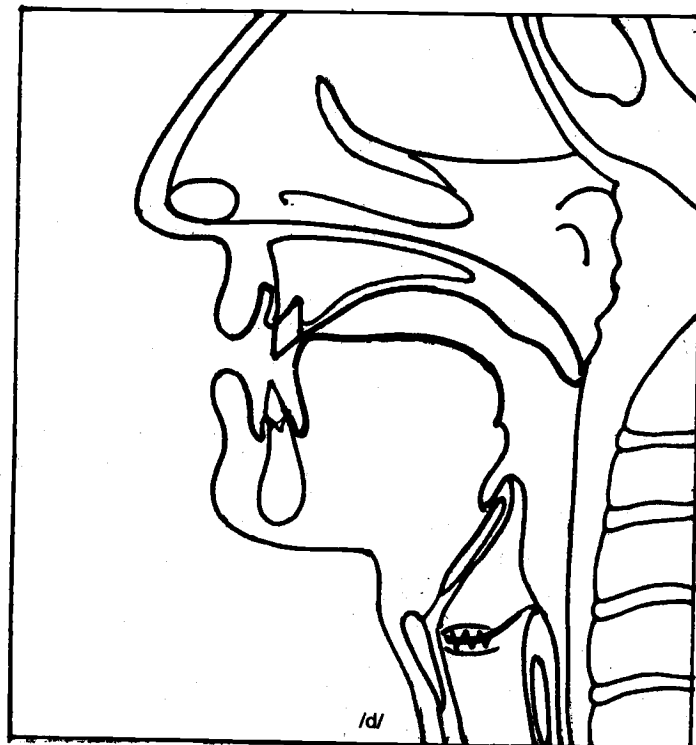


Fig.3.14. Place of production for dental consonants

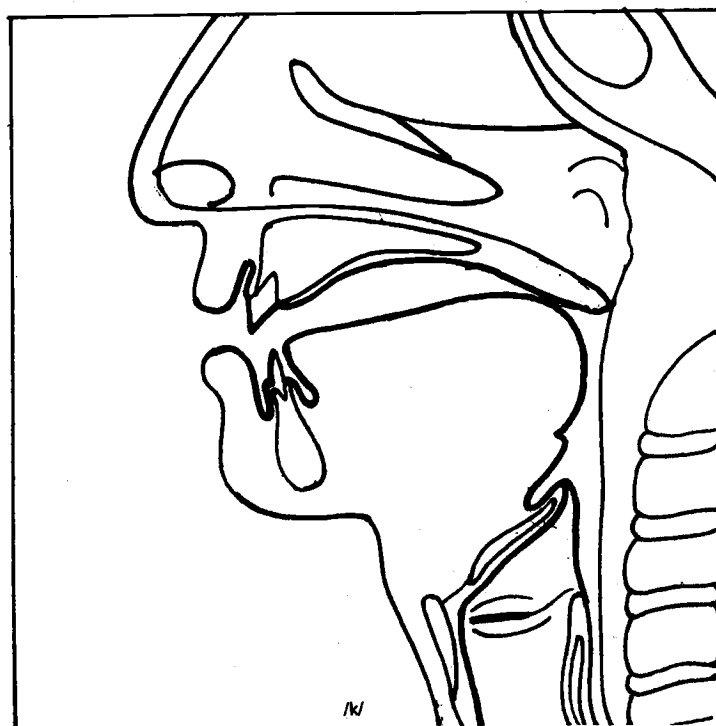


Fig.3.16. Place of production of Velar consonant:

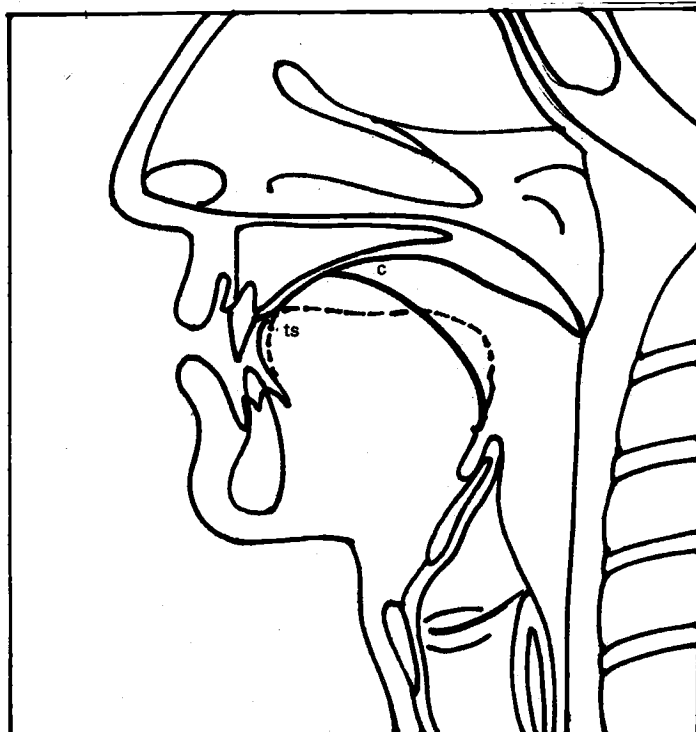


Fig.3.15. Place of production of alveolar and post alveolar consonant /c/

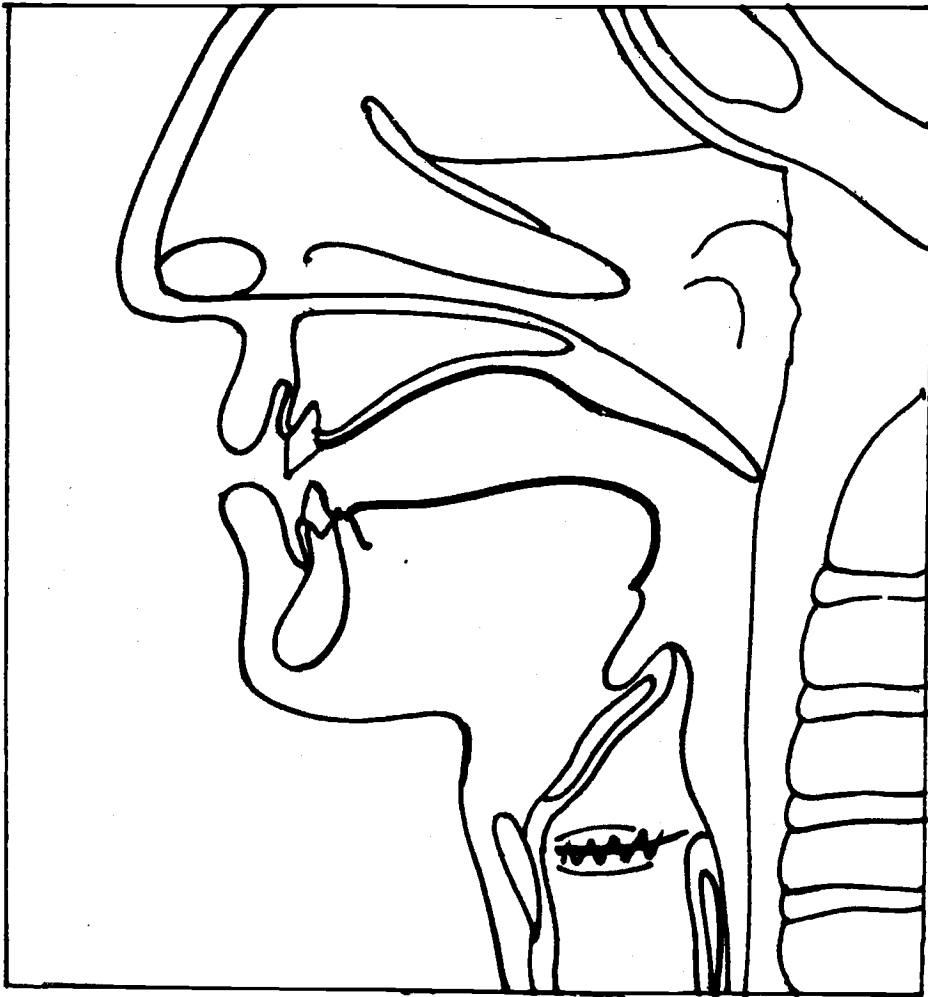


Fig.3.17. Place of production of glotal consonant /h/

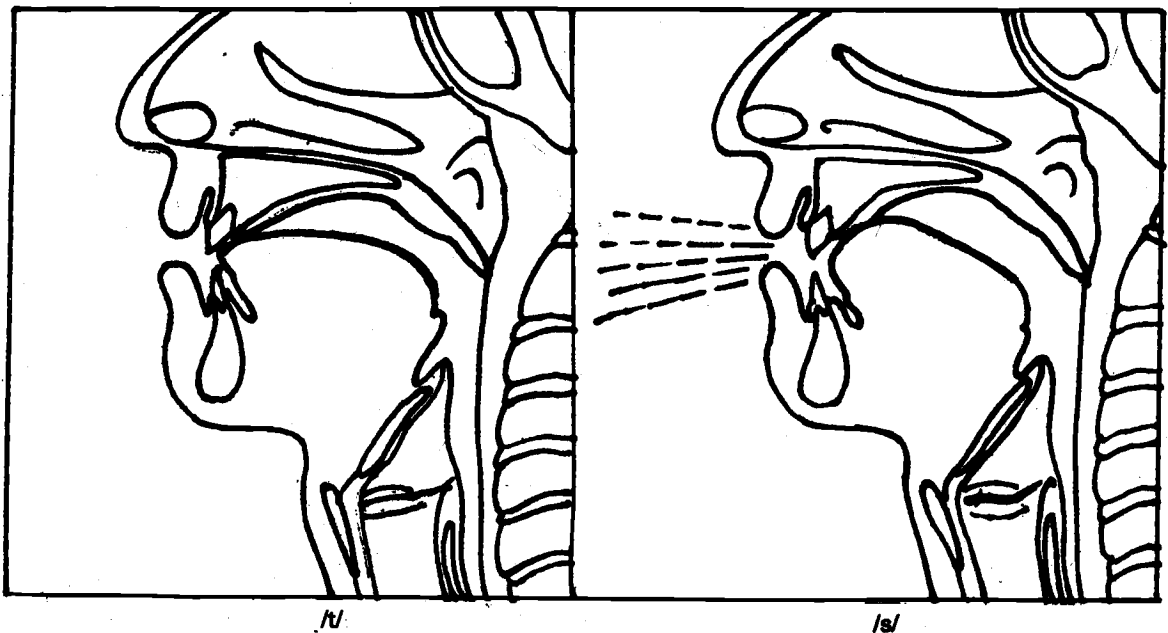


Fig.3.18. Showing the manners of stop /t/ and fricative /s/

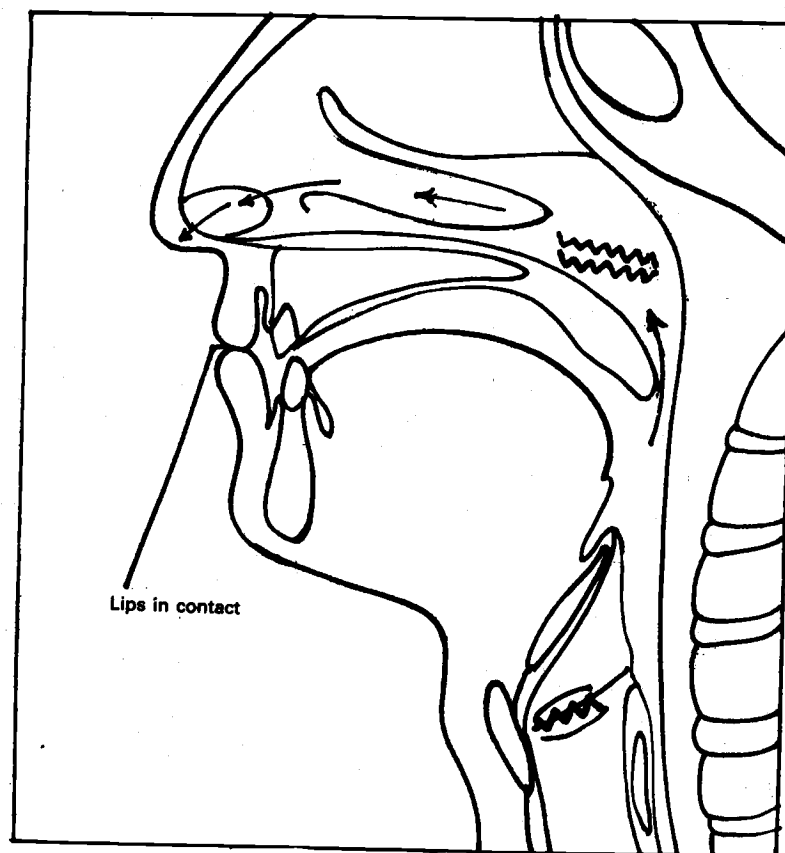


Fig.3.19. Manner of nasal production /m/



Fig.3.20. Showing Retroflex Production

हिन्दी की स्वर ध्वनियाँ (Vowel sounds in Hindi)

स्वर (Vowel)	परिभाषा (Description)	उदाहरण (Example)	
अ/a/	मध्य विवृत अवृत्ताकार ह्रस्व ध्वनि mid low unrounded short sound	अखबार सरल	newspaper simple
आ/a:/	मध्य विवृत अवृत्ताकार दीर्घ ध्वनि mid low unrounded long sound	आदमी आग	man fire
इ/i/	अग्र संवृत अवृत्ताकार ह्रस्व ध्वनि front high unrounded short sound	इमली इस	tamarind this
ई/i:/	अग्र संवृत अवृत्ताकार दीर्घ ध्वनि front high unrounded long sound	ईश्वर अमीर	god rich
उ/u/	पश्च संवृत वृत्ताकार ह्रस्व ध्वनि back high rounded short sound	उड़ना मधुर	to fly sweet
ऊ/u:/	पश्च संवृत वृत्ताकार दीर्घ ध्वनि back high rounded long sound	ऊपर भूलना	up/on to forget
ए/e/	अग्र अर्ध संवृत अवृत्ताकार दीर्घ ध्वनि front half-high unrounded long sound	एक केला	one banana
ऐ/ei/	अग्र अर्ध विवृत अवृत्ताकार संयुक्त ध्वनि front half-low unrounded dipthong	ऐसा ऐनक	like this spectacle
ओ/o/	पश्च अर्ध संवृत वृत्ताकार दीर्घ ध्वनि back half-high rounded long sound	ओखली ओर	grinder direction
औ/au/	पश्च अर्ध-विवृत वृत्ताकार संयुक्त ध्वनि back half-low rounded dipthong	औरत औषध	woman medicine

शब्दावली / (GLOSSARY)

- | | | | | |
|----|--|---|-------------|---------------------|
| 1. | जिह्वा के भाग / Place of the tongue | : | जिह्वाग्र | Front of the tongue |
| | | | जिह्वा मध्य | Mid of the tongue |
| | | | जिह्वा पश्च | Back of the tongue |
| 2. | जिह्वा की ऊंचाई / Height of the tongue | : | संवृत | High |
| | | | अर्ध-संवृत | Half - high |
| | | | अर्ध-विवृत | Half - Low |
| | | | विवृत | Low |
| 2. | ओठों की आकृति / Position of the lips | : | वृत्ताकार | Rounded |
| | | | अवृत्ताकार | Unrounded |

हिन्दी व्यंजन (Consonants of Hindi)

व्यंजन (Consonant)	परिभाषा (Description)	उदाहरण (Example)			
क/k/ अघोष अल्प प्राण कोमल तालव्य स्पर्श Voiceless unaspirated veloric stop	काम work	आकार shape	एक one	केला banana	
ख/kh/ अघोष महाप्राण कोमल तालव्य स्पर्श Voiceless aspirated veloric stop	खाना to eat	खीर sweet	अनोखा typical	भूख hunger	
ग/g/ घोष अल्प प्राण कोमल तालव्य स्पर्श Voiced unaspirated veloric stop	गुलाब rose	राग raag	भूगोल geography		
घ/gh/ घोष महाप्राण कोमल तालव्य स्पर्श Voiced aspirated veloric stop	घर house	घोड़ा horse	बाघ lion		
ङ./n/ घोष अल्प प्राण कोमल तालव्य नासिक व्यंजन Voiced unaspirated veloric nasal stop	पंकज lotus	कंगन bangle			
च/c/ अघोष अल्प प्राण तालव्य स्पर्श संघर्ष Voiceless unaspirated palatal affricate	चावल rice	चांद moon	चलना to walk		
छ/ch/ अघोष महाप्राण तालव्य स्पर्श संघर्ष Voiceless aspirated palatal affricate	छत्तरी umbrella	छत terrace			
ज/j/ घोष अल्पप्राण तालव्य स्पर्श संघर्ष Voiced unaspirated palatal affricate	जल water	जाल net	जोर force		
झ/jh/ घोष महाप्राण तालव्य स्पर्श संघर्ष Voiced aspirated palatal affricate	झलक flash	झूला cradle			
ञ/ñ/ घोष अल्प प्राण तालव्य नासिक व्यंजन Voiced unaspirated palatal nasal consonant	चंचल active				
ट./ʈ/ अघोष अल्प प्राण मूर्धन्य स्पर्श Voiceless unaspirated retroflex stop	टमाटर tomato	मोटर motor	सिटी city		
ठ/th/ अघोष महाप्राण मूर्धन्य स्पर्श Voiceless aspirated retroflex stop	ठमठम thamtham	ठोकर kick	पाठ lesson		
ड/d/ घोष अल्प प्राण मूर्धन्य स्पर्श Voiced unaspirated retroflex stop	डमरू damroo	डर fear			

व्यंजन (Consonant)	परिभाषा (Description)	उदाहरण (Example)		
ढ/ɖh/	घोष महाप्राण मूर्धन्य स्पर्श Voiced aspirated retroflex stop	ढीला loose	ढाका dhaka	
ण/n/	घोष अल्प प्राण मूर्धन्य नासिक व्यंजन Voiced unaspirated retroflex nasal	वर्णमाला alphabets	संपूर्ण full	
त/t/	अघोष अल्प प्राण दंत्य स्पर्श Voiceless unaspirated dental stop	तन body	लता creeper	तमाम all
थ/th/	अघोष महाप्राण दंत्य स्पर्श Voiceless aspirated dental stop	थकना tired	पथिक traveller	
द/d/	घोष अल्प प्राण दंत्य स्पर्श Voiced unaspirated dental stop	दरिया ocean	आदमी man	
ध/dh/	घोष महाप्राण दंत्य स्पर्श Voiced aspirated dental stop	दूध milk	धरती earth	
न/n/	घोष अल्प प्राण दंत्य नासिक व्यंजन Voiced unaspirated dental nasal consonant	तल tap	पनीर cheese	
प/p/	अघोष अल्प प्राण द्रव्योष्ठ्य स्पर्श Voiceless unaspirated bilabial stop	पापा father	पंछी birds	कंपन shiver
फ/ph/	अघोष महाप्राण द्रव्योष्ठ्य स्पर्श Voiceless aspirated bilabial stop	फल fruit	फूल flower	सफल success
ब/b/	घोष अल्पप्राण द्रव्योष्ठ्य स्पर्श Voiced unaspirated bilabial stop	बाबा father	कबूतर dove	
भ/bh/	घोष महाप्राण द्रव्योष्ठ्य स्पर्श Voiced aspirated bilabial stop	भीतर inside	भालू bear	भात rice
म/m/	घोष अल्पप्राण द्रव्योष्ठ्य नासिक व्यंजन Voiced unaspirated bilabial dental consonant	मा mother	ममता love	
य/y/	घोष अल्पप्राण तालव्य संघर्ष हीन व्यंजन/अर्ध स्वर Voiced unaspirated palatal glide consonant/semi vowel	यत्न attempt	दया kindness	चाय tea
र/r/	घोष अल्पप्राण वर्तुल लुठित Voiced unaspirated alveolar trill	रवि ravi	कमर waist	
ल/l/	घोष अल्पप्राण वर्तुल पार्श्व Voiced unaspirated alveolar lateral	लाल red	लड्डू laddu	

व्यंजन (Consonant)	परिभाषा (Description)	उदाहरण (Example)
ठ/v/	घोष अल्प प्राण दन्त्योष्ठ्य संघर्षहीन अर्ध स्वर Voiced unaspirated labiodental fricative or semi-vowel	वदन prayer सावन savan
श/s/	अघोष तालव्य संघर्ष Voiceless palatal fricative	शंकर shanker सश success कैलाश kailash
ष/S/	अघोष मूर्धन्य संघर्ष Voiceless retroflex fricative	संघर्ष tussel शीर्षक title
स/s/	अघोष वर्त्स संघर्ष Voiceless alveolar fricative	सरिता sarita समूह group
ह/h/	घोष स्वर यंत्र मुखी संघर्ष Voiced glottal fricative	हवा air बहन sister
ड़/d/r/	घोष अल्पप्राण मूर्धन्य उत्क्षिप्त Voiced unaspirated retroflex tap	लड़की girl पेड़ tree
ढ़/dh/	घोष महाप्राण मूर्धन्य उत्क्षिप्त Voiced aspirated retroflex tap	पढ़ाई study ढूढ़ना to search
ख/kh/x/	अघोष महाप्राण कोमलतालव्य संघर्ष Voiced aspirated veloric fricative	ख़बर news अख़बार newspaper
ग/g/	घोष अल्पप्राण कोमल तालव्य संघर्ष Voiced unaspirated veloric fricative	ग़म sad
ज़/z/	घोष अल्पप्राण वर्त्स तालव्य संघर्ष Voiced unaspirated alveolar fricative	ज़माना period
फ/f/	अघोष महाप्राण दन्त्योष्ठ्य संघर्ष Voiced aspirated labiodental fricative	फ़कार artist कफ़न coffin

शब्दावली / (GLOSSARY)

घोष	:	Voiced
अघोष	:	Voiceless
अल्प प्राण	:	Unaspirated
महा प्राण	:	Aspirated
स्पर्श	:	Stop
नासिक	:	Nasal
पार्श्व	:	Lateral
लुठित	:	Trill
उत्क्षिप्त	:	Tap
संघर्ष	:	Fricative
स्पर्श संघर्ष	:	Affricate
अर्ध स्वर	:	Semi Vowel
द्रव्योष्ठ्य	:	Bilabial
द्रव्योष्ठ्य	:	Labiodental
दंत्य	:	Dental
वर्त्स	:	Alveolar
मूर्धन्य	:	Retroflex
तालव्य	:	Palatal
कंठ्य	:	velar

Information in appendices 3.3 and 3.4 are supplied by Mrs. gayathri, Lecturer in Applied Linguistics, Central Institute of Hindi, Hyderabad.

SELF TEST - 3

I. State whether the following are *true* or *false*

1. Major structures responsible for voice production are vocal folds in the larynx. True/False
2. During the production of vowels mouth is closed. True/False
3. All consonants are voiced. True/False
4. Apart from vowels and consonants there are other speech sounds such as semi-vowels, diphthongs and clusters. True/False
5. Children learn to say all vowels correctly around the age of 1 year. True/False
6. Influence of surrounding sounds in the production of certain sounds is called *co-articulation* True/False

II. Fill in the blanks with appropriate words and phrases:

1. _____ system provides the source of air for voice production.
2. To describe vowels, the position of _____ and _____ shape are important.
3. While producing _____ sounds, air is obstructed completely in the mouth and it rushes out through nose.
4. Example for a bilabial voiced un aspirated stop is _____.
5. Retroflex sounds are generally learned little late, i.e., beyond _____ years.

III. Choose the best answer

1. All the systems involved in production of speech sounds are controlled by
 - a) Articulatory system,
 - b) Respiratory system,
 - c) Phonatory system,
 - d) Brain,
 - e) None of the above.

2. The common terms used to describe the tongue position while producing vowels are
 - a) Front and back,
 - b) high and low
 - c) Central,
 - d) All of the above
 - e) none of the above.
3. Example for a Glottal voiced stop is
 - a) /k/,
 - b) /j/
 - c) /g/
 - d) h
 - e) None of the above
4. Among consonants mainly, these are acquired first:
 - a) Labiodentals,
 - b) Alveolars
 - c) Glottals
 - d) Bilabials
 - e) None of the above
5. Diphthongs are
 - a) Combination of consonants,
 - b) Combination of vowels
 - c) Combination of syllables,
 - d) Combination of consonants & vowels
 - e) None of the above.

IV. Match the following :

- | | |
|---|---|
| 1. Terms to describe place of production of consonants | a) /w/ |
| 2. Terms to describe manner of production of consonants | b) /ai/ |
| 3. Example of semi-vowel | c) Stops, fricatives, nasals retroflexes etc. |
| 4. Example for diphthong | d) Bilabials, Labiodentals alveolars, etc. |
| 5. Parts of articulatory system | e) /o/ |
| 6. Parts of resonatory system | f) Teeth, lips, tongue |
| 7. Vowel in which lips are rounded | g) Mouth, nose and throat, etc. |



KEY TO SELF TEST - 3

I.

1. *True (see the text)*
2. *False. In production of vowels are moves out of unobstructed except by vocal folds.*
3. *False. Some consonants are unvoiced. Eg: /s/, /k/*
4. *True*
5. *False. Children learn to say all vowels usually by the age of three years.*
6. *True*

II.

1. *Respiratory*
2. *Tongue, lips*
3. *Nasals*
4. *b*
5. *Five*

III.

1. *d (brain)*
2. *d (all of the above)*
3. *c (/g/)*
4. *d (Bilabials)*
5. *b (combination of vowels).*

IV. 1-d; 2-c; 3-a; 4-b; 5-f; 6-g; 7-e.



CHAPTER-4

Acquisition of Speech and Language by Normal Children

Language development is one of the most fascinating aspect of human life. When a child speaks his first words, he discovers a clear path to the magic of speech and continues to learn this fascinating aspect throughout one's life. It would be important to know and understand how speech and language develops in normal children as it will help in clarifying many of the disorders of speech and language especially those that start early in life, such as mental retardation. Very limited published normal language development data in Indian languages is available. Hence the data based on studies of English speaking population is mainly used and few examples in Indian languages have been provided. This information will help in carrying out speech and language assessment and intervention in mentally retarded children.

No one knows why and when the very first word was spoken by humans

Objectives

This chapter,

1. provides description to the essential prerequisites for speech, language and communication development,
2. describes the importance and the activities that take place during the pre-speech developmental period
3. explains the important stage of first words and the intentions in meaning,
4. gives relevant information on the role of time and experience in language acquisition,

5. describes the progress of the child from *word to multi-word stage*, and
6. gives brief account of pragmatics of language.

Pre-requisites for language and communication development

In order to communicate i.e. learn and use language, the individual ideally needs to have the following skills and capacities (see fig.4.1). These pre-requisites are important for both normal and mentally handicapped children.

1. Sensory abilities : Adequate hearing and vision are essential for easy learning of spoken and written communication. Persons with hearing impairment have the disadvantage of missing out other's speech. They not only miss other's speech but fail to hear themselves. This will hinder speech and language acquisition.

Hearing is the main route to acquire aural-oral language (speech)

Similarly for learning of written language as well as gestural language one needs to have adequate vision. Apart from vision and hearing, sensations of touch, movement, and direction also play important roles in acquiring language.

2. Motor abilities : Motor abilities range from the ability to produce speech sounds to form manual hand signs as a means of communication. Speech is one of the most complex motor acts through which brain expresses ideas and feelings. Other language expressions like writing, signing, miming, gesturing, etc., are also motor acts. If the motor abilities are not adequate, expression through both speech and nonspeech modes may be affected. The motor abilities like walking allow the child to physically explore the environment which provides the necessary

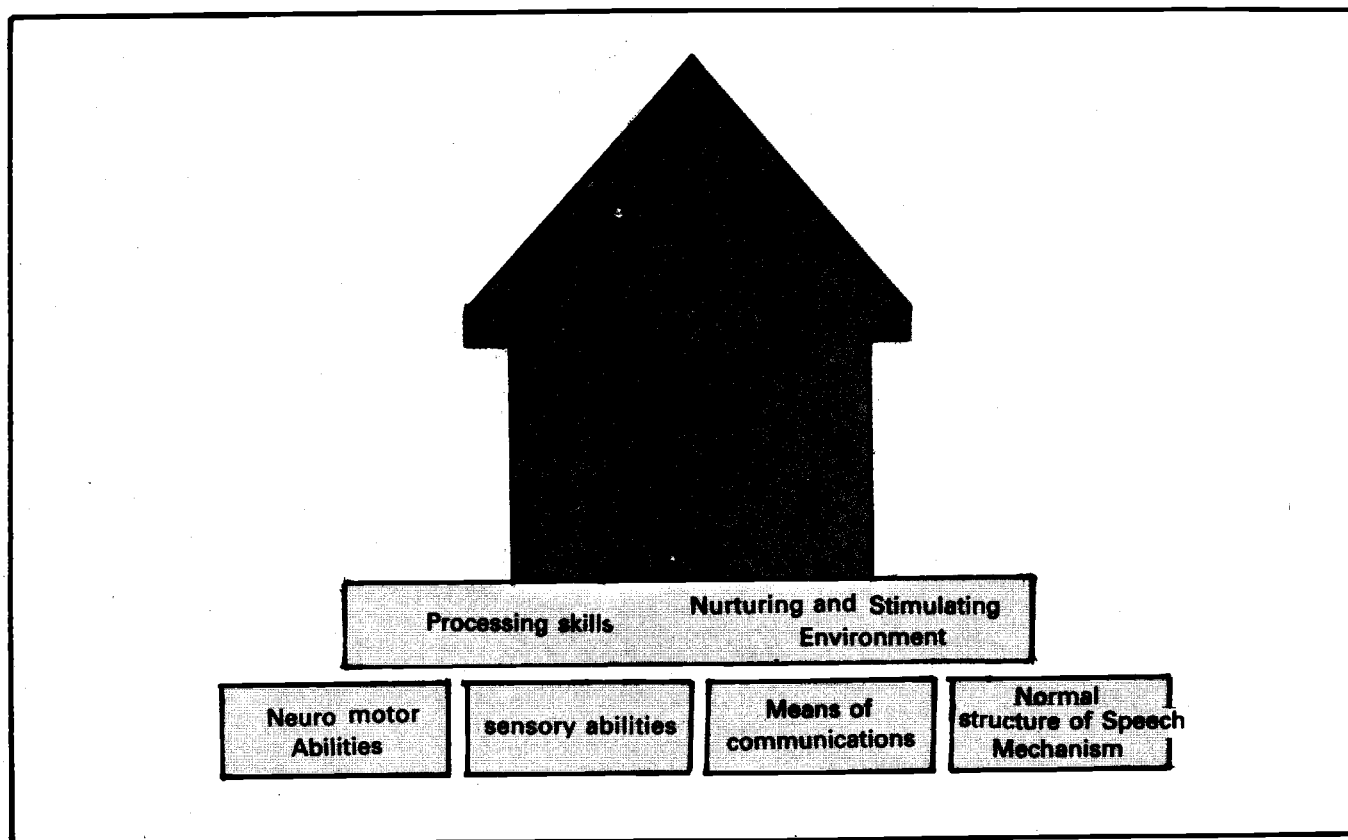


Fig.4.1. Schematic Representation of Pre-Requisites

experience about the surroundings which forms the basis for language learning.

Speech is a very finely coordinated complex voluntary motor act

3. Speech production mechanism : Adequately functioning speech production mechanism is necessary to produce speech. If the structures of the mechanism like, lips, tongue and throat are affected the movements of these structures also get affected and results in inappropriate sound production and finally results in delayed speech and language acquisition. In addition, problems like feeding difficulties, nasality and drooling may also result. Despite difficulties, many times we manage to produce speech clearly due to the compensatory movements of the speech mechanism.

4. Processing skills : A person may be able to hear or see and also make speech sounds but still may be unable to communicate. Communication using language is a higher mental function carried out by our brain. Functions like using arbitrary symbols, require an ability to receive sensory input and use it for expression. In order to infer meaning from sensory input (what is heard) and to express meaning, individual should have a variety of processing skills and abilities. In order to receive sensory input the person should be able to,

Without processing abilities a child will receive input like noise

- a) attend to stimuli (what is heard or seen or felt)
- b) attach meaning to what is heard (association of meaning with words)
- c) store in memory and recall what is heard or seen
- d) recognize various symbols or sounds of his language
- e) use reasoning and logic to arrive at conclusions and solutions
- f) generalize ideas and concepts to various situations.

Similarity to express a person should be able to,

- a) plan and formulate speech sounds in the brain,
- b) select a set of sounds for production in brain,
- c) Produce words and
- d) sequence these words to form sentences.

Many of these processing skills are deficient in mentally handicapped children.

5. Stimulating environment: Language is acquired in a social, environmental context and does not take place in a vacuum. At least three environmental aspects are crucial in promoting language acquisition as given below:

People and environment are the sources for language & communication

a) First important aspect is an *emotionally caring relationship with a caregiver/parent*, who provides rewards for the child's attempts to communicate. A Child while enjoying interaction continues to listen and use language. The individual must know that by saying or doing something, she can affect the behaviour of another person in specific ways. The individual must have some appreciation of cause and effect. At a more sophisticated level, the individual needs to learn to converse with other people, starting from the caregiver. A Child must learn to take turns in conversation, to understand what other person knows, etc., which are the rules for a good conversation. Appropriate usage of language is encouraged by the caregivers and as a result, child acquires language.

b) Second important aspect of a stimulating environment is *at least one speech model* (person), who uses simple but well formed language patterns. A Child tries to speak like (imitate) an adult while producing sounds, words, intonations etc. While

An effective model will present a child with simple but well formed language patterns

speaking to a child, adults are known to simplify their language like by speaking in simple sentences, and slowly so that child can easily understand and pick up language.

c) Third important aspect of a stimulating environment is *providing opportunities to communicate* or help the child to have *something to say*. In order to be able to communicate in an environment, the child should find preferences or felt needs. They will be to comment on objects, events, people and their relationships, i.e., knowledge and understanding of various aspects of the world. Having the ideas will allow the child to interact. Here, the child needs to have a reason for communication. If there is nothing in the environment which he wants or if he does not enjoy interaction, then there is no reason to communicate. If a child is not given an opportunity to communicate he is certainly not going to use language. Similarly we should stimulate a child so that he gets interested in the happenings in the environment and finds a need to communicate. During such an interaction language is acquired.

Language is acquired during interactions in the environment

6. Means of communication : A child must have a way to communicate his desires, needs, feelings etc. It may be speech, manual communication or sign language. With any others the child needs to have processing skills mentioned above.

Unless the child has a way to communicate, having knowledge doesn't allow communication

As can be seen from the discussion on pre-requisites, the process of language acquisition is long and complex. A child needs lot of time and sufficient experience in understanding and using language to communicate efficiently. The essential requirements if missing or defective, will affect acquisition of speech and language. In a mentally handicapped child processing skills are mainly affected and



Fig. 4.2 Opportunity for Communication

stimulating environment is generally not available. The process of this acquisition is discussed in the next section.

Language acquisition

Language acquisition starts very early in life, probably starting from birth and moves on through the stages of reflexive crying, babbling, and finally into acquisition of full fledged language.

Language is acquired by normal children without conscious tuition

Language acquisition is a process that most of our children go through without conscious tuition. The rate of acquisition varies from child to child. Language continues to develop throughout elementary school years. Some aspects like vocabulary continue to develop throughout life. The development of language is orderly and hierarchical. A basic sequence is followed and early stages are essential to the development of subsequent stages. The stages may overlap each other. The developmental stages are characterised by rehearsals and approximations. Hence for the child to be in error by adult standards is considered normal. At times it may appear that the child is going back in development i.e., child begins to make errors in language structures that appeared to have been mastered earlier. The following pages highlight important stages in acquisition of speech and language as under:

For the child to be in error by adult standards is considered normal

- *Prespeech vocalizations*
- *First words*
- *Combining words*

Prespeech vocalizations: (0-18 months)

Prespeech vocalizations refer to utterances by the child before the first word stage. During the period

of pre-speech development child lays the foundation for true speech. The pre-speech vocalisation consist of

- i) *reflexive utterances*
- ii) *babbling*
- iii) *adding intonation to the babbling*

i) Reflexive utterances : (0-3 months)

During the first three months of life a child has a very limited variety of vocal behaviour. The two main types of reflexive utterances produced by a young baby are

- a) *crying and*
- b) *comfort sounds*

a) Crying sounds : The early crying is generally a discomfort sound and is also one of the first methods of communication. Initially we may not discriminate between the cry caused by hunger and the cry because of pain. If careful enough one may detect sounds like, /a/, /e/ and /ai/ in the cry. But all these sounds will be sounding nasalized. They may also notice few sounds that are like /g/ and /k/. But all these sounds are reflexive. Later on gradually one may notice that while crying, expiration phase occupies more time than inspiration (as in speech). In addition, child produces other reflexive sounds like, *burping, swallowing, gurgling*, etc., during feeding situations, and such sounds have some characteristics of consonants.

Crying is one of the first methods of communication

When the baby is about 2 months old, parents can discriminate several different types of cries caused by hunger, pain, distress etc. Through these cries child practices essential motor coordination and

establishes necessary feedback connections between larynx, mouth and ear.

Reflexive vocal sounds dominate early stages of language development

b) **Comfort sounds** : These are difficult to describe in words. They are also called as *cooing sounds*. They mainly appear during or just after feeding or diaper changing, or some other forms of relief from distress, i.e., comfort states.

If the cooing sounds are observed carefully one may find that

- mostly front vowels, /i/, /e/ and back consonants /k, g/ are heard. The sounds are not nasalized as they were during cry stage.
- the child appears to gain control over voicing, demonstrated by the ability to express discomfort as well as pleasure vocally.

However, the child still lacks control over the reflexive sounds of vocal tract like burping, gurgling which appear frequently.

As can be inferred, the child appears to be practising the basic skills of breathing for speech and production of voice

The child at this stage shows early signs of social awareness as evident in the acts of, following adult's movements with the eyes and smiling. Child can also imitate facial gestures of an adult.

II) Babbling : (3-8 months)

The stage of reflexive vocalization is followed by babbling. This is a well known phenomenon found in all language environments. Babbling refers to *child's production of chains and series of syllables*

Babbling, a well known phenomenon is found in all human infants

in a single breath. A syllable like /ka/ is a combination of consonants and vowels. Baby seems to play with his tongue, lips and larynx like he does with his fingers or toes. He makes varieties of sounds with different styles especially after feeding or after diaper changing. Majority of vocalizations happen when the baby is alone. The vocalization may sound like /ka, ka, ka.../ and /da, da, da..../.

At about fifth or sixth month, infants use babbling to get attention, reject and demand. Before this the baby will be using eye contact and pointing like gestures to fulfil the same needs. Baby uses these vocalizations to express itself and to modify the behaviour of others. Initially a single consonant may be repeated in the babbling series and practised for several weeks. But, generally the child changes to a new syllable every few days and reviews his previous achievement now and then. Gradually in the babbling series the consonants may change and new combinations emerge. In this babbling many vowels made in front of the mouth /ai/ or made in middle /a/ and consonants like /t/, /d/, /n/ and /l/ are heard in combination. Example; /ta da ba li ta da ba li/.

By about fifth or sixth month baby uses babbling-vocalization, to express his ideas which were previously done by looking at or pointing

iii) **Adding intonation to the babbling:** Around 8 to 10 months, the babbling series which has a rich variety of sounds can be heard as expressions of *questions, commands & surprises*. This becomes possible because of the addition of the singsong tonal characteristics (*intonation*) that are imposed on babbling. Usually these utterances have no meaning although they sound delightful. The parents feel that their child is using a '*foreign language*'. This jargon speech continues in some children for a longer period whereas some children quickly move on to first words.

Most children go through these stages in the given order. The activity in one stage does not stop

suddenly as soon as characteristics of other stage appear. On the other hand, shifting from one stage to another is a gradual and smooth change. Children through such vocal gymnastics gradually master the coordination necessary for meaningful speech. It is important to note that the change from this stage to first words, does not abruptly happen.

During the age of 1 to 1 1/2 years the child has been an active listener and explorer. The child listens to the parents and others speaking throughout the daily routine tasks. The Child responds to parental stimulation, but selectively. His imitation begins to resemble the parents utterances. Social rewards such as a parental smile, gesture or spoken word increase the frequency of vocal behaviour.

Rewards such as a parental smile, gestures or speech, will increase the frequency of child's vocalizations

First words

By the age of 1 to 1 1/2 years most of the children say their first words. Change from the stage of jargon speech to first words stage is marked by the presence of *ideomorphs* or *self made words*.

Ideomorphs

Before producing adult like words child uses different self made syllables and words to denote different objects and actions. Child forms his own words. These self made words of the child are called as ideomorphs. Ideomorphs have different origins during the child's daily life. A set of common sources are listed below, in table-I

Table-I
COMMON SOURCES OF IDEOMORPHS

Source During	Example utterances
Pointing	<i>/aaa/</i> need that object
Straining while carrying heavy objects	<i>/uum/</i> one straining while carrying load
Imitating sounds in the environment	<i>/bow wow/</i> dog barking <i>/meow-/</i> cat mewling
Self-Imitation	<i>/dhub/</i> fallen down with thud
Description by moving organs	rounding the lips, sucking air in and raising eye brows to mean <i>so many</i>
Imitation of adult speech	<i>/chichil/</i> - (I hate it)

Some Ideomorphs could be shorter versions of the jargon. Child uses these utterances to describe a range of objects and events. For example *fff..* is used for indicating, blowing out a match stick, smoke, chimney, injury etc. Child uses different intonations on the same Ideomorph to denote different meanings in different situations. A child will continue to develop ideomorphs till he finds that adult words could be used in their place.

Different intonations in different situations on same ideomorph may mean different things

Ideomorphs to first words

Over a period of time, from ideomorphs child slowly shifts to standard adult words. This will happen in different ways as described below

- i) A child may use adult like inflections along with ideomorphs and slowly shift to and maintain the standard word

- ii) Combines ideomorph with other standard adult words to form *compound words*.

Example: Child may use *Brrr...* for bus and combines *man* to form *Brrr man* to denote driver.

- iii) Combines Ideomorphs with adult form of the same word. Child starts using such a combination and slowly deletes ideomorphs and uses only standard forms.

Example: *Chuk chuk train* Gradually *Chuk-chuk* form is deleted and only *train* retained.

- iv) when an adult questions the child he replies using ideomorphic form.

Example: Adult : What did you see on the road?

Child : ambaa...

Adult : Yal It is a cow.



Fig. 4.3 Child made words

- v) **Code switching:** With one person the child uses Ideomorphs (generally with the mother) while with others he uses standard forms and gradually retains only the standard forms.

Through any one or combination of these five ways the child drops ideomorphs and produces his first words. These first words are the expressions to the child's earlier experiences with the environment i.e., using first words the child is expressing an idea, or a desire, previously learnt.

Child expresses in his first words important objects events and persons from daily experience

How do first words sound

First words do not sound like adult words. They are mostly single syllables but are repeated, example, *da-da, Papa, mama*. Child produces the same word but with many intonations to look like a question, request, demand etc., depending on the situation. The child uses one word like a sentence. Often an appropriate gesture will accompany the utterance. Important objects, events and persons from a child's daily experience are only uttered first. Children target objects and people for their first words - which are moving (like vehicles, persons) movable (like toys) or child has direct control over (for example knicker is acquired earlier than shirt).

The first words are simplifications of the adult forms and hence do not sound like adult words. Gradually as the child gains experience and neuro-motor coordination, he/she approximates adult forms more and more correctly. Some researchers claim that they have identified certain regularities in child's way of producing first words. These are called *natural phonological processes*. The most common ways in which children manage to utter first words are :

First words are simplified forms of adult words and hence do not sound like adult words

i) *substituting* or *replacing* certain sounds in the words:

For example: Say - /tail/
rail - /laill/
book - /kuk/
uncle - /unthl/
shoe - /chu:/
phone - /pon/
bottle - /bathil/
auto - /authol/
bus - /but/

ii) *Simplification of sound clusters* or blends in words, where some sounds are omitted to make words manageable.

For example: school - /kool/
spoon - /poon/
train - /tain/
dress - /dess/
blue - /bu:/

Children normally leave out difficult sounds in the words

iii) *Deletion of weak syllables* : In this case unstressed or less stressed sounds are deleted in a word.

For example suppose - /pose/
bicycle - /bikel/

iv) *Deletion of final consonants* : Children seem to omit the consonants at the end of the word.

For example: Pen - /pe/
book - /boo/
Fan - /Fa/
Plane - /Pa:/

This kind of *errors* occur because the skill of articulation is gradually mastered and speech sounds are gradually acquired (refer chapter 3). It is possible that the child inconsistently uses the sounds, and it is also possible that more than one above said processes may be acting at a given time.

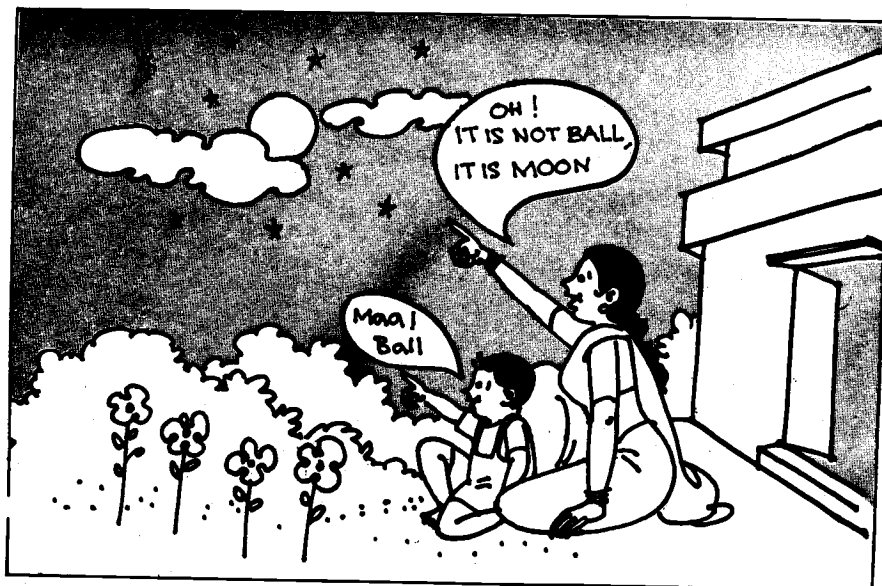
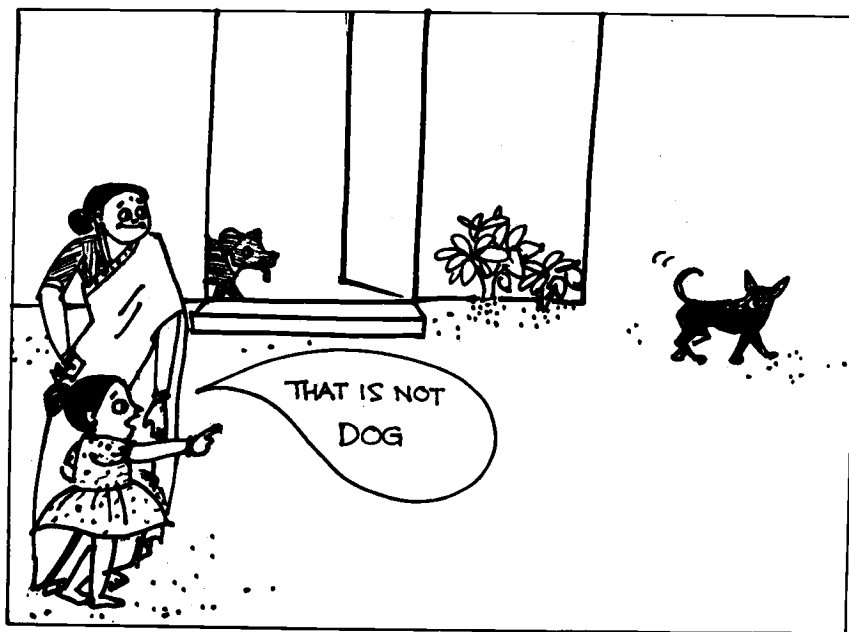


Fig.4.4 Showing examples of over and under extensions

What children may mean when they use the words?

The meanings intended by children by using the words or gestures can be called as *Semantic Intentions*. It may be assumed that children do not start with the adult meanings. They have to work towards developing the adult meanings depending upon their experiences in hearing and also using the word in different situations. The common strategies children use while developing meanings of the words are *underextension* and *overextension*. The child may use a word to mean only one thing and not a class of similar things. For example, using *doggie* to mean only the pet dog and not other dogs or using *chakie* to mean chocolate the child likes and not other chocolates. This is referred to as underextension. Similarly child may use a word to mean more than what adults mean, for example using *ball* to indicate moon which is termed as *over-extension*. On repeated using of the words and depending upon the adult reactions, the child gradually approximates adult meanings.

Children will have to work towards developing adult meanings of words, during their experiences

After acquiring adult meanings, during the 12-18 months of age, the common *intentions* expressed by children are given below

1. **Existence:** The child recognises the existence of an object or an event. He expresses this through a look, gesture, vocalization, a sign or a word. For example, on seeing mother, child may say *mama*. On seeing milk he may say *du:dh* etc.

2. **Disappearance:** The child comments on the disappearance of a person or object by using a look, gesture or a word. For example says *all gone* when the milk is over; *gaya* (gone) when father goes to office;

An intention of meaning can be expressed either by a look, gesture, vocalization, sign or a word

3. Recurrence: Child expresses that an object existed disappeared and reappeared. Child may also request repetition of an action. For example, when the child wants the father to throw the ball again he/she may say *more more* to continue.

4. Non-existence: The child indicates that an object does not exist where he expects it to be either non-verbally by a look, gesture or vocalisation or by a sign or a word such as *no, gone* or the name of an object. For example, Child opens the box and finding no chocolate, remarks *no chakie*.

5. Location : The child comments on the position of an object, a person or an event or the spatial relationship between two objects or requests that an object be placed in a certain location, by look, gesture, vocalisation or a sign or word such as *there, on, table*. For example, when a child after a search finds his toy car may say *adigo/vo* (that) and simultaneously pointing and looking at the adult victoriously.

6. Possession: Child comments on relationship between an object or person and themselves. For example when he and another child are playing he may suddenly pick up a toy car and may say *naadi, mera* (mine). When another adult says *I will take away your daddy* he may say, *na:di, me:ra*, or *mine*.

7. Rejection : The child communicates that he does not want an object, adult or event, or that he wants an activity to cease by look, gesture, vocalisation, sign or a word such as *no, stop, bye-bye*. Child pushes away adult's hand with sticky dough.

8. Denial: The child denies a proposition by look, gesture, vocalisation or a word or sign such as *no*

or *did n't*, for example, child takes chocolate when adult is not watching. Later when the adult blames the child nods his head with full mouth in disagreement saying *nahi* (no).

9. Agent: Child tries to communicate about the person or object (agent) doing the action. This may be by look, gesture, a word or even by vocalizations. For example, when she wants to show her mother that brother spilled the milk, she will scream *ma* and when mother comes she will point at milk on floor and says *bha:yi* (brother).

10. Object: That is the object or person that may be affected by an action. The child can convey this by a look, gesture or vocalisation or a word or sign. For example, when shown tooth brush, the child points to teeth saying *teeth*.

11. Action: Child comments on any observable activity or change of state. For example, child screams for her mother and says *khaya* (eaten), when her brother eats a chocolate.

12. Attribution: Child comments on the property of an object or a person, through look, gesture, word etc. For example, child may touch a glass of hot coffee and may jerk his hand back and say *ha!* indicating it is very hot. When a child sees a dirty dog, she may say *chi..chi..* to communicate that it is dirty and needs a wash.

Attributing a quality describing an action are some of the last learnt meaning intentions by children

As the child grows the number of words continue to expand, all through the life. At around 18 months of age, a vocabulary of about 50 words is generally seen. At this stage child learns to combine words together.

Combining Words

Development of word order

The earliest stage of grammatical development hardly seems like grammar at all. This is because only single words are involved, for example, utterances such as *mama*, *bye bye*. Most of the words used at this stage seem to have a naming function and will develop into nouns. Few others are action words, many of which develop into verbs. Few other word classes are also found at this stage, example, adjectives and adverbs.

Early word combinations are telegraphic in nature

In many respects, these early utterances function as if they are sentences. For example, A child may use word *ma* in three or four different forms . With questioning intonation on seeing a lady approaching may mean *where had you gone?* When the same child says *ma* with demanding intonation with hands stretched may mean *pick me up*. At this stage, these utterances do not have a distinctive grammatical form, but the use of intonation and gesture conveys the force of the sentence types. Soon, the child learns to combine words. Some of the early word combinations are of two words.

In early stages, single words function as if they are sentences

Two word sentences

Children string two or more words together around 18 months of age. This tends not to happen suddenly. There is usually a transitional period, in which words are brought together, but the sequence is not uttered as a single, rhythmical unit as in *daddy-gone*. Lengthy sequences of such words can often be heard. But soon two-word sentences emerge with great confidence and increasing frequency. During the early two word combinations children talk a great deal about objects. They point

Combining two words happens around 18 months of age

to them and name them (*demonstrative*) and they talk about where the objects are (*location*), what they are like (*attributive*) who owns them (*possession*) and who is doing this to them (*agent-object*). They also talk about actions performed by people (*agent-action*), performed on objects (*action-object*) and oriented towards certain location (*action-location*). Objects, people and actions and their inter-relationships pre-occupy the child at this stage which actually are the experiences that the child has gone through so far. Some of the common word combinations which represent a small group of meanings or semantic relations as expressed in children's language are given below in Table-II with examples.

Table-II
COMMON TWO WORD SEMANTIC RELATIONS*

Semantic relation	Example utterance
Agent + Action	<i>mummy come</i>
Action + Object	<i>drink milk</i>
Agent + Object	<i>mummy sock</i>
Action + Location	<i>sit-chair, toy-floor</i>
Possessor + Possession	<i>my teddy</i>
Entity + Attribute	<i>crayon big</i>
Demonstrative + Entity	<i>that money</i>

As can be seen, semantic relations are telegraphic in nature. However, these telegraphic utterances turn into more grammatical sentences.

Source: Fiesberg H.T., in Gleason J.B. (Ed) *The development of language*, Meritt Pub. (1989).

Development of sentence structures

At around two years of age, many children produce sentences that are three or four words in length and combine these words in several different ways to produce a variety of grammatical constructions. Typical sentences at this stage include *daddy, give bikki* etc. Questions and commands are being used as well as statements.

Initially children judiciously add two-two word phrases to make sentences

Children seem to use some strategies in making two word phrases into sentences. One of the ways is to combine two two-word phrases and delete the common word.

For example:

Agent-action + Action-object = Agent action object
John-Drink + Drink - milk = John, Drink milk

Here the two words are linked with redundant terms being omitted.

Another strategy is to expand the information on the noun of the phrase.

For example : *that flower* becomes *that yellow flower shirt do* (give shirt) becomes *lal shirt do; mera shirt do* (give red shirt; give my shirt)

Similar to expanding nouns, verbs may also be expanded to add additional information.

For example:

- i) *Mummy, go* becomes *Mummy, go home*
- ii) *Go home* becomes *go home quickly*
- iii) *Give milk* becomes *give some milk*

Generally, verbs and nouns are expanded by adding modifiers such as adjectives and adverbs.

Transformations

As the development of the capacity for expressing in simple sentences has taken place, the child is ready to make more modifications.

At this stage the primitive statements are modified or transformed to make constructions like, question forms and negations.

Children start using negation and question forms between the age of two and a half to three years

Negations

Children initially add *no* either at the beginning or at the end of the utterance.

For example : *no sit there*
give milk no

Later *no* and *not* are gradually included in the sentence.

For example : *He no like you*
That not red that blue

Main transformations from a simple sentence are negations and questions

Finally *don't* and *can't* are learned.

Question forms

Asking questions takes two basic forms. Those that require a yes/no response and those that require response to *wh* forms.

Yes-no response questions: To form yes-no response questions, the verb is placed initially in a statement.

For example : Sita can run - Can Sita run?
He was playing - Was he playing?

Wh questions : For framing *Wh* question forms specific information on different aspects in a statement is requested.

For example :

Sita will run (*subject*) - Who will run?
I will see Sita (*object*) - Whom will I see?
I am running (*predicate*) - What am I doing?
The big boy ran (*determiner*) - Which boy ran?
He went home (*locative*) - Where did he go?
She can go now (*time*) - When can she go?
Ram will travel by car (*manner*) - How will he travel?

From this stage child moves on to combining two or more simple sentences in order to form complex sentences. Initially the word *and* is added between sentences. Gradually the words like *later*, *because*, *when*, *so*, are used. The development of use of complex sentences may continue well beyond 5 years. When child moves from two and three word stages a set of words known as *grammatical morphemes* make their entry in order to provide clearer word meaning.

Grammatical morphemes

Grammatical morphemes are referred to as meaning modulators who serve to mark structures and provide word meaning. Grammatical morphemes when get attached to the content words change their grammatical category and will modify the meaning. Grammatical morphemes emerge in a definite sequence. Some of these word endings */-ing/* and plural */-s/* in English, appear first at around 18 months of age, but take several months to be used correctly. Other endings appear at intervals over the subsequent two years and show a similarly

Grammatical morphemes help to provide appropriate word meanings without much explanation

gradual pattern of development. Many irregular inflectional patterns (eg: comparative forms such as */worse/*) may not be correctly used till 8 or 9 years. Some examples of grammatical morphemes in English are shown below in Table-III (in developmental order).

Table-III /
GRAMMATICAL MORPHEMES* IN DEVELOPMENTAL ORDER

Present Progressive	- <i>ing</i>
Preposition	<i>in</i>
Preposition	<i>on</i>
Regular plural	-s, -z, -es
Past irregular	<i>ran, came</i>
Possessive	-s, -z
Articles	<i>a, the</i>
Past regular	-ed
Third person regular	-s, -z
Third person irregular	<i>does, goes</i>

Note: Some examples of grammatical morphemes in Indian language are: Present progressive *raha hun* (Hindi); *u:unnanu* - first person singular male (Telugu); Plural markers: *-ian; -en* (Hindi); *-lu* (Telugu), etc. It must be noted that information on development is not available in Indian languages currently

* Based on Brown (1973), Quoted in, Van Riper, C & Emerick, L (1990) - *Speech correction : An Introduction to Speech Pathology & Audiology*, Prentice Hall, N.J.

A note on development of expression*

Here is a summary of expression of language designed keeping the activities of assessment and intervention in view. The developmental progression has been looked as a change from *unintentional to intentional* and from *non-symbolic to symbolic expression*. It is important to remember that all children pass through these stages. This emphasizes the role of communication and may be referred to while dealing with intervention aspects of language content, form and use.

Table - IV
LEVLES OF EXPRESSION

<i>LEVELS</i>	Vocal	Motor-gestural
1. Pre-intentional behaviour	Cry gurgle coo	Head movements Postural change Facial expression
2. Intentional behaviour	Fuss	Reaching, pushing, etc.
3. Non-conventional pre-symbolic communication	Laugh Non-speech sounds	Eye contact plus above behaviours
4. Conventional pre-symbolic communication	Intonated sound patterns, Vocalization accompanies gestures	Alternate gaze, touching,objects Hands movement pointing kissing, hugging,etc.
5. Concrete symbolic communication	Mimics, sounds of objects (Ideomorphs)	Depictive gestures (mine,come, sit).
6. Abstract symbol communication	Single spoken words	Single manual signs
7. Formal symbolic communication	Combination of two or more spoken words	Combination of two or more manual signs

* Adapted from Goetz,L., Guess,D., and Campbell,K.S., *Innovative programs design for individuals with dual sensory impairments*. (1989), Brookes Publishing Co., Balitmore, Maryland.

Later Syntax

By the time a child is ready to enter kindergarten, he will have acquired almost the entire adult grammar. Only few refinements need to be learned. These are acquired by 10 or 12 years of age. Some of these are,

Children acquire adult grammar by the age of about 12 years

-- *comprehension and expression* of passive voice: Comprehension of passive voice is achieved around 12 years of age. If given a sentence *The cow was kicked by the horse*, children around 5 or 6 yrs. may interpret that as *the cow kicked the horse*.

- *Exceptions to general rules* : The rules like *goose* is singular and *geese* is plural is learned around 11 years.

- *Complex transformations* : Child requires a considerable sophistication to restate a sentence in different ways. For example, *It is nice to play foot ball*, can be restated as, *Foot ball is a nice game to play* or *Playing football is nice*. Such transformations are learned during schooling.

Development of semantics (Development of meaning)

So far we have been considering development of syntax. This syntax development continues in coordination with the semantic development. Still it is not clear how children manage to acquire such huge vocabulary they hear and use. From the time infant utters the first word, vocabulary development proceeds at an increasingly rapid rate. The vocabulary grows rather quickly during the last half of second year with the infant's increasing mobility and expanding knowledge and experience with people, objects and events. The vocabulary development involves expansion of various meanings of words already acquired, through such strategies as under

extension and over extension. For example child may use word *dog* to name all four legged animals with tail, like, cat, cow, horse etc. (over extension) Infants also under extend words by using them too narrowly for example, child may call his pet as dog and all other dogs are not dogs in his mind. Slowly the child notices more features and uses words in an adult fashion.

During one and a half to two years, vocabulary of the child grows rapidly due to increased experience

Children not only learn meanings of objects and events, they also acquire ability to express relationships between them.

With more maturity and experience, phrases are gradually turned into increasingly complex sentences in meaning. The major development that underlines semantic growth is the increasing vocabulary learning. Number of words learned increase with advancing age.* An example of such growth is shown below in Table-V.

Table-V
VOCABULARY GROWTH

Age (in Months)	No.of words
8	0
10	1
12	3
15	19
18	22
21	118
24	272
30	446
36	896
48	1540
60	2971

* Sources : Snow, C.W, (1989) *Infant development*, Prentice Hall, NJ and VanRiper, C. & Emerick, L (1990) *Speech Correction :An introduction to speech pathology and audiology*, Prentice Hall, NJ., (8th Edn.)

Children also seem to learn meanings of new words in a sequential fashion. Children initially, learn those that refer to objects, events or actions. Next they seem to learn adjectives and adverbs. Generally next they learn set of terms that describe place and time, and finally they concentrate on relational words, like, her & their.

Development of pragmatics

The task of language acquisition requires that children learn much more than patterns of sound, grammar and vocabulary. They must also use these patterns appropriately in a rapidly increasing range of everyday social situations. Pragmatics is language viewed from the point of the users, especially choices they make, difficulties faced during usage of language in social interactions, etc. It is not possible to talk about definite stages of development, but the early age at which these emerge is now clearly established. There are different aspects of pragmatics namely,

It is not enough if the child has the grammar and meaning, in addition also should learn to use the language

- i) *Expressing intentions* For what purpose we communicate
- ii) *Initiating, maintaining and closing a conversation*
- iii) *Awareness of the listener*, How to read the listener in terms of who is the listener? and what does he/she know. Our talk on a topic depends on the answers to these questions.
- iv) *Recognition of the role of situational context* i.e., when to offer condolences, when to offer congratulations etc.

Development of pragmatics can be described in following steps.*

1. Between 2 and 10 months of age child maintains eye contact. Exchange of looks are used to regulate behaviour. Adult and child are involved in joint action routines. Child expresses his needs by pointing at an object and at the same time vocalizing.

Development of use of language starts as early as two months

2. When the child is between 10 and 16 months he may use gestures while giving objects, pointing things and to draw caregiver's attention to the object wanted. Child involves in non-verbal turn taking with adults during play. Semantic intentions develop.

3. During this step, rudimentary conversational skills are seen. Child answers questions and describes feelings. Further he may use pronouns. Child will be sometimes able to shift or change topics. All these are seen during 18 to 30 months.

4. In the beginning conversations are very erratic and disjointed with parents doing most of the work. Similarly child's talk is not directed to any listener.

5. Between 3 and 4 years, they will be able to initiate a dialogue - the various ways of obtaining and holding a listener's attention. Several other skills like turn taking are further refined. They begin to respond appropriately by providing clarification when requested to do so. A Child will be able to change his style of speaking when speaking to a baby.

Between the ages of three and four years child learns to initiate a dialogue

* Source : Carrow Woolfolk.E., and Lynch.J.I., - *An integrative approach to language disorders in children* - Grune & Stratton, Inc. Ny (1982)

6. Between 4 and 5 years child can comment on grammar and language. Child can give antonyms and synonyms. There is a major development in child's awareness of the social factors that govern a successful conversation such as correct use of forms of address and markers of politeness, and using requests in an indirect way. They also anticipate points of potential breakdown in conversation and will be able to carry out conversational repairs such as repeating utterances so that they are clear or asking for clarification.

By the age of 5 years children become aware of social factors that influence a successful conversation

7. Beyond 5 years of age child will be able to use language for artistic purposes (poems, description, etc). They adopt various persuasive tactics. They learn to tell jokes and riddles, insult each other, maintain group identity and make up language games. One of the most remarkable of these abilities is the ability to talk backwards. This is more sophisticated around 9 years of age. Children learn these skills largely by social experience. Pragmatics may continue to develop as late as 14 years (adolescence).

Use of language continues till as late as 14 yrs

A note on talking to Babies

Soon after birth, the infant and the caregiver engage in mutual dialogue. To some degree, both partners control this exchange. The child sets the level of exchange because of his limited abilities. Mother controls the exchange, by modifying her talk and actions, to fit the child's abilities, and to maintain the infant's activity level. Generally, the exchange takes place in a face to face situation.

The speech and language of adults and children is systematically modified from that used in regular conversation. This adapted speech and language has been called *baby talk* or *motherese*. Baby talk

has short sentence length and simple words. Mothers repeat and re-explain themselves, possibly to help the baby understand. Topics are limited to here and now matters. In addition, heightened use of facial expressions and gestures is seen. Many mothers use a considerable number of questions and greetings with their infants. After a pause, which may be treated as a response, mothers continue replying.

Adults systematically modify their speech to children

Some intentional behaviours are of particular interest for language development. They are *joint reference*, *joint action*, *play* and *situational behaviours*. Joint reference suggests that two or more individuals share a common focus on one entity. Within this context only infants develop gestural, vocal and verbal signals of notice. Engaging in joint actions where mother appears to take the child along, using regular ritual imitation games and using clues in a situation are important aspects. All these lead to preparing the babies to learn the rules of language use. Suitable importance should be given to interaction between the baby and care givers, which will form a basis of language development.

Language development has a strong base in joint action routines with caregivers

Understanding various aspects of language development in normal children helps us to analyse the problems seen in mentally handicapped children during different stages. Next chapter will focus on the problems in language and communication in mentally retarded children.



SUMMARY

This chapter discussed the importance of pre-requisites of communication in acquiring speech, language and communication along with the role of time and experience. Further it described various activities during pre-speech period which are of relevance to communication. Similarly, progress of the child from first word to multi word and further using of complex sentences has been discussed. Keeping pace with the changing times and based on contemporary theory, aspects like the development of pragmatics, adult-child interactions, were also mentioned in the end. Readers should keep in mind that all these parts of language are described separately only for better understanding. In real life, their development is interwoven. In short, language acquisition is a complex process of acquiring knowledge regarding what to communicate (content), how to communicate (form), when, where, and with whom to communicate (use).



self test - 4

I. State whether following statements are *true* or *false*

1. Language acquisition involves conscious tuition by parents. True/False
2. Pre-speech activities play no role in later speech and language acquisition. True/False
3. Syntax development continues in coordination with the semantic development. True/False
4. Children string two words together in sequential fashion around the age of 3 yrs. True/False
5. Around the age of 3 years children will have a vocabulary of 75 words. True/False
6. Children bring with them ready made meanings of new words they use. True/False
7. Language use or Pragmatics may continue to develop as late as 14 years. True/False

II. Fill in the blanks with appropriate terms and phrases

1. Child says the first word by the age of _____ to _____ months.
2. Children use _____ processes to simplify and approximate adult words.
3. A person takes away child's toy. Then child snatches it and says *mine*. The semantic intention expressed is _____.
4. While learning negations _____ and _____ forms are learned later compared to forms *no* & *not*.
5. The development of use of complex sentences may continue well beyond _____ years.
6. By the age of 2 years children will have a vocabulary of approximately _____ words.

7. Rudimentary conversational skills are seen between _____ and _____ months.

8. While speaking to children, adults modify their utterances to be _____ .

III. Choose the best answer

1. In a mentally handicapped child one of the following prerequisites is, mainly affected
 - a. Speech production mechanism
 - b. Means of communication
 - c. Processing skills
 - d. Sensory abilities
 - e. All of the above
2. Following are the sources of Ideomorphs except
 - a. Straining,
 - b. Imitation of adult speech
 - c. Self imitation
 - d. Code switching
 - e. No exception
3. Change from Ideomorphs to first words happens in the following ways.
 - a. Code switching
 - b. Using adult like inflections with ideomorphs
 - c. Replying with ideomorphic form
 - d. Forming compound words by combining ideomorphs with standard adult forms.
 - e. All of the above.
4. Some strategies children seem to use in turning two word phrases into sentences are the following, except
 - a. Serially linking of more relations with redundant terms being omitted.
 - b. Expansion of noun phrase
 - c. Expansion of verb phrase
 - d. Deletion of adjectives and adverbs
 - e. None of the above
5. Two strategies used by children in acquiring vocabulary meanings are,
 - a. Left extension & right extension,
 - b. vertical extension and horizontal expansion
 - c. Semantic extension and syntactic expansion
 - d. Under extension and over expansion
 - e. Under extension and over extension
 - f. None of the above.

6. Semantic intentions and non-verbal turn taking with adults during play, develop during this period of pragmatic development
- | | |
|---------------------|------------------------|
| a. 10-12 months, | b. 2 years to 3 years, |
| c. 20 to 26 months, | d. 10 to 16 months, |
| e. 18 to 24 months, | f. None of the above. |

IV. Match the following:

1. Development of syntax

- | | |
|--------------------------------|---|
| i) Some semantic relations | a) Existence, Disappearance recurrence, etc. |
| ii) Few grammatical morphemes | b) Agent + action,
action + object
agent + object |
| iii) Early semantic intentions | c) Possessive, Present progressive, preposition |

2. Vocabulary development

- | | |
|--------------|---------------|
| i) 2 years | a) 22 words |
| ii) 3 years | b) 1540 words |
| iii) 4 years | c) 272 words |
| iv) 1½ years | d) 896 words |

3. Development of pragmatics

- | | |
|------------------------------|--|
| i) Beyond 5 years | a) Correct use of forms of address and markers of politeness and how to make requests in an indirect form |
| ii) Between 4 & 5 years | b) Learns to tell jokes and riddles, insulting each other, playing language games. |
| iii) Between 2 and 10 months | c) Child maintains eye contact, involvement of joint action routines pointing behaviour along with vocalization. |



KEY TO SELF TEST - 4

I.

1. *False - It is acquired through unconscious tuition*
2. *False - They facilitate speech and language acquisition*
3. *True*
4. *False. This happens around the age of 18 months*
5. *False*
6. *False*
7. *True*

II.

1. *12, 18*
2. *Natural phonological*
3. *possession*
4. *Don't and can't*
5. *Five*
6. *272*
7. *18 & 30*
8. *Short, simple*

III.

1. *c.*
2. *d.*
3. *e.*
4. *d*
5. *e*
6. *d*

IV.

1. *i) - b; ii)-c; iii)-a;*
2. *i) - c; ii)-d; iii)-b; iv)-a;*
3. *i) - b; ii)-a; iii)-c.*



CHAPTER-5

Communication and Language Problems in Mentally Retarded Children

Learning to talk and communicate is a complex process. It is not easy to achieve a proper blend of what to communicate (content), how to communicate (form) and when and where to communicate (use). Mentally Retarded Children show a wide range of speech, language and communication problems, some even have difficulties in fulfilling basic communication acts such as asking for food and water. This chapter attempts to describe the range and pattern of communication problems and probable causes in mentally retarded children.

Objectives

1. recognise the reasons for communication problems in mentally retarded children,
2. describe the range and extent of speech and language problems.

Normal speech and language

Speech and language are accepted as normal if they resemble the speech and language of majority of people of same environment, culture, age, sex, socio-economic conditions and educational background.

Mentally retarded children are a large group of persons who show communication defects

A majority of children develop speech and language normally, however, some children fail to join the majority. Mentally retarded children are one such large group.

Abnormal speech and language

Speech and language are considered to be abnormal when they are so different from speech and language of other people, that they catch attention and/or interfere with communication. That is, Speech and language are defective when they are difficult to *understand* or *unpleasant*.

In order to be labelled as abnormal, speaker's speech and language should show errors in any one of the following four areas:

1. **Language disorders** : Persons having difficulties in understanding and expressing symbols (eg: words) and/or signs.
2. **Articulation disorders** : Persons having difficulties in speech sound production.
3. **Voice disorder** : Person having abnormalities in pitch, loudness and quality of the voice.
4. **Fluency disorders** : Persons having problems in smooth flow of speech utterances.

Speech and Language defects can be classified into 4 groups language, articulation, voice & fluency disorders

Nature of Speech and language problems in mentally retarded children

There is no typical speech and language pattern of mentally retarded persons. Mentally retarded children exhibit a wide variety of speech and language problems and the problems are highly individualistic in nature. That means no two mentally retarded children show the same problems. The range is so wide that one child may not speak at all and understands very little of other's speech whereas another child has fairly good comprehension for day to day living and has enough speech to express but the speech is unintelligible.

MR Children show all varieties of speech and language disorders

Generally, it is accepted that the speech and language development in mentally retarded children is delayed as compared to normally developing children. That means to say that mentally retarded children develop speech and language skills in the same sequence as do normal children and the factors underlying development are same. However, they develop skills more slowly and they have a lower ceiling of development than normal individuals. The available evidence suggests that mentally retarded children are likely to show specific difficulties or delays in the structural aspects of language particularly in respect of sentence length, syntax and sentence complexity.

Generally MR Children show a delay in speech and Language development

Prevalence

The frequency of language disorder is about 100% below the I.Q.20; around 90% between the IQ 21-50; and about 45% in mildly retarded group.* Studies done on Indian population are very few and provide confusing picture of results. In an analysis of about 300 mentally retarded children done at NIMH**, 81.24% had speech and language defects. It was noticed that 30% of them had no speech and about 60.67% spoke a few words only. All the children had delayed speech and language development and articulation defects were 52%. Voice defects were observed in about 39.33% and 13% showed fluency defects.

More than 80% of MR Children show communication problems

Reasons for delay in development

Mentally Retarded Children present difficulties in *cognitive aspects (processing skills)* such as sustaining attention, attaching meaning to inputs, memorizing the symbols, interpreting the message,

* Carrow-Woolfolk & Lynch (1982); ** Subba Rao & Srinivas (1989).

programming of speech sounds for production and then sequencing output to produce words & sentences. As the language development is heavily dependent upon cognitive development, any delay or defect will hamper language acquisition.

One important pre-requisite of development of speech and language is a stimulating environment, particularly, the language input provided by the model or the caretaker. The caretaker-child interaction strongly influences speech and language development. Recent research shows that mother-child or the caretaker child interaction in the cases of mentally retarded children in many ways differs from that of interaction with normal children. When confronted with a less responsive child, the caretakers appear to reduce the amount of talking and when talked give less and less information to the children. A good stimulating environment helps a child to learn better and faster. However, in the case of mentally retarded children the environment is generally not conducive for language learning. A Mentally retarded child may not get enough opportunities for communication within the environment.

Cognitive deficits or problems in processing skills and poorly stimulating environments are the main causes of speech and language developmental delays in MR Population

Frequently seen problems such as ear infections (ear discharge), upper respiratory infections, structural abnormalities of the speech mechanism etc., can also contribute to poor or delayed development of speech and language in mentally retarded children.

Studying the pre requisites for normal language development, gives clues to the reasons

Some important aspects regarding the speech and language problems of mentally retarded children are given below. The problems have been classified under the major headings of language, articulation, fluency, and voice.

Language problems

Language delays are seen in both aspects of *comprehension* and *expression*. The problem in both areas may be of different severities. The range of problems is very wide and includes extremes. It is worth noting that no two children have exactly similar problems. Some of the common problems are as follows.

Problems in expression

1. *About 40%* of the mentally retarded children are *non-verbal* that is, they do not use speech. Some of them may not even have basic communication such as indication for hunger by crying, fussing, pulling others or by pointing. Some learn to use basic gestures for food, toileting and for other basic needs. Here, the main problem probably is not developing a viable phonological system.

Nearly 40% of the MR Children donot have speech. This problem of expression attracts maximum attention

2. Given that the verbal objective of mentally retarded persons is restricted, many of them resort to use of non-verbal expression modes. The commonest mode adapted is using gestures. The number and variety of *gestures used* are also limited.

3. Most often a mentally retarded person's response will be one word expressions. They generally *fail to combine the words into sentences*. When sentences are used they would resemble a telegraphic message. These problems are mainly to do with syntax aspects of language.

4. Some of them repeat the question instead of replying.

For example : Adult : *What's your name*
Child : *What's your name*

This is known as echolalia which is not uncommon in the children with mental retardation. Some mentally retarded persons seem to be *speaking excessively* which is perceived as a problem by parents. Here, the main problem may be in understanding meanings (semantic difficulties).

5. They have *problems in asking questions*, using negatives and complex sentences. They fail to describe events or actions, and also show problems in, asking for information, describing needs, requesting for clarification, telling lies or jokes and so on.

6. In spite of knowing what to communicate, a mentally retarded child may find it *difficult to participate in a conversation*. They have problems in taking appropriate turns while conversing. Initiating, maintaining and terminating conversation are major problems in mentally retarded children. Breakdown in conversation are generally not repaired by mentally retarded children. These problems can be grouped under *pragmatic aspects*

Many MR Children show severe problems in learning how to participate in a conversation with others, In spite of knowing what to speak

Problems in comprehension

7. The knowledge of objects, persons and actions in the environment is limited in mentally retarded children. Due to this they may have *difficulties in understanding other's speech* except for daily routinely used commands and actions.

8. Mentally retarded children have a *restricted receptive vocabulary*. It may be limited to food items mainly; they may not understand some aspects of vocabulary such as noun modifiers, and verb modifiers. Difficulties in comprehending question forms and following a series of commands are also seen among them.

9. A Mentally retarded child generally understands those words that are concrete and represented in object form. *Comprehending abstract or imaginative vocabulary* such as for space, love and affection is generally poor.

10. Difficulties in *understanding indirect questions*, ambiguous statements, quiz questions, riddles, jokes, and humour are also commonly noticed in mentally retarded children.

11. When mentally retarded children follow instructions and statements, they appear to understand the key words and not the entire statements. Multistep instructions and commands may prove difficult for the mentally handicapped to comply with.

Many times MR Children are assumed to have good comprehension simply because they follow few routine commands. Such conclusions are generally erratic

Articulation problems

There are two kinds of problems with speech sound production or phonology part of language. Sometimes phonemes are inconsistently produced, i.e., phoneme is produced correctly in some words but not in all words. Many times, phonemes are not acquired at all. The common articulation problems are as follows

12. Some mentally retarded children speak in sentences and phrases, however, they may be *unintelligible*. Particularly persons unfamiliar with the child will find it very difficult to understand the child's speech.

13. The major contributor for unintelligibility is the defective articulation. Many a times the sound production in isolation may not be defective but when saying in words and sentences (i.e., coarticulation) or *in running speech it lacks clarity*.

14. The typical misarticulations in mentally retarded children are the distortions of the target phonemes, simplification of consonant clusters, eg. *tee* for *tree*, omission of final consonant like *boo* for *book* and substitution of another phoneme for the target phoneme *lail* for *rail*. These problems may sometimes resemble the way in which words are learnt by normal children during their first word development stage.

15. Not all the times, improper production of phonemes is the only cause for clarity problems. If a person does not use proper stress on words and on proper words in the sentences, clarity will suffer. The aspects *stress and intonation*, which are known as suprasegmental features are the mainstay of pleasant speech. Many mentally handicapped children show problems in using appropriate suprasegmental features resulting in monotonous and unintelligible speech.

Many times only articulation defects are considered the only reason for un-intelligibility, however supra segmential features play equally

Voice problems

16. Voice problems affect intelligibility further. The common voice problem is the *feeble or weak voice* which is not loud enough to be heard clearly. Many Down's Syndrome children have hoarse voice. Misarticulated speech along with these other factors affects the intelligibility of speech severely. Breaks in voice pitch and monotonous voice also pose difficulties in speech clarity.

Voice problems add to speech clarity problems

Fluency problems

17. The intelligibility in speech suffers also because of the defects in fluency or rhythm. Speech is characterized by hesitations, pauses, repetitions, etc., As a result, speech is not fluent and rhythm suffers and in totality, the intelligibility of speech suffers. Mentally retarded children do not seem to

MR Persons when ever present dysfluent speech usually are not aware of the problem

be aware of their fluency problems and they do not react to the blocks unlike normal persons.

Other problems

18. About 40% of the mentally retarded children have *hearing problems*. The conductive hearing loss is not uncommon particularly among Down's Syndrome Children due to their frequent upper respiratory tract infection. Sensory hearing loss is also seen in some mentally retarded children. Hearing loss along with the retardation makes the task of speech and language learning more difficult.

MR Children present problems of ear infections, sensory deafness, poor listening skills etc.

19. Some mentally retarded children hear well but they *are poor listeners*, that means they have listening defects. They may have difficulty in locating from where the sound is coming, have difficulties in differentiating sound pattern; problems in attaching meaning to the sounds and words heard and so on.

20. Mentally retarded children are also poor in their *reading and writing skills*. These problems are heavily dependent on the language development.

In the above sections, some of the common problems in communication were highlighted as seen in mentally retarded children. These aspects would become more clear when the assessment aspects are discussed in more detail, along with case examples.



SUMMARY

Speech and language are abnormal when they are so different from majority of the people, that they catch attention and interfere with communication. Mentally retarded children demonstrate problems in understanding, and expressing verbal and non-verbal messages. Apart from these they also have problems in taking appropriate turns in conversation. The reasons for these problems could be inadequate processing skills, poor speech and language models and unstimulating environment. Poor hearing, vision and motor abilities also add to speech and language delay in mentally retarded children.



SELF TEST - 5

I. State *true* or *false*

1. Speech and language are accepted as normal if they resemble the speech and language of majority of people. True/False
2. Speech and language are considered abnormal when speech is difficult to understand. True/False
3. A good stimulating environment helps the children to develop better speech and language. True/False
4. All mentally retarded persons have difficulties in hearing. True/False
5. Mentally retarded children do not show any fluency problems. True/False
6. About 40% of the mentally retarded children are non- verbal. True/False
7. Mentally retarded children usually present delay in developing speech and language. True/False
8. Mentally retarded children are good in reading and writing skills. True/False
9. When we say that a person has problems in reception of language, it means he has difficulty in producing speech sounds. True/False

II. Fill in the gaps

10. In mentally retarded children speech and language development is _____ .
11. Many mentally retarded children may not show any problem in hearing but they are _____ .
12. The major contributor for unintelligible speech and language is the defective _____ .
13. Poor ability to combine words and speech is a problem that can be classified as a problem with the _____ component of language.
14. Approximately about _____ % of the mentally retarded children have hearing problem.

15. One of the commonest voice problems among mentally retarded persons is _____.
16. Mentally retarded persons sometimes show hesitations, pauses and repetitions of words while speaking, which is a problem in _____ of speech.

III. Multiple choice questions

17. Which one of the following statements is correct
- a) Only few mentally retarded children have communication difficulties.
 - b) 80-85% of mentally retarded children have communication difficulties.
 - c) Mentally retarded children do not have communication difficulties.
 - d) None of the above
18. The speech and language problems in mentally retarded children are due to
- a) poor cognitive abilities
 - b) poor language input to the child
 - c) lack of opportunities for communication
 - d) all of the above.
19. Echolalia is
- a) exact repetition of phrases, sentences heard by the child.
 - b) A form of non-vocal communication.
 - c) Hearing disorder
 - d) Difficulties in understanding indirect question.
20. Mentally retarded children have problems in
- a) asking questions
 - b) Understanding abstract concepts
 - c) None of the above
 - d) Both of the above.



KEY TO SELF TEST -5

I.

- 1. True***
- 2. True***
- 3. True***
- 4. False***
- 5. False***
- 6. True***
- 7. True***
- 8. False***
- 9. False***

II.

- 10. Delayed***
- 11. Listeners***
- 12. Articulation***
- 13. Syntax***
- 14. 40%***
- 15. weak voice***
- 16. Fluency***

III.

- 17. b***
- 18. d***
- 19. a***
- 20. d***



CHAPTER-6

Assessment of Speech and Language Difficulties in Mentally Retarded Children

Assessment forms an important step in helping mentally retarded children with their communication difficulties. Assessment is carried out routinely in different styles and its range varies depending upon one's needs. When the major need is planning an intervention program the assessment data should be wide and specific enough in description. There are no hard and fast rules regarding exact nature of assessment. The present chapter deals with a complex but detailed method which is practically feasible within clinical and school setup provided sufficient time is allotted for the purpose.

*Needs decide the range
& style of one's as-
sessment activity*

Objectives

To help the reader to,

1. define speech and language assessment and its purpose,
2. decide which areas to be assessed and to what extent,
3. perform speech and language assessment and record it in an appropriate format, and
4. use assessment information in planning a language intervention programme.

Nature of Assessment

Assessment is one of the most complicated tasks that a professional needs to perform. This task is complicated because of the following reasons.

1. A large number of factors cause and maintain language delay and/or deviance in mentally retarded persons.
2. Population undergoing assessment is not uniform. Their communication abilities may range from non-verbal level to sentence level.
3. The complex nature of language itself. Language is a complex combination of structure (form), meaning (content) and its use, which are interconnected.
4. Several other aspects which directly or indirectly are related to language such as, play behaviour, processing skills, social behaviour and so on, also require to be assessed.
5. The number and variety of languages and lack of developmental data in Indian languages make the task of language assessment more complex.

However, despite its complexity, speech and language assessment is very important because it gives information in the following areas.

- a. Deciding whether language and communication difficulties of the child require help or not and if yes to what extent.
- b. Relative strengths and weaknesses in the various aspects of communication. Knowing this information helps in planning intervention.
- c. Predicting the outcome of intervention.

Assessment of language and communication is a continuous process and extends throughout

intervention programme. The most important factor in the language and communication assessment is the person doing assessment. He/she should be equipped with sufficient amount of information on the various aspects of language and communication. Keeping the above discussion in view, the speech and language assessment could be defined as,

Efficiency of assessment depends upon person doing the assessment

A systematic approach to measure and evaluate a child's skills, capabilities and limitations in communication. It involves gathering, recording, and interpreting information about the child's communication abilities usually as a basis for intervention. In other words, assessment is describing a child's speech and language behaviour, with the purpose of identifying a problem and planning intervention.

It is important to remember that we are going to deal with a person having communication problem not the problems of communication.

We are dealing with persons who have problems

Sources for obtaining information

These are the people, activities, and situations which can give information related to the child and child's communication difficulties. These are something like wells from which one can draw up information related to the child for the purpose of assessment. The common sources are,

1. parental interview,
2. observation of parent-child and child-child interaction during play and other situations,
3. direct interaction with the child,
4. administering formal and informal tests,
5. information from other professionals,

Parents are the best persons who can provide wealth of information and a skilled interview conducted by experienced teachers-professionals should elicit a large quantum of quality assessment information. An attempt should be made to involve other family members also. Play provides a smoother pathway to observe the interaction between the child and significant others. It is safe to assume that child-to-child interaction provides greater information, and it should be done preferably in a natural situation. In our setup no formal tests are available for teachers to use and hence large amount of work is carried out through informal test observations. A combination of procedures will be necessary to obtain appropriate and sufficient information. Whenever a more detailed or specific information needs to be obtained professionals like speech pathologists could be consulted.

Skilled parental interview and observation of the child during play provides wealth of assessment information

There is no single all purpose procedure for language and communication assessment. It is because of wide differences among mentally retarded children such as differences relating to age, environment, etiologies, mental abilities, variable learning rates, nature of problems etc. Also due to this wide variation, no typical pattern is seen and no two children show similar set of problems. Because of these reasons assessment is generally done individually. Individual assessment has some common aspects which are detailed in the subsequent sections.

Timing of assessment

The assessment is usually carried out before intervention is begun. Based on the assessment, the intervention programme begins with choosing appropriate targets and activities for facilitating language learning. However, it is an ongoing

process which continues even during intervention. Towards the end of intervention re-evaluation is carried out. In such conditions one can assess the progress, establish new goals and make necessary changes in the procedure. Another important point to be remembered is that the child should be assessed as early as possible because, early the assessment, early the intervention hence greater the progress.

Assessment and intervention go hand in hand

Purpose of assessment

The primary reasons for assessment are,

1. to identify children with language problems
2. to establish a baseline functioning
3. to evaluate the progress.

1. **Identifying children with language and communication problems:** The purpose is not just identification but also to find out whether such problems require any intervention or not. In order to identify language and communication problems we need to screen the child. *Screening* is assessment on a small set of items. These items are related to language and communication development. This can be administered and scored quickly and easily. *Language assessment tool (LAT)* developed at NIMH can be used for this purpose which is described below.

Identification of language and communication problems is the main aim of screening

Language assessment tool (LAT)

LAT was developed at NIMH, Secunderabad following a national level meeting of experts from various disciplines such as speech pathology, linguistics, clinical psychology and special education. The expert committee selected several items from the language development sequence on two sub-scales: *receptive*

and expressive. The items were divided into different age ranges of: 1 month intervals upto the age of 12 months; 2 months intervals upto the age of 26 months; 3 months intervals upto the age of 36 months; and 3 years and above. A total of 48 items on the receptive scale and 47 items on the expressive scale were finalized after field testing for the feasibility. The field testing was done on a small group of 30 normal and 30 mentally retarded children.

LAT gives information regarding the approximate level at which a child is functioning in receptive and expressive aspects of Language development

The LAT obtains information through parental interview and also through direct observation of the child using routinely available toys and pictures. For the purpose of eliciting information on some specific items selected pictures have been provided. However, pictures should be used with caution in mentally retarded children particularly, in younger group. Each item on LAT is to be scored as present, *absent or not sure* and details could be provided. The scoring is not going to play a significant role in intervention. Details of information may help while planning an intervention programme. LAT gives information regarding the approximate level at which a child is functioning in receptive and expressive aspects. This information helps in deciding if a child is delayed in development and at what age level (approximate) child may be functioning. This will act as a guide in future detailed testing. The Language Assessment Tool is provided at the appendix 6.1.

2. Establishing base-line functioning: This involves describing the exact nature and range of the child's speech and language problems. The main advantage of this process is in selecting appropriate and clear intervention targets. This process involves collecting information regarding the following aspects.

i) The most frequently exposed language to the

child, models present and a brief history of the child's communication problems.

- ii) Structure and functioning of the speech mechanism
- iii) The nature of parental talking(*input*) to the child.
- iv) The capacity of the child to understand and express different language (morphologic and syntactic) structures: words and the intentions with which they are used; the early sentences; sentence types and other words.
- v) The ability of the child to use the language (pragmatic aspects), and other aspects such as speech clarity (articulation), gestures and signs (nonverbal aspects). The detailed proforma for obtaining the above said information is provided at appendix 6.2 and the items are described in the following sections.

Establishing base line functioning data is crucial to intervention planning

3. Evaluating the progress: Re-evaluation is done to assess the effectiveness and the efficiency of the intervention programme. It gives information regarding the improvements, and factors which influence the progress of a child undergoing intervention. For information on changes shown by the child, assessment on Language Assessment Tool (LAT) could be done.

LAT can be used for reevaluation

Assessment programme

In the beginning a brief demographic data including name, age, sex, file number, language used at home, school and other situations and significant history needs to be collected. This information can be obtained from the informants. Appendix 6.2 gives the assessment format which should be constantly referred to while discussing its various sections.

Apart from the demographic data, assessment programme has been organised and divided into five major sections namely,

1. Structure and function of speech mechanism,
2. Hearing screening checklist,
3. Language input to the child,
4. Content or the Language ability of the child, and
5. Language use by the child.

1. Structure and function of the speech mechanism: Assessment of the speech mechanism can be made when the child's mouth is at the eye level of the tester. Use of a mirror enhances the chances of making difficult to test children respond. Mainly, the structure and functions of *lips, tongue, hard palate* and *soft palate* should be noted.

Lips: Inspect the lips for *relative size, symmetry* and *scars*. Check whether the child can smile, protrude his lips and retract them. Check the child's ability to close the lips tightly. Protrusion can be checked by asking the child to blow, or to say /u:/. For checking retraction, saying /i:/ or asking the child to show his teeth may be helpful.

Mentally handicapped children more often do not show abnormalities of structure, but we encounter abnormalities of function

Tongue: Note the size of the tongue relative to the mouth or oral cavity. If found too large or too small, it may be termed as abnormal. Observe for *symmetry* in structure and during movement. Check whether the child can protrude and retract the tongue, move it from side to side and touch the hardpalate. If there is any problem in lifting the tongue look for *tongue tie* (tongue held to the floor). To obtain tongue movements using eatables like sugar or jam can

help in speeding up the process. Blunt edged spoon and a mirror can be useful equipment.

Hard palate: Note the shape (is it flat?, high arched?), look for abnormalities like slit or cut in the palate.

Soft palate: Inspect the velum for size and cuts, see whether the soft palate moves back towards pharyngeal wall. If there are any problems in structure or function of speech mechanism mark those as abnormal and give description. Significant dental abnormalities may also be noted.

2. Hearing screening : A child's response to sound is an important cue to judge the functioning of his hearing system. This is an *indirect* or *informal* test (direct tests of hearing are conducted by qualified audiologists using equipment in sound treated rooms). Here is a checklist to find out if the child is suspected as having hearing loss. The checklist is provided in appendix 6.2 at section 2. Information may be obtained through parental interview and responses (yes/no) noted.

A single response, like responding to name, should not be the basis of judging child's hearing

If the answer is *No* to majority of these questions, child needs professional help. The child could be referred to an audiologist for detailed assessment. Mentally retarded *children* may have normal hearing but they may be poor in listening.

3. Language input to the child: *Caretaker - child interaction* is observed to know how good a model is being provided to the child and how often caretaker creates situations for the child to initiate and respond to communication. These can be evaluated by interviewing the caretaker and also observing caretaker - child interaction in situations such as play. A large amount of subjectivity is involved in making judgements regarding language input.

Assessment of the nature of language provided to the child is important

The following factors are to be observed.

I) The amount (*quantity*) of talking done by parents (mother, father, siblings, grand-parents, teacher, etc.). This information can be deduced from the parental interview and noting factors such as number of persons present at home, presence of peer models, socio-economic level, etc. The time spent and frequency with which children are talked to, may be noted as *frequent or occasional*.

Assessment of Language input includes aspects of how much talking is provided and what is its nature

II) In addition to quantity, the *quality* of input is also important. The quality means the *type* and *variety* of communication demonstrated by the caretaker. The type refers to the type of sentences used such as questions, commands and descriptions and noting which are frequently used. Over correction by the adults (demanding correct production of speech) is also to be noted. It may also be observed, whether the caretakers talk to the child during specific situations like story telling only.

4. **Content or language ability:** This section evaluates the semantic and syntactic aspects of language. It refers to both the *comprehension* and *expression* abilities of a child. The term *comprehension* includes the ability of the child to look, point, touch or do any other action on receiving a message. The term *expression* refers to the way a child informs about his needs/ideas. These include different modes like looking at, pointing, showing, signing and saying words and sentences.

How much of our language the child understands and how much the child is able to express, are the main issues in content assessment

Assessment of both comprehension and expression of verbal and non-verbal language of a mentally retarded child is to be conducted. This could be done by different methods such as parental interview, or observing the child in a natural situation, or by creating a natural situation in the testing situation

itself. Natural situation elicits better responses and the child under observation also cooperates. The language content (semantics) can be categorised into words (morphological types), meaning intentions, early sentences, sentence types (syntax) and word endings (grammatical morphemes). Appendix 6.2, section 4 should be referred for details of item heads which are discussed below.

I. Words : They include nominals, action words, noun-modifiers, verb modifiers and conjunctions.

a) Nominals : These are the *nouns or names* of objects and persons in the categories of family members, animals, food, fruits, clothing, furniture, parts of the body, vehicles and others. A list of commonly used terms have been listed in appendix 6.3. It may be remembered that the tester is at liberty to utilize names that are not included in the list and also to drop the names that are given in the list depending upon the needs of a child under assessment. Initially the comprehension of the nominals may be tested by asking the child to locate, to point or talk about the item. The materials may be real objects, picture cards, and toys. It is very important to remember that we try to find out whether the child attaches the name to the object or person. Hence, clues other than speech like hand gestures and facial expression could be avoided to decide the comprehension status. Otherwise, it is very difficult to decide whether the child is comprehending verbal clues or non-verbal clues.

Words are the commonest symbols of a language. Understanding and expressing adequate number of them basic for Language development

To elicit expression routinely used method is to ask questions like *what is this?*, while pointing to the objects. Not all children respond favourably to this method, for such children it is necessary to prepare the testing situation as a play situation and indirectly make the child name the item. If children do not

Conducting assessment during routine communication situations and play is useful

name but are able to express through gestures or signs, specific mention should be made. In both comprehension and expression the number of items successfully performed are to be noted.

b) **Action words :** Action words are the names for observable activities. The comprehension of these action words could be assessed by having the child pointing to the *pictures* or *action* performed by others. The responses could be noted as comprehension present or absent. Several times it may become difficult to clearly state presence or absence of comprehension. In such cases the response could be noted as *not sure*. Similar responses are also noted for expression. It is worthwhile to re-emphasize that non-verbal expression such as gestures should be noted.

The items described in this section carry the same identification numbers in appendix 6.2.

c) **Pronouns :** Pronouns are normally used to substitute proper nouns. Comprehension and expression may be checked for appropriate words in specific languages. The common twelve pronouns have been listed in appendix 6.2. It must be noted that all pronouns used in written language may not be used in spoken form.

All the structures of the language to be assessed, refer to the spoken forms and not to the written form of the language.

d) **Noun-modifiers:** They are generally called as *adjectives*, which qualify nouns. For example, *hot, more, bit, small*, etc. The comprehension of some noun modifiers like *fat, thin, tall, short* could be assessed by asking the child to point to the appropriate pictures or objects. It must be remembered that ability of the child to point to pictures or objects in one or two situations does not mean child has the ability to use the same in all situations. While checking for expressions of noun modifiers gestures and body postures could be noted.

e) **Verb modifiers** : These include *adverbs* and *prepositions* (*post positions* in Indian languages), which modify verbs. The common words used here are, *in, on, fast, slow* etc., It is suggested that both the comprehension and expression be elicited using real situations rather than pictures. The responses to be noted are *presence, absence* and *not sure* for both comprehension and expression.

f) **Connecting words**: These are words like, *and, but, or*, etc. which connect sentences and make the speech easy to understand. The comprehension testing for these words will have to be done separately for each of them in a variety of situations. The evaluation of expression of connecting words will have to be done based on observations during spontaneous interaction. Tape recording will be useful. The response categories again are *present, absent* and *not sure*.

Tape recording of child's speech during assessment is very useful in deciding a response as present or absent

II. **Semantic intentions** : These refer to the meanings intended by a child in his expression at early pre-word or single word stage of language development. The child may use the same word to mean different intentions and may use different words for same intention. The intentions listed under the item II of the appendix 6.2, have been described *in chapter four*. Each of the intentions may be checked for *presence, absence* and *not sure* categories, atleast in one situation.

III. **Early sentences**: Early sentences are combinations of two words. In this, assessment of 8 such combinations have been listed. The word combinations and examples were discussed in chapter four. During assessment the spontaneous speech and the responses to questions could be classified under *presence, absence* and *not sure* categories. It may be noted that only expression of early

sentences are evaluated. It is recommended that during assessment the examples of each category be noted.

IV Sentence types : In this section the ability of the child to understand and express statements and their various modifications such as negative and question forms is elicited. During comprehension testing, appropriateness of the child's responses to tester's stimuli should be noted for presence or absence of comprehension. Some examples of sentence types that may be considered for assessment include the following ,

Declarative (statement)

For example : *I want milk*
it is hot.

Negatives

For example : *No, I don't want.*
Not that one.
I can't do it.

Questions

For example : *Is this a pencil?*
(Yes/No type)

Who is your father?
Where do you go?
What is this?
Which is your match?
When do you watch T.V.?
How did you come to school?
Why are you wearing new clothes?

Several assessment sessions may be needed in some cases to completely obtain all the details. Tape recording is useful here

A complete sentence such as, *I wanted to go to the market, but it was raining* if noticed, may be recorded. During expression testing it will be useful to engage the child in a play-conversation and taperecord the conversation for assessment

purposes. Several repeated assessments may be necessary before all the details are obtained.

V Word endings or grammatical morphemes: They are also known as *functor words*. They are referred to as meaning modifiers which provide specific meaning to words. These include the following.

Number morphemes : These help in changing a word from singular to plural. For example, in English to make a word as plural we need to add any one of the following at the end of a word, */-s/ books, /-es/ mangoes, /-z/ dogs*. There are some irregular plurals also for example, *Men*. The markers in different languages will have to be carefully noted before assessment.

Person morphemes: These words change the verb in a sentence, according to the person. The types assessed commonly are,

I sing well. (first person)
You sing well. (second person)
He sings well. (third person)

Without grammatical morphemes, words and sentences will not sound meaningful and grammatical

These can also be observed in plural forms.

Gender morphemes : These help us modify the words in a sentence so that they can be used appropriately depending on the gender. The common genders are *male (he)*, *female (she)*, and *neuter (it)*. It must be remembered that languages differ in number of gender forms used. The person assessing must make a list of forms used in that particular language, so that the responses of the child could be judged as *present* or *absent*. It must be emphasized that we are considering spoken form of language rather than written form of language. Hence,

grammars of written languages should be used with caution.

Tense marker: The verb in a sentence changes to indicate *present* (progressive), past and future tenses. For example, *go-going*; - *went*; and - *will go*. The tense marker words will change from language to language and should be noted carefully.

All the grammatical morphemes are initially tested for their presence in a person's understanding (comprehension) and in using (expression).

The structures to be assessed are to be noted, as used in spoken form of that language, and then observation for their presence to be checked in different samples of child's interaction with others

5. Language use: After having identified the capacity of the child in comprehending and expressing various structures of language, this section examines the efficiency with which this capacity is put into practice. The predominant aspects assessed are the *mode of expression, speech sound production* (phonology) and *its intelligibility* in speech; *usage skills* (pragmatics) and *gestures*. Each of the items have been discussed below.

I. Mode of Expression : A mentally retarded child may be predominantly *verbal* or predominantly *non-verbal* in expression, or may use both. When the child communicates mainly using words, two word combinations and sentences the mode could be referred to as predominantly verbal. When the child for most of his communication, uses gestures or facial expressions, the mode of expression is predominantly non-verbal. When the decision between these two becomes difficult, the mode can be placed under the category *both*.

II. Speech sound production : The speech sounds of a language need to be produced in acceptable forms (phonemes) so that they are understood by others. When we make a list of speech sounds and

the words in which these sounds occur in initial, medial and final positions an articulation inventory is ready. Not all languages have consonants in the final position of the words. A sample inventory has been provided at appendix 6.4. The results of which are to be noted in *language use* section of the appendix 6.2. The articulation inventory given has English, Telugu and Hindi words for common speech sounds. The initial step in assessment of speech sound production is to get the child to produce the speech sounds separately (in isolation) and in words. A child can be asked to imitate words or one can observe the production of words in a natural situation. Pictures, toys, etc. can be used to elicit the words. The way in which the child repeats the stimulus words may be noted as exactly as possible. Once all the words have been noted down, one can look for types of errors such as, whether the target sound is *omitted, wrongly uttered* (distorted), *another sound is uttered instead of target sound* (substitution) or *an extra sound is added* (addition). A careful analysis of all the errors should be made so as to detect the patterns of errors. From this step onwards selection of appropriate sounds for correction may be taken up. The details of intervention have been taken up in chapter - 7.

When standard articulation tests are available, they should be used. In case of non availability an informal inventory may be used with caution

Tape recording of child's responses allows for repeated listening and so more accurate assessment

III. Intelligibility : The efficiency with which the speech sounds have been produced and understood on listening is referred to as *speech clarity* or *intelligibility*. If a child's speech is understandable by even unfamiliar persons, then that child's speech can be called as having *good* intelligibility. If parents only can understand the child's speech and strangers find it difficult, the child's speech may be called as having *fair* intelligibility. Children not fitting into these two categories can be called as having *poor* intelligibility, i.e., both parents and strangers find it difficult to understand.

IV. Usage (Pragmatic) skills: These skills refer to how effectively language is being used by the child in a conversation. Aspects that can be checked during conversation are whether the child *starts, takes appropriate turns* and *closes* a conversation. Presence or absence of these aspects with relevant details should be recorded.

Observe the child in spontaneous conversation to evaluate the usage skills

V. Gestures : Gestures are communicated by using body parts such as hands and eyes. While assessing on appendix 6.3 and other expressive aspects in appendix 6.2 a careful note of number and variety of the gestures used may be made. This information can be supplemented by parental observation. It is useful to list down separately all the gestures used by the child and their purpose. A count of such gestures may be noted in the appendix 6.2 section V. Similarly, presence of gestures combined together should be noted. Just like speech intelligibility, clarity of gestures is also rated as *good, fair* and *poor*.

Since the procedures so far described, cover a wide range of children, all the procedures may not necessarily be used for all children. It is necessary to focus on the relevant areas. For example if a non-verbal child is to be assessed the most of the assessment will be around language input and comprehension of language content. On the other hand, if a child at sentence level requires assessment, the focus will be on the expression of sentences, speech sound production, usage skills and so on.

Language assessment is complex, only with experience one can realize more efficient ways of collecting information

A guideline that may be followed is that, children may initially be checked in all the three major areas of input, content and usage. Once the areas to be focussed are decided, then detailed work can be taken up.

It's worth while to mention that the categories given in appendix 6.2 are not sacrosanct and flexibility is welcome. A case example has been provided in which assessment data has been collected on appendix 6.2. This case example can be seen at appendix 6.5. This is expected to clarify atleast some aspects of this complicated assessment programme.

Initial difficulties in assessment, should be seen as challenge rather than as difficulties!



SUMMARY

This chapter elaborated on speech and language assessment and its purpose. Various sources of assessment data and difficulties in assessment were also mentioned. The information regarding how to conduct assessment and when to conduct assessment were included in detail. Later, various assessment areas were described. The assessment programme focussed on the aspects of language input, describing the nature of language spoken by the caretakers; child's language capacity or content, which included comprehension and expression of words, phrases and sentences; and the language use aspects covering conversating skills, speech intelligibility and usage of gestures.

To make the assessment of speech and language more understandable, a case example has been provided. The speech and language assessment proforma and its detailed components are provided in appendices.



LANGUAGE ASSESSMENT TOOL.

1. Name :
2. Date of birth :
3. Age/Sex :
4. Informant :
5. Instructions for use:

The language assessment tool is a checklist that has been developed with the main objective of obtaining information regarding the speech and language development. The checklist has been mainly developed for the use with mentally retarded children. The responses can be obtained from the report of the informants and when possible by evaluating the child.

The responses for each item should be scored as Yes/No/Not sure. Details wherever necessary could be added. Both verbal and non-verbal responses could be recorded, particularly in expressive items.

Information could be obtained for all items and whenever needed the clinician can decide when to stop testing. Items marked * have been provided with some stimulus pictures, however the examiners are encouraged to use real life situations and own examples to obtain more natural responses.

Items of Language Assessment Tool	
Receptive (R)	Expressive (E)
(0-1 months)	
1. Baby is often quietened by familiar/friendly voice	1. Baby shows random vocalization other than crying.
(1-2 months)	
2. Frequently the child gives direct attention to other's voice. Specify the responses, Eg: cessation or change of activity.	2. Exhibits differentiated crying. Eg: has a special cry for hunger
(2-3 months)	
3. Regularly localizes the speakers by staring.	3. Laughs and uses other vocal expressions of pleasure.
(3-4 months)	
4. Usually is frightened or disturbed by angry voices. Crying or ready to cry.	4. Babbles regularly or repeats series of some sounds, especially when alone.
(4-5 months)	
5. Recognises and responds to his/her own name.	5. Expresses anger or displeasure by vocal patterns other than by crying, shouting or screaming.
(5-6 months)	
6. Stops or withdraws in response to <i>no</i> at least half the number of times.	6. Plays and makes pleasurable sounds and noises while alone or with others (cooing responses)

Contd.

Receptive (R)	Expressive (E)
(6-7 months)	
7. Responds with appropriate gestures to such words as <i>come, up, high, bye-bye</i> etc.	7. Uses voice sounds to get attention of others.
8.* Appears to recognise the names of some common objects when their names are spoken by looking at them.	8.* Uses some speech like vocalizations - appears to be naming somethings in his own language.
(8-9 months)	
9. Appears to understand simple verbal requests with gestures. Eg: <i>Come, give, I will take biscuits</i> etc.	9. Plays games like <i>pat-a-cake</i> or <i>peek-a-boo</i> with others. (Check with the games appropriate to the language or mother tongue of the child.)
10. Sustains interest in looking at toys or objects, when talked about.	10. Uses some gestures such as shaking head for <i>no</i> .
(9-10 months)	
11. Often gives toys or other objects to the parent on verbal request.	11. Vocalizations or utterances contain more consonants than seen at the 6 months stage.
(10-11 months)	
12. Now and then can follow simple commands like, <i>put that down, where is the ball</i> , without gestures.	12. Seems to be speaking in his/her own language by using appropriate intonation patterns - as if asking questions, giving answers or demanding.

Contd.

Receptive (R)	Expressive (E)
<p>13. Comprehends questions such as <i>How does a Car go? How does one powder oneself? How do you drive a bullock Cart</i> and responds by miming.</p> <p>(11-12 months)</p> <p>14. Demonstrates understanding by making appropriate verbal responses to some requests eg: <i>bye-bye, namaste</i> etc.</p> <p>(12-14 months)</p> <p>15. Seems to understand that the speaker is angry, tired, happy, sad, etc.</p> <p>16. Comprehends names of principal body parts and points to them when asked. Eg: <i>head, stomach, eye, cheeks</i>, etc.</p> <p>17. Comprehends simple commands that call for action or verbalization and responds with action or vocalization.</p> <p>Eg: <i>Bring the ball,</i> <i>Wipe your face,</i> <i>Don't touch</i></p>	<p>13. Speaks first words like <i>dada, mama</i> or name of a pet or a toy.</p> <p>14. Can express the existence of other persons by pointing to them and naming sometimes upon request.</p> <p>15. Uses more than 3 words with some consistency.</p> <p>16. Asks for desired objects by using vocalisations along with gesturing or pointing.</p> <p>17. Starts naming objects, eatables and animals in <i>baby talk</i> forms. Eg: <i>bow-bow, bikki, mum-mum.</i></p>

Contd.

Receptive (R)	Expressive (E)
(14-16 months)	
18*. Recognises and identifies many objects or pictures of objects when they are named.	18. Starts using two word utterances expressing limited semantic relations. Eg: Object + action - <i>ball give, toy play</i> Agent + action - <i>mama come, daddy go.</i> Possessor + possession <i>mydoll, my shirt</i>
19. Comprehends question forms by pointing to self/others. Eg: <i>Whose shirt is this? Whose pencil is this?</i>	19. Expresses disappearance by using words such as <i>gone, tata, aachi</i> etc.
(16-18 months)	
20. Carries out two consecutive directions with objects upon request. Eg: <i>Put on the light and close the door, put the book away and bring the ball.</i>	20. Names more family members and five body parts. Eg: <i>brother, sister, mama, aunt, finger, nail, eye brows, etc.</i>
(18-20 months)	
21*. Comprehends questions querying actions of agents and responds by naming the object of action. Eg: <i>What is the girl doing? Drinking, combing.</i>	21. Uses simple imperatives such as, <i>more, throw</i> for action on the part of adults.

Contd.

Receptive (R)	Expressive (E)
<p><i>What is the dog doing?</i> <i>Barking, bow-wow.</i></p> <p><i>What is the boy doing?</i> <i>Sleeping</i></p>	
<p>22. Demonstrates understanding of distinctions in personal pronouns in commands such as <i>give it to her, give it to me</i>, etc.</p>	<p>22. Imitates environmental sounds such as of motors, animals during play.</p>
(20-22 months)	
<p>23. Comprehends indirect questions that are commands or suggestions. Eg. :</p> <p><i>Did you bring it?</i> <i>Can you give him?</i> <i>Will you give for the baby?</i></p>	<p>23. Uses same words/phrases to refer to different things/activities.</p> <p>Eg: Uses <i>amma</i> to call mother, as well as to indicate her disappearance.</p>
(22-24 months)	
<p>24. Comprehends <i>which</i> questions and responds appropriately.</p> <p>Eg: <i>Which book?</i> <i>Which aunty?</i></p>	<p>24. Child starts using <i>what who</i>, questions to elicit naming from interacting partners</p> <p>Eg: <i>What is this?</i> <i>Who is this?</i></p>
(24-26 months)	
<p>25. Understands complex sentences.</p> <p>Eg: <i>When we go home, I will give you a chocolate"</i></p>	<p>25. Refers to self by using his/her own name.</p>

Contd.

Receptive (R)	Expressive (E)
<p>26. Understands more number of fine a body parts, such as, <i>cheek</i>, different <i>fingers</i>, <i>neck</i> etc.</p> <p>(27-30 months)</p> <p>27. Comprehends <i>why</i> questions by giving reasons.</p> <p>Eg: <i>Why do you want pen?</i> <i>Why you are crying?</i></p> <p>28* Understands size differences, <i>by correctly selecting short tree, big tree, small pencil and big pencil</i> etc.</p> <p>(30-33 months)</p> <p>29*. Demonstrates understanding of most common adjectives. Eg: pointing to <i>tall/short man, fat/thin lady, fat/thin man</i>, etc.</p> <p>30. Can comprehend post position words in instructions. Eg: <i>on, under, behind, in front</i>, etc.</p> <p>(33-36 months)</p> <p>31. Can comprehend questions querying imaginary situations. Eg: <i>What will you do....?</i> <i>If you are a thief</i> <i>If you are a teacher</i></p>	<p>26. Expresses denial; Eg : <i>that is not glass. I did not do it.</i></p> <p>27. Asks help for some personal needs like washing hands, going to toilet etc. by using words or words with gestures.</p> <p>28. Expresses concepts such as, quantity - <i>another, all, little, time, later, now, big, small</i> etc.</p> <p>29. Refers to self by using a pronoun rather than by (his/her) proper name.</p> <p>30. Can tell correct gender when asked <i>are you a boy or a girl?</i></p> <p>31. Is able to count upto 3 objects.</p>

Contd.

Receptive (R)	Expressive (E)
(3 years and above)	
<p>32. Can follow instructions of a task without needing an accompanying demonstration. Eg: <i>Put a small toy on the top of the book.</i> <i>Keep the book near the table.</i></p>	<p>32*. Able to tell 2 or 3 actions from an illustration or observation.</p>
<p>33. Can group similar things like father's clothes, mother's clothes, sorting of vegetables, etc.</p>	<p>33. Child uses peculiar words for adjectives and adverbs.</p>
<p>34. Can identify the <i>first</i>, <i>middle</i> and <i>last</i> - cars, persons in a line, in a picture.</p>	<p>34. Uses words <i>first</i>, <i>last</i>, <i>later</i>, etc. when asked for eg: <i>What did you do in the morning</i>, <i>What did you do at the park?</i></p>
<p>35*. Can comprehend comparative words as related to size - <i>bigger pencil</i>, <i>smaller pencil</i>, <i>smaller box</i>, <i>bigger box</i>, etc. <i>speed - slower one</i>, <i>faster one</i>,</p>	<p>35. Can ask for <i>small toy</i>, <i>big toy</i>, <i>smaller biscuit</i>, <i>bigger biscuit</i> etc.</p>
<p>36*. Comprehends word order in instructions such as <i>bus is behind the car</i>, <i>car is behind the bus</i>.</p>	<p>36*. Describes action pictures/situations using correct word order. Eg: <i>Dog is chasing the cat</i>, <i>cat is chasing the dog</i>.</p>
<p>37. Comprehends that a 10 rupee note is more than a 5 rupee note, 50 paise is more than 25 paise etc.</p>	<p>37. When clarifications are asked adds more words or provides explanation.</p>

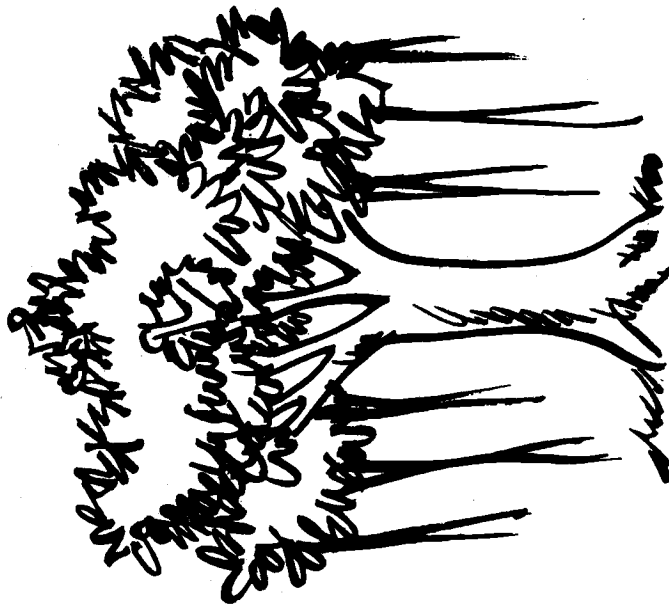
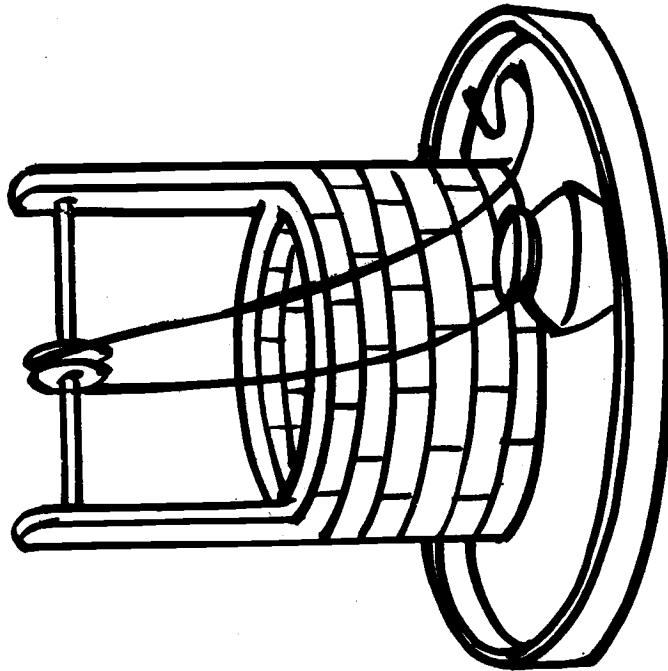
Contd.

Receptive (R)	Expressive (E)
38. Can understand relationship between milk & curds, rice & cooked-rice, etc.	38. Waits for an answer after asking a question (turn taking) and vice versa.
*39. Can identify correct actions in pictures, when verb forms are presented for the task about to take place, going on and task completed Eg: <i>going to climb, climbing, climbed</i> .	39. Initiates conversation - expressing ideas on his/her own and narrates incidences.
40. Follows verbal directions to move from place to place within the building in a familiar setting.	40. Tells name and address upon request.
41. Understands reasons for not doing something that was promised earlier. Eg: <i>We can't go to market today because it is raining.</i>	41. Speaks clearly, enough to be understood even by an unfamiliar persons
42. Buys simple items from a shop when requested and exact amount of money is given.	42. Imitates words, phrases and sentences.
*43. Comprehends simple jokes like child wearing big shoes, bigger spectacles, etc.	43. Uses limited/repeated utterances in his conversation.
44. Comprehends descriptive statements about individuals, objects and their actions. Eg. <i>Who stops buses and cars on the road? Who delivers letters? Who works in the field? Who makes food at home?</i>	44. Categorizes and tells the names of the groups of animals, vegetables, fruits, etc.

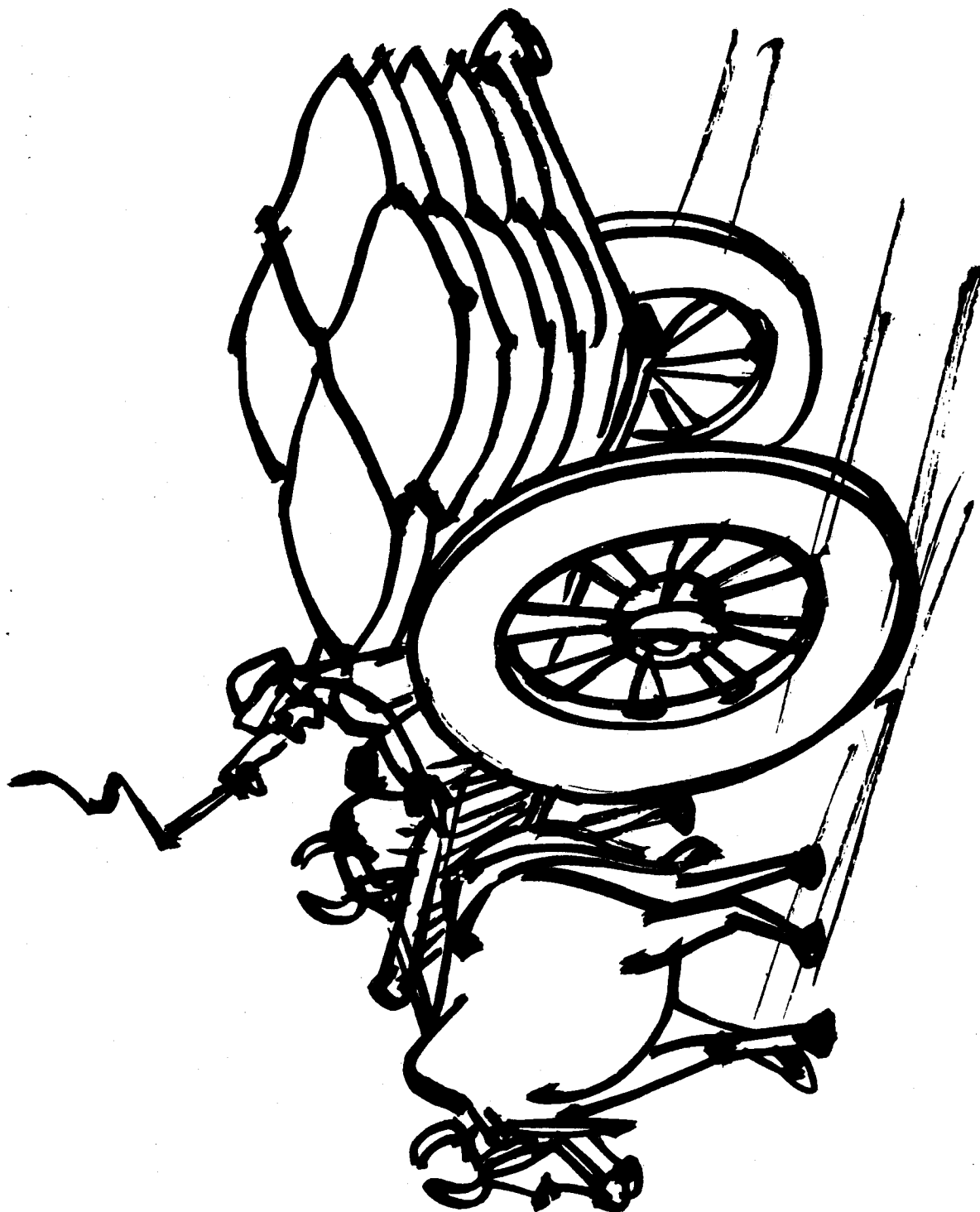
Contd.

Receptive (R)	Expressive (E)
45. Understands the difference between morning and evening, day and night, yesterday and today.	45. Anticipates future events, eg: <i>it is cloudy- it will rain - I will take the umbrella.</i>
46. Identifies colours of objects.	46. Able to tell lies.
47. Enjoys music, dances and claps to the rhythm.	47. Asks for stories.
48. Understands, identifies and does role play. Eg: <i>acting like teacher, doctor, driver, conductor</i> etc. •	

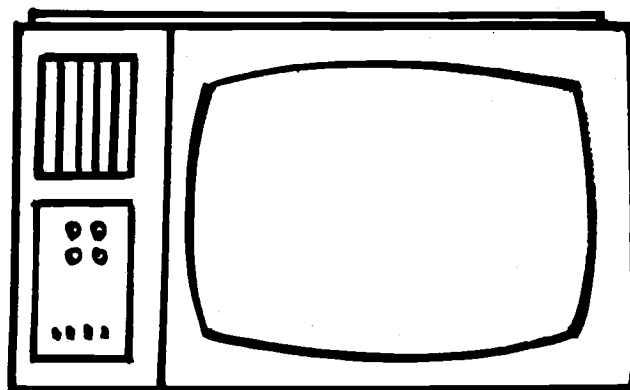
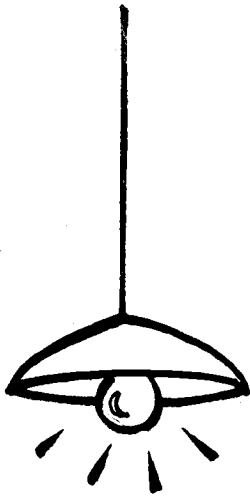
Item No. R8



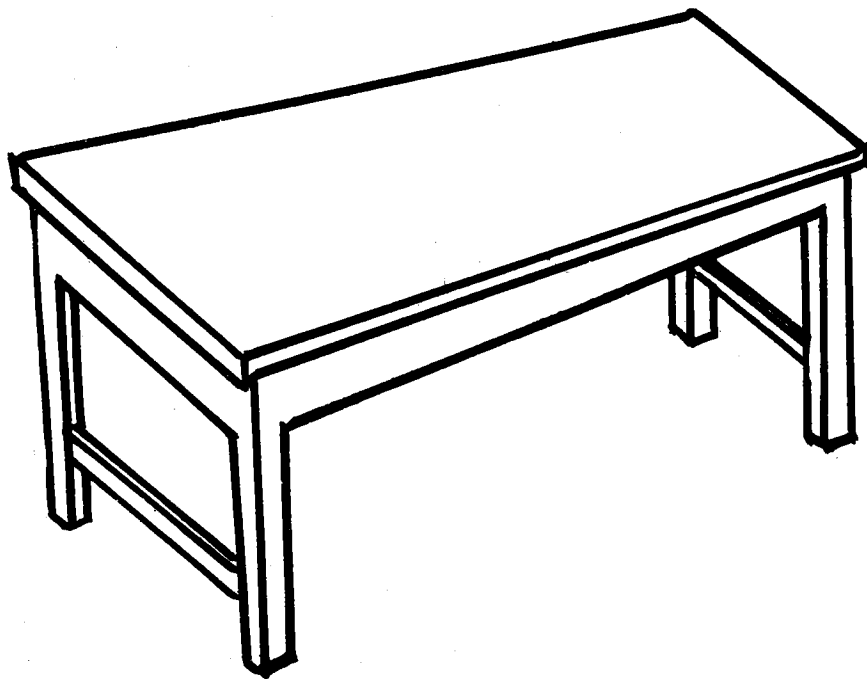
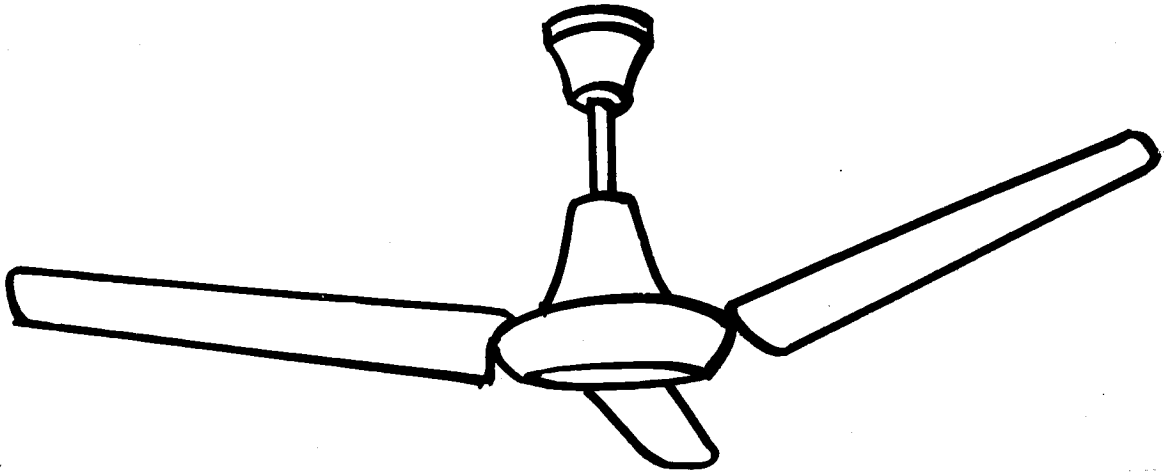
Item No. R8



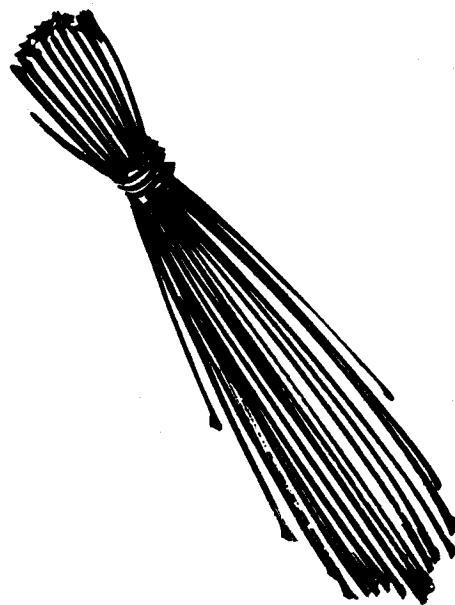
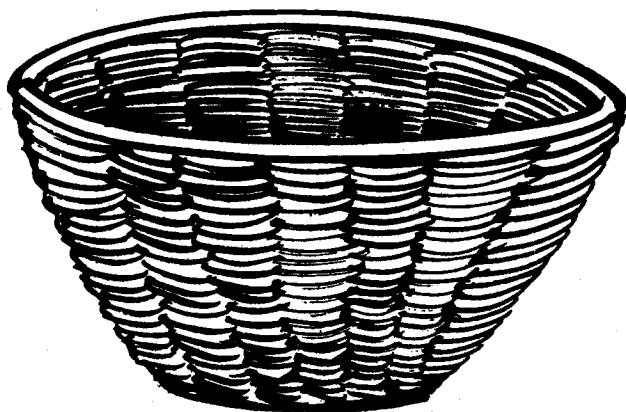
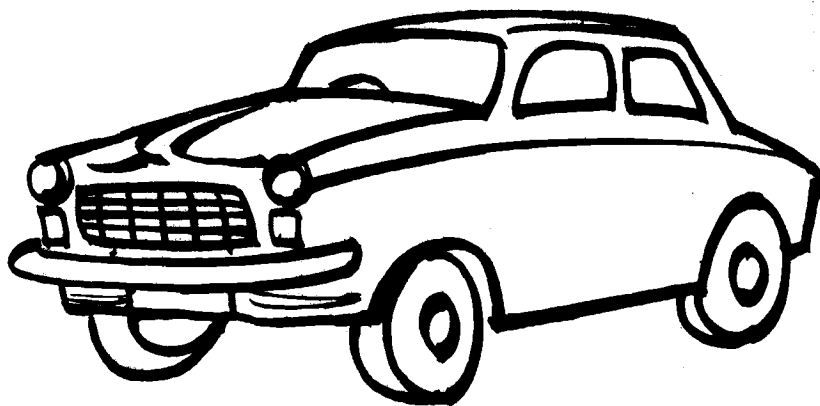
Item No. R18



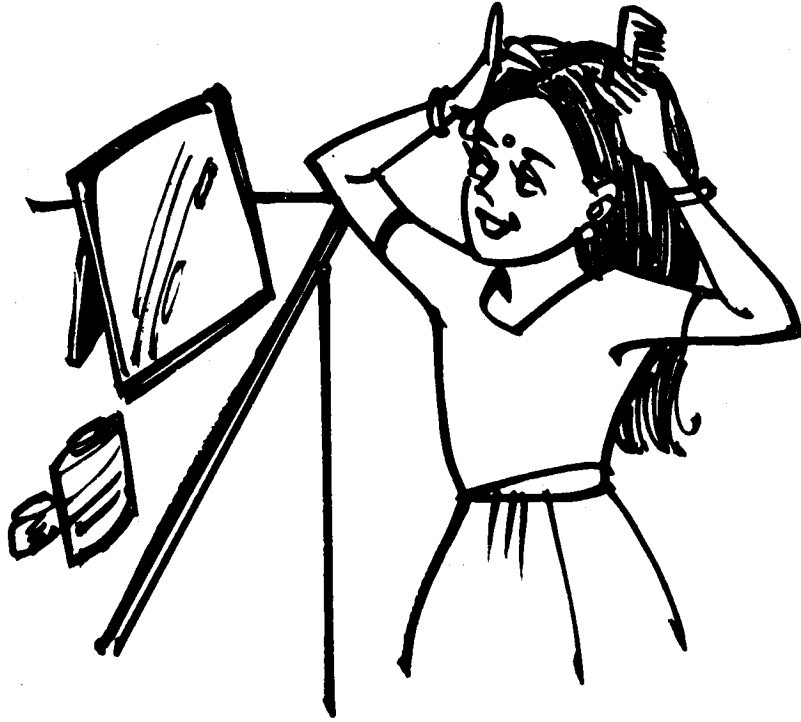
Item No. R18



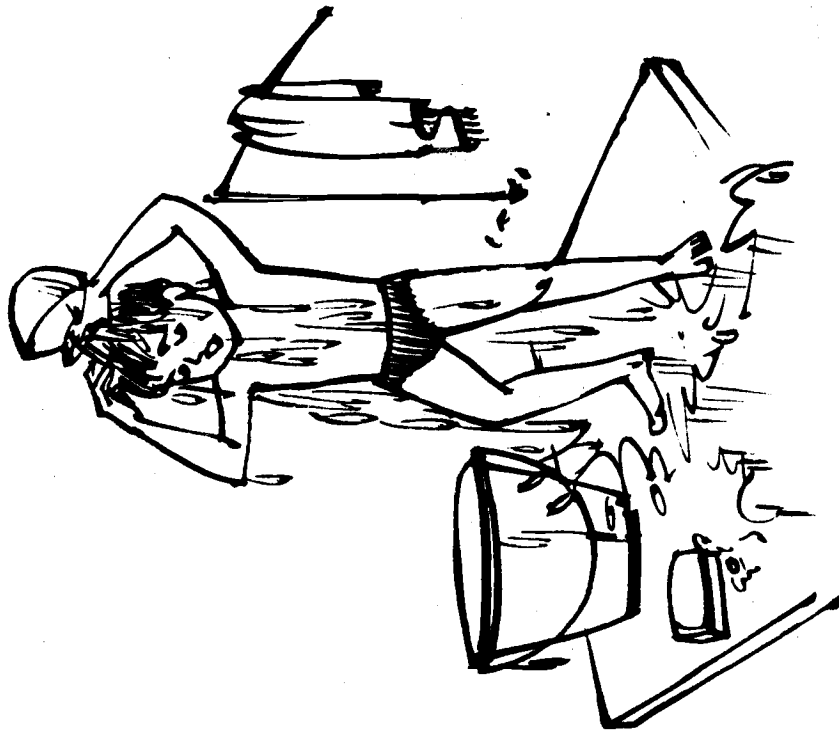
Item No. R18



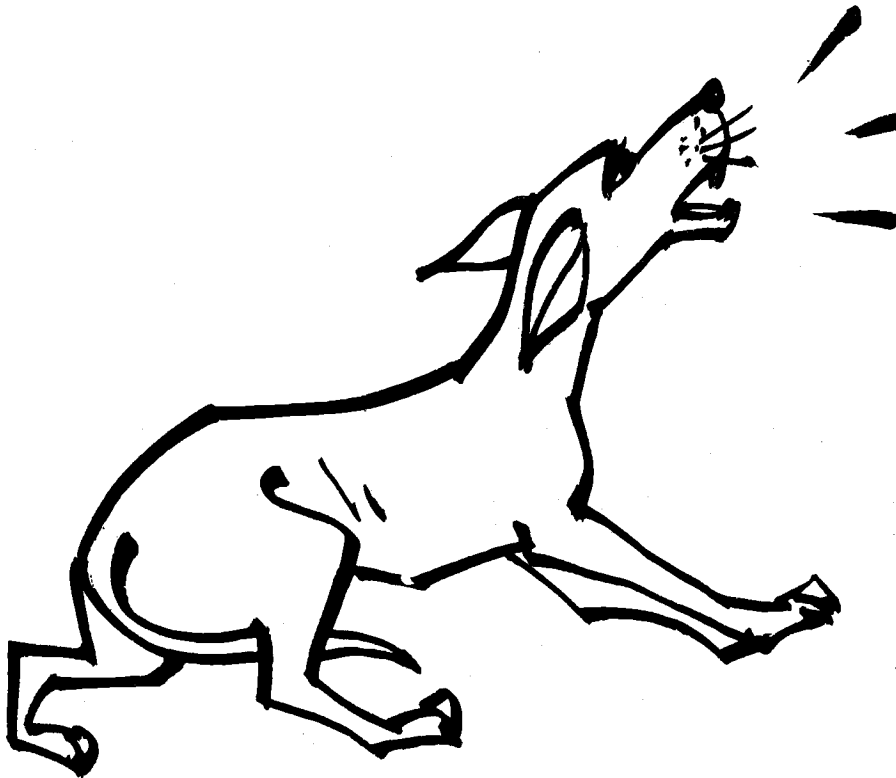
Item No. R21



Item No. R21



Item No. R21



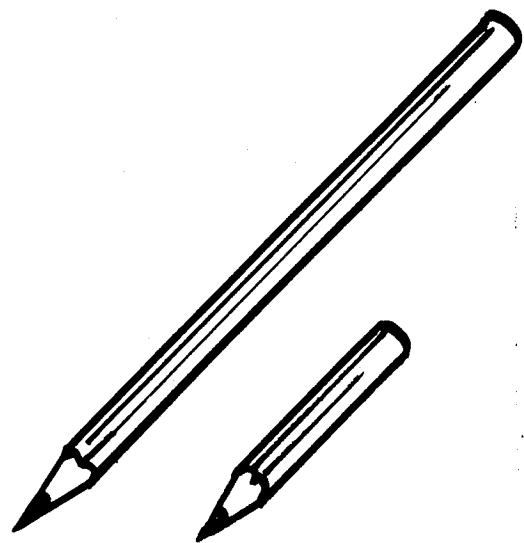
Item No. R29



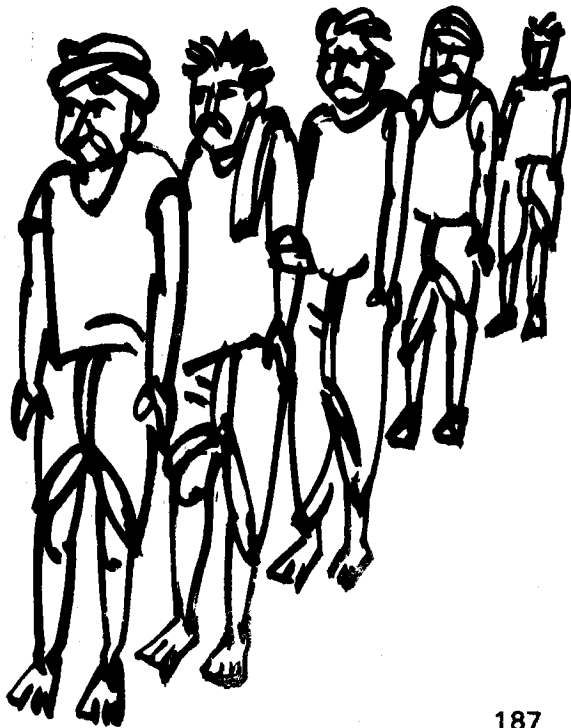
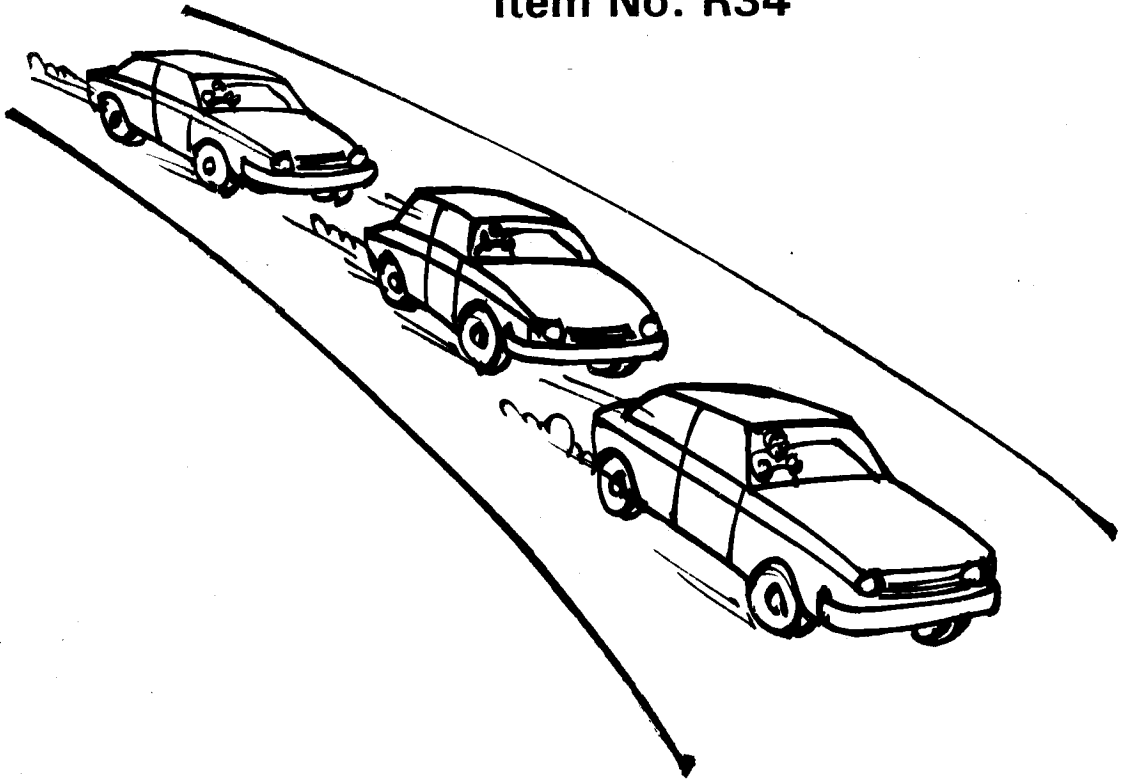
Item No. R29



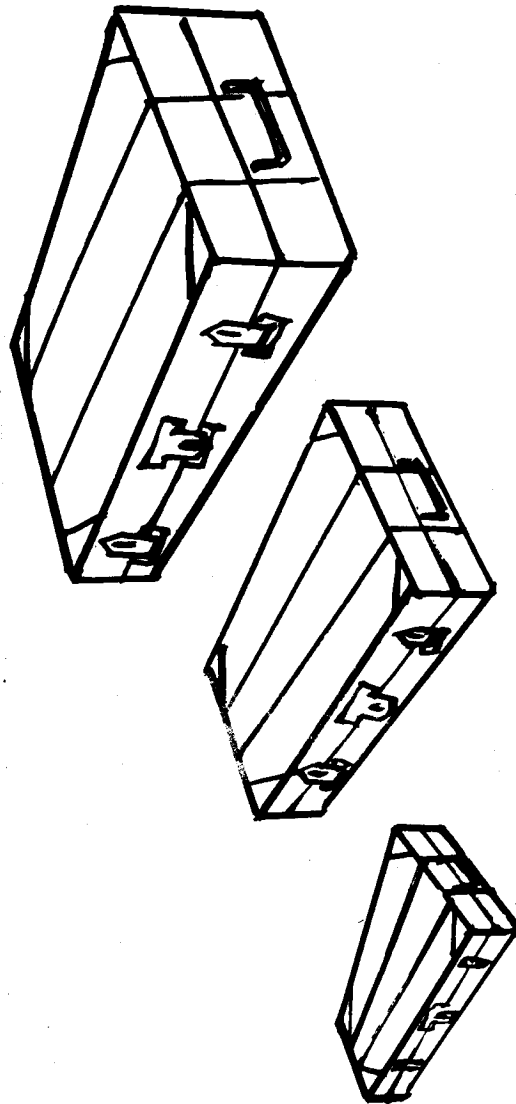
Item No. R29



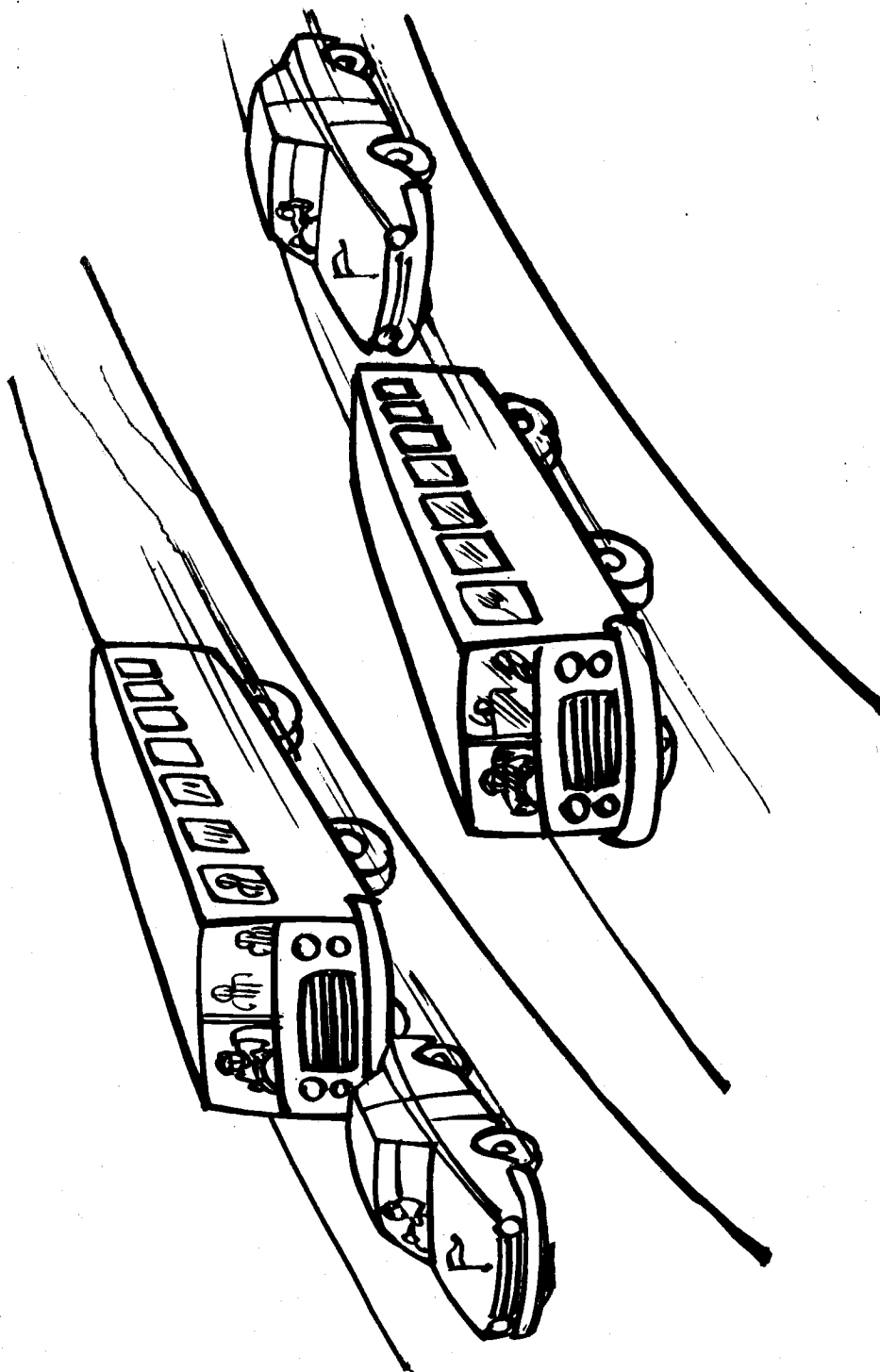
Item No. R34



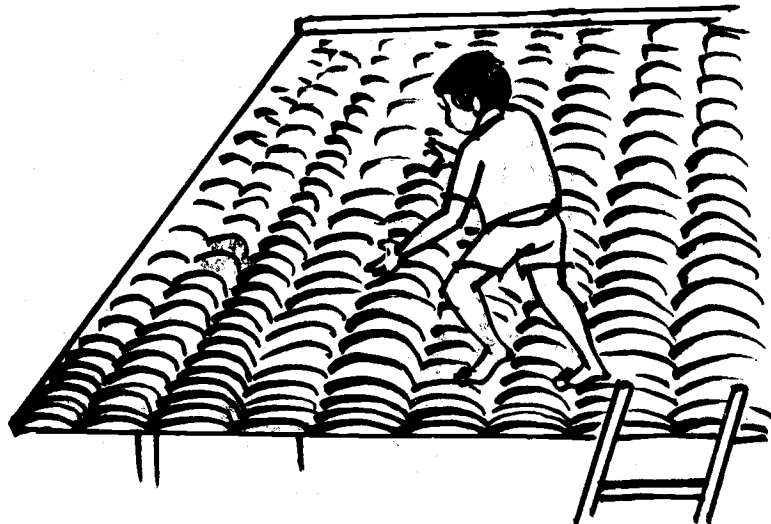
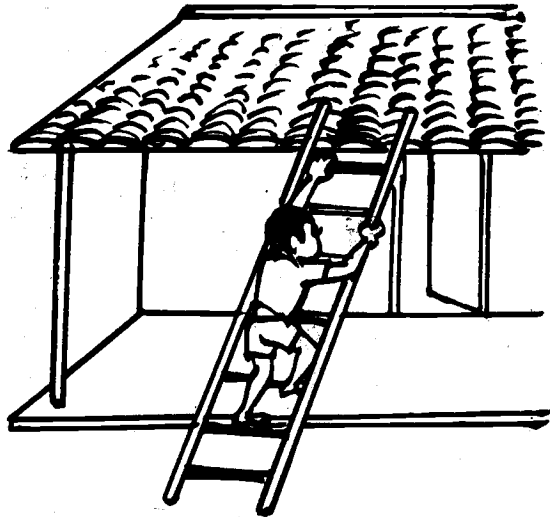
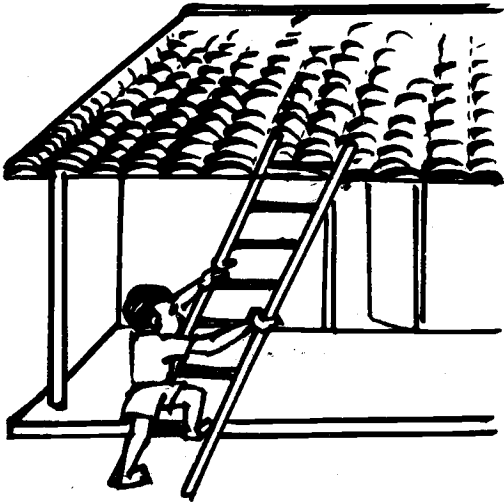
Item No. R35



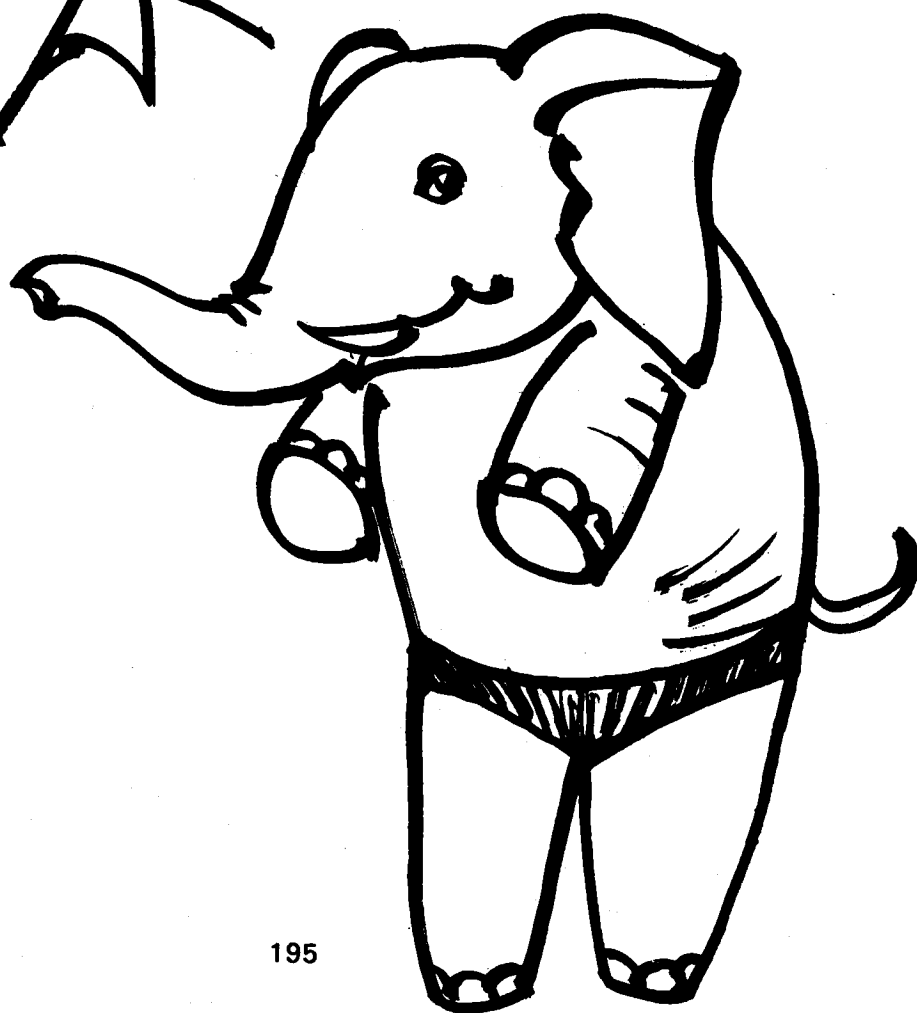
Item No. R36



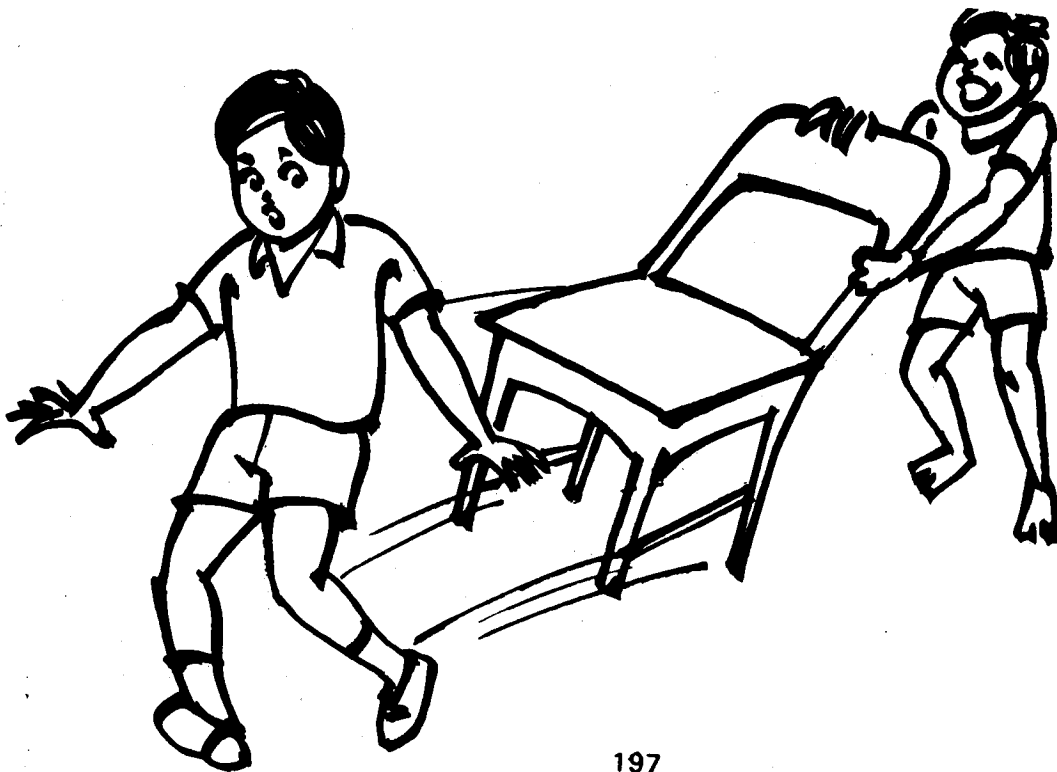
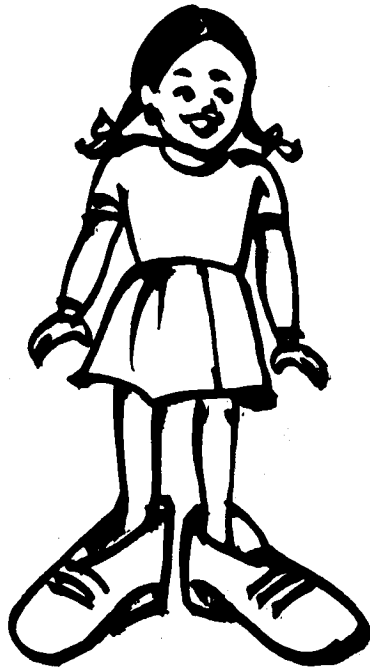
Item No. R39



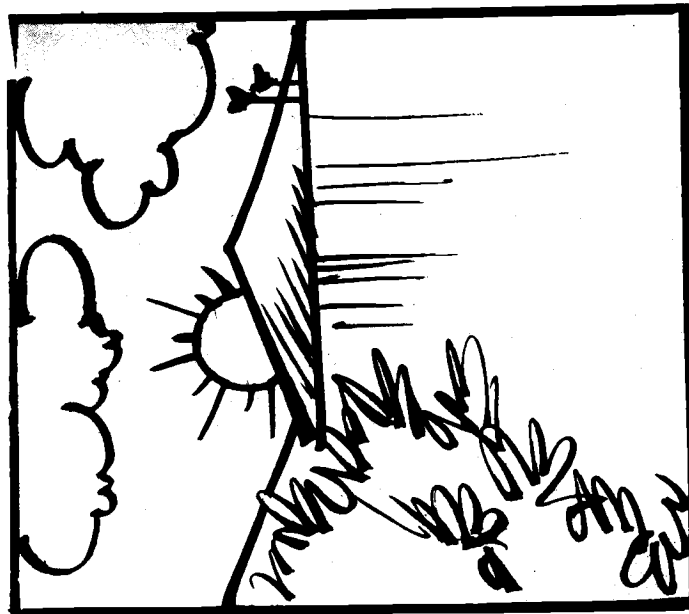
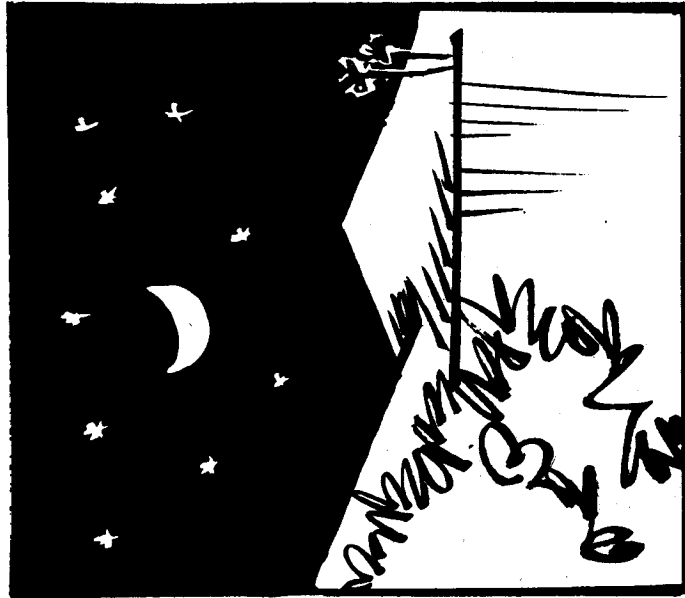
Item No. R43



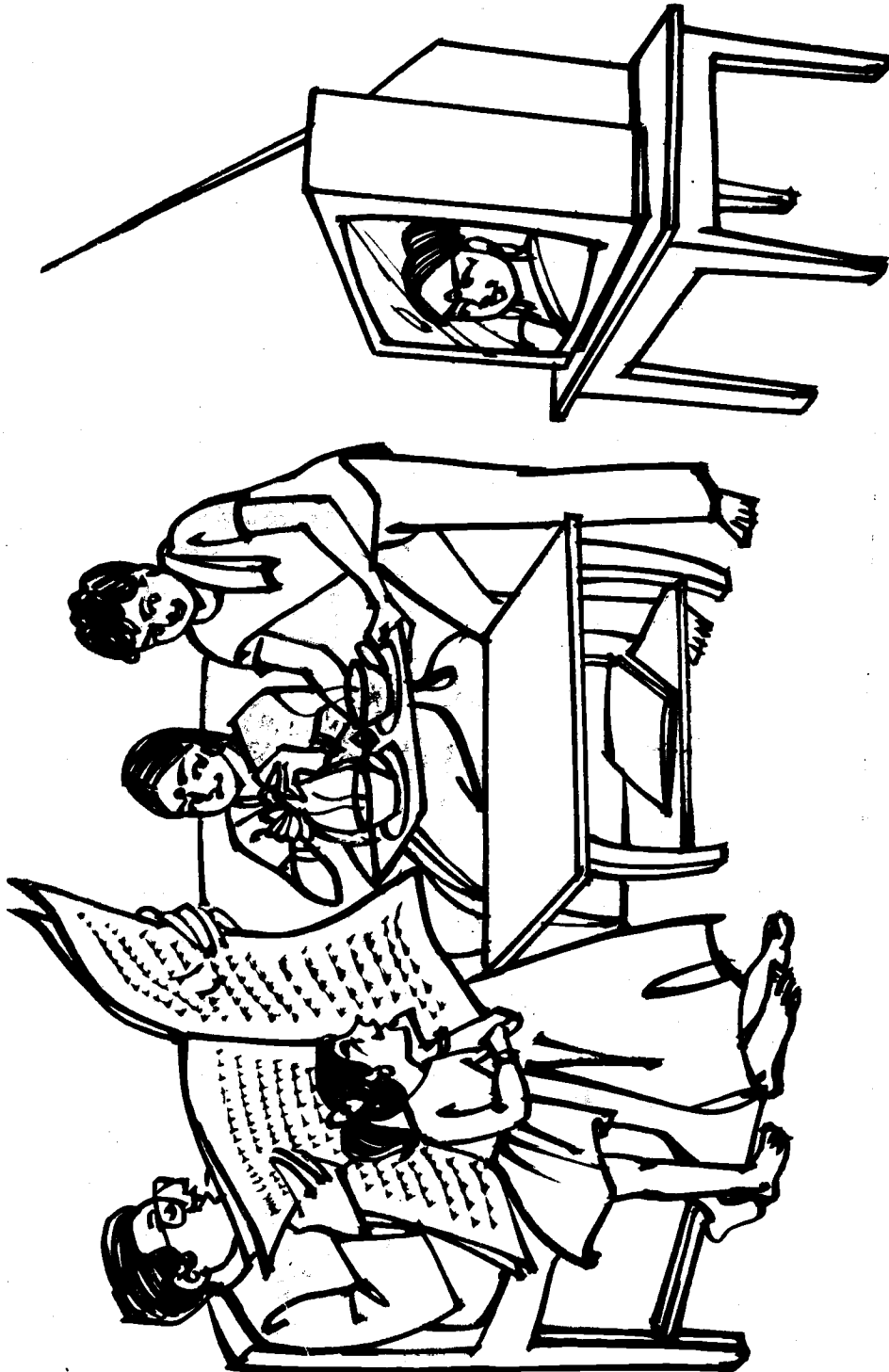
Item No. R43



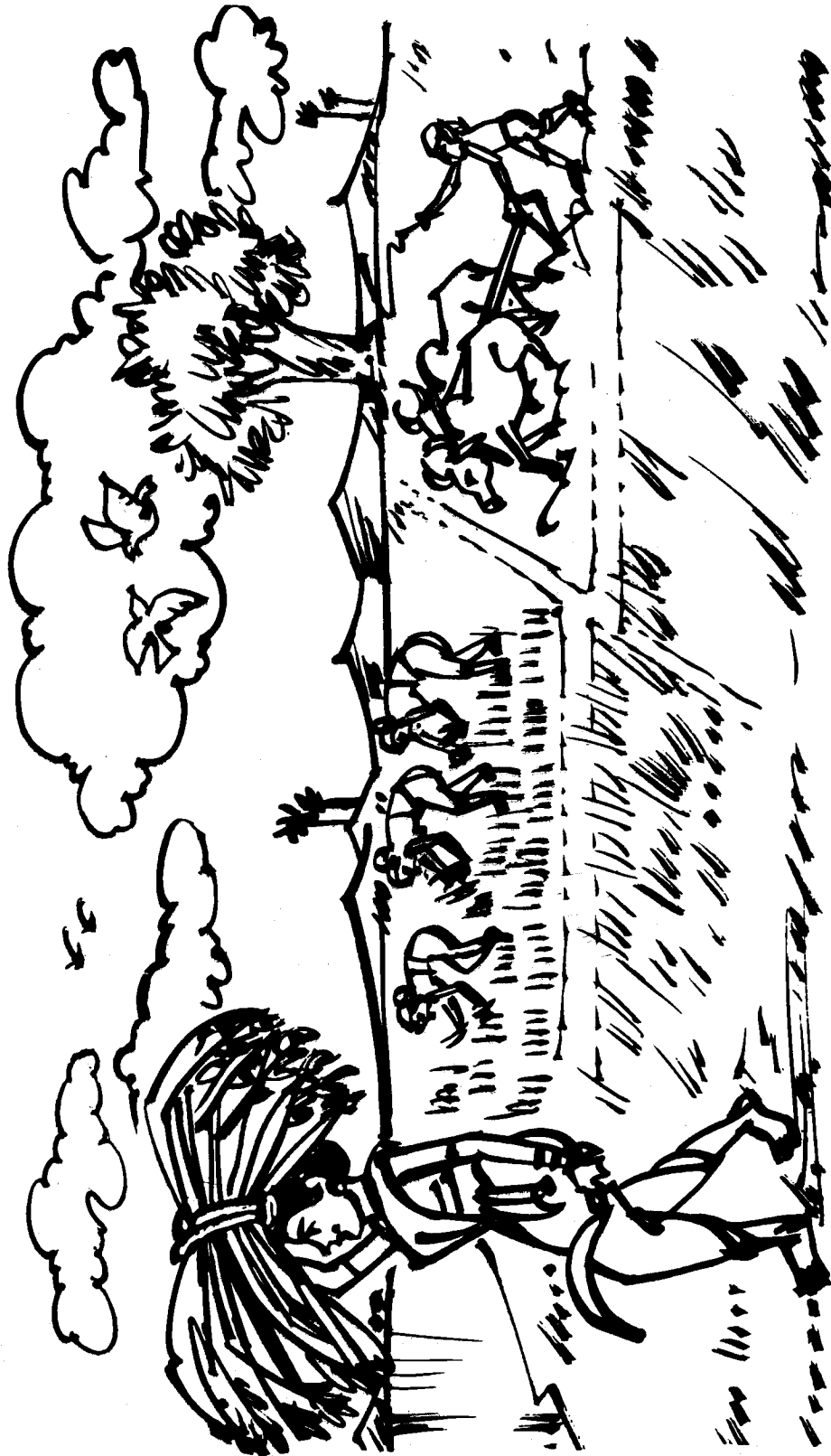
Item No. R45



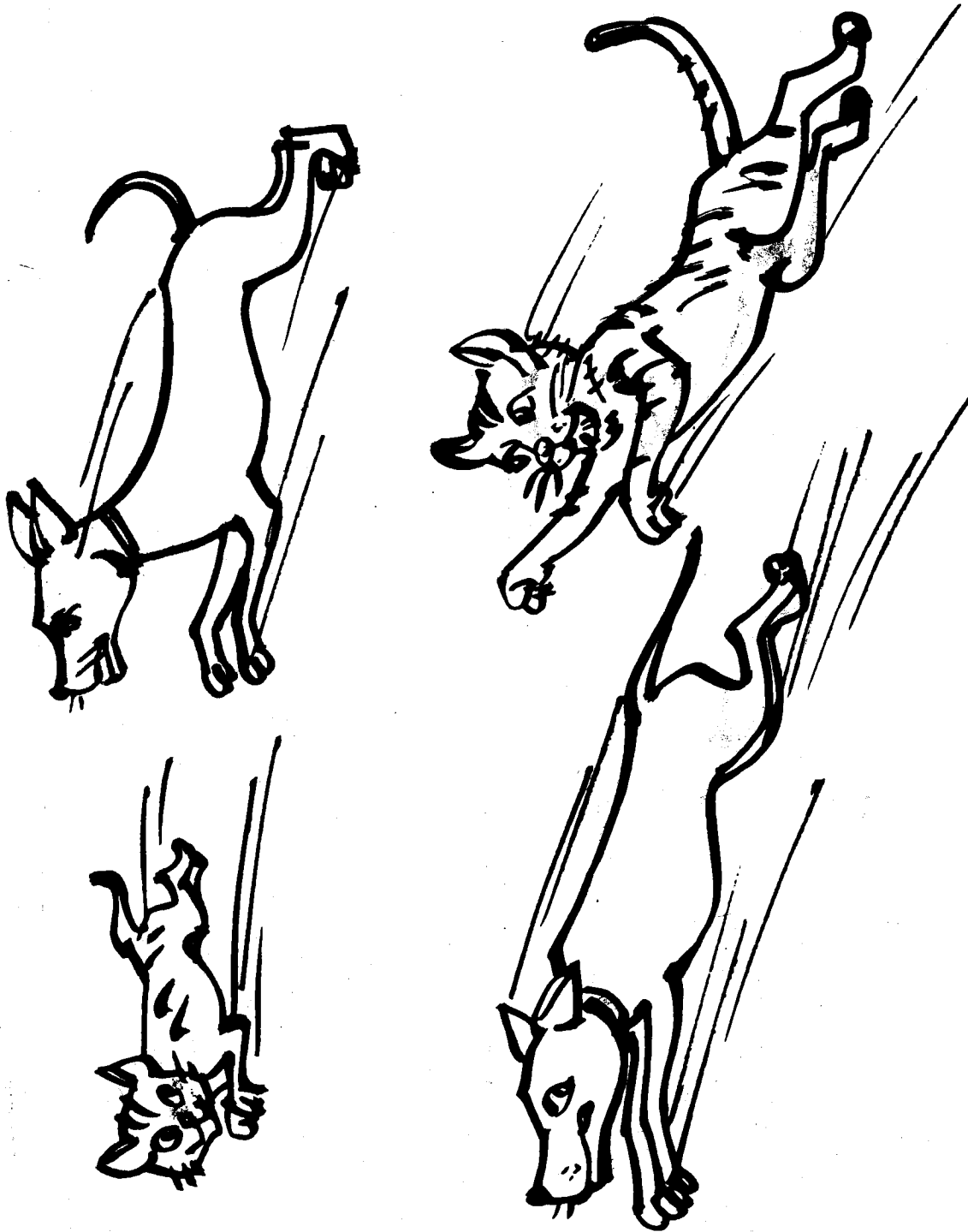
Item No. E32



Item No. E32



Item No. E36



SPEECH AND LANGUAGE ASSESSMENT PROFORMA

Name _____

Date _____

Age/Sex _____

File No. _____

Language used : At Home :

Name of the tester : _____

At School :

At other situations :

Significant History:

Any other information :

1. Structure and functioning of the speech mechanism:

Structure	Appearance		Function	Present	Absent
	Normal	Abnormal			
Lips	Normal/Abnormal		Protruding Retracting		
Tongue	Normal/Abnormal		Pulling out Taking back Lifting up Moving to sides		
Hard palate	Normal/Abnormal				
Soft palate	Normal/Abnormal		Up/down movement		

2. Hearing screening checklist*:

	Check Yes or No	Impression
i) At birth :		
a) Does your child awaken at loud sounds?		
b) Does your child startle or cry at noises?		
c) Does your child listen to speech?		
ii) 3 months:		
a) Does your child listen to soft sounds?		
b) Does your child seem to recognise mother's voice?		
c) Does your child stop playing and appear to listen to sounds or speech?		
d) Does your child try to turn toward the speaker?		
iii) 6 months :		
a) Does your child respond to <i>no</i> and his/her name?		
b) Does your child turn his/her head toward the side where the sound is coming from.		

....Contd.

- Adapted from, NAHSA (The National Association for Hearing & Speech Action, Rock Vile, Maryland, USA) Brochures *How Does Your Child Hear and Talk*, 1986.

Hearing screening checklist contd.....

**Check
Yes or No**

Impression

iv) 9 months - 1 year :

- a) Does your child search or look around when hearing new sounds?
- b) Does your child turn to look up when you call?
- c) Does your child respond to requests (*come here, Do you want more?*)

v) 2 $\frac{1}{2}$ years - 4 years:

- a) Does your child notice sounds? (dog barking, telephone ringing, television sound, knocking at the door and so on)
- b) Does your child hear television or radio at the same loudness level as other members of the family?
- c) Does your child hear you when you call from another room?

Instructions : Read each question through the child's age group and check Yes or No. If majority of the answers are *yes*, the child is normal in hearing and if majority of the answers are *no* refer the child to an Audiologist and Speech Pathologist.

3. Language input to the child:

Parent-child interaction:

I) Quantity :

Time spent and the frequency with which the child is spoken to by caretakers.

Frequent/Occasional

II) Quality :

a. Type of sentence frequently used

Questions and commands only used frequently - Yes/No

b. Method employed

Only during situations like story telling - Yes/No

During daily activities - Yes/No

c. Frequent demand for correct production of speech

Yes/No

III) Any other information :

4. Content/Language ability of the child:

I. Words :

a. Nominals :

Items	Comprehension No. of items	Expression No. of items
Food		
Fruits		
Clothing		
Furniture		
Parts of the body		
Names of family members		
Vehicles		
Others		

b. Action words*:			
Items	Present	Absent	Not Sure
	Comprehension		Expression
Sleeping			
Sitting			
Standing			
Running			
Jumping			
Brushing			
Hitting			
Giving			
Talking			
Combing			
Going			
Pushing			
Pulling			
Dropping			
Others			
* The exact word/words (or their examples) comprehended or expressed, should be written down. This holds good for all subsegment areas under language content.			

c. Pronouns :					
Comprehension			Expression		
Present	Absent	Not sure	Present	Absent	Not sure
Me/I					
Mine					
You					
Yours					
He					
His					
She					
Her's					
They					
Their's					
It					
It's					

d. Noun modifiers :					
Comprehension			Expression		
Present	Absent	Not sure	Present	Absent	Not sure
Big					
Small					
Near					
Far					
Happy					
Sad					
Tall					
Short					
Good					
Bad					
Fat					
Thin					
Clean					
Dirty					
More					
Little					

e. Verb modifiers :				
Comprehension			Expression	
Present	Absent	Not sure	Present	Absent Not sure
In				
On				
Under				
Through				
Beside				
Between				
Fast				
Slow				
Now				
There				
Here				
Up				

f. Connecting words:

Comprehension			Expression		
Present	Absent	Not sure	Present	Absent	Not sure

And

But

or

Because

So

So as to

Neither-Nor

Either-or

Later

Unless-Until

II. Semantic intentions :						
Item	Comprehension			Expression		
	Present	Absent	Not sure	Present	Absent	Not sure
Existence						
Non-existence						
Disapperance						
Recurrence						
Rejection						
Denial						
Location						
Possession						
Action						
Attribution						
Object						
Agent						

III. Early sentences :

Item	Expression			Examples
	Present	Absent	Not sure	
Agent + Action				
Action + Object				
Agent + Object				
Action + Location				
Entity + Location				
Possessor + Possession				
Entity + Attribute				
Demonstrative + Entity				

IV. Sentence types:

		Comprehension			Expression		
		Present	Absent	Not sure	Present	Absent	Not sure
Declarative/ Statement							
Negative	- No						
	- Not						
	- Can't						
Questions							
	Yes/No						
	<i>Wh form</i>						
	Yes/No						
	Where						
	What						
	Which						
	When						
	How						
	Why						
Complex/Compound sentences							

V. Word endings (Grammatical morphemes) :

Item	Comprehension			Expression		
	Present	Absent	Not sure	Present	Absent	Not sure

Plurals

**Present
progressive**

Past tense

Future tense

First person

Second person

Third person

Gender

- Male
- Female
- Neuter

5. Language use :

I) Mode of Expression:

- a) Predominantly verbal
- b) Predominantly non-verbal
- c) Both

II) Speech sound production:

Types of errors

Word positions
Initial Medial Final

- Substitution
- Omission
- Distortion
- Addition

III) Intelligibility of speech:

Good Fair Poor

IV) Usage skills:

Present Absent Details

- a) Beginning conversation
- b) Turn taking
- c) Ending conversation

V) Gestures :

a) Number of gestures used

b) Combination of gestures

Present Absent Details

c) Gestures understood by
others (Intelligibility)

Good Fair Poor



NOUN VOCABULARY FORM

This *form* can be used to get regarding the child's use of words in both comprehension and expression. It should be remembered that this word list is not prescriptive and the items must be selected based on the child's context, needs and environment, for assessment and intervention purposes. Also any other item which is appropriate to the child's environment can be added and the item not necessary can be deleted. The ultimate choice should be made by the teacher taking the child and his environment into consideration.

Names	Understands	Says/signs
Category-1 : Food		
1. Rice		
2. Dal		
3. Roti		
4. Flour		
5. Sugar		
6. Water		
7. Sambar		
8. Curry		
9. Buttermilk		
10. Curds		
11. Pickle		
12. Milk		

Names	Understands	Says/signs
13. Coffee		
14. Tea		
15. Biscuit		
16. Chocolate		
17. Ice-cream		
18. Ghee		
19. Oil		
20. Cumin seeds		
21. Mustard seeds		
22. Pepper		
23. Dhania leaves/coriander		
24. Mint		
25. Methi		
26. Palak		
27. Egg		
28. Chana		
29. Bread		
30. Butter		

Names	Understands	Says/signs
Category-2 : Clothing (Dress items)		
1. Shirt		
2. Blouse		
3. Skirt		
4. Shorts		
5. Frock		
6. Shoe		
7. Socks		
8. Kerchief		
9. Sari		
10. Powder		
11. Safety-pin		
12. Hair-clips		
13. Ear ring		
14. Bangles		
15. Plait		
16. Pant		
17. Sandles		
18. Slippers		

Names	Understands	Says/signs
19. Lungi		
20. Underwear/Briefs		
21. Vests		
22. Belt		
23. Pyjama		
24. Cap		
25. Churidar		
26. Dupetta/Chunni		
27. Salwar		
28. Nose Ring		
29. Ring		
30. Anklet		
31. Bottu/Bindi		
32. Kazal		
33. Night dress		
34. Half-saree		
35. Long skirt		
36. Hair oil		
37. Bracelet		
38. Jeans		
39. T-Shirt		

Names	Understands	Says/signs
Category-3 : Kitchen items 1. Spoon 2. Knife 3. Tumbler 4. Plate 5. Bottle 6. Cups & Saucers 7. Stove 8. Gas 9. Jars 10. Match box 11. Stick 12. Fire 13. Tin 14. Lid 15. Mixie 16. Grinder 17. Lighter 18. Water filter		

Names	Understands	Says/signs
19. Cooker		
20. Kerosene		
21. Sieve		
22. Coconut scrapper		
23. Oven		
24. Masala box		
25. Table mat		
26. Frying pan		
27. Sink		
28. Brush		
29. Cleaning powder		
30. Utensils		
Category-4: Animals		
1. Cat		
2. Dog		
3. Cow		
4. Goat		
5. Pig		
6. Horse		

Names	Understands	Says/signs
7. Donkey		
8. Rat		
9. Lizard		
10. Ox		
11. Buffalo		
12. Sheep		
13. Monkey		
14. Tiger		
15. Lion		
16. Elephant		
17. Rabbit		
19. Fox		
20. Wolf		
21. Giraffee		
22. Snake		
23. Squirrel		
24. Bear		
25. Bull		
26. Fish		

Names	Understands	Says/signs
27. Hen		
Category-5 : Fruits		
1. Banana		
2. Mango		
3. Guava		
4. Orange		
5. Grapes		
6. Apple		
7. Pineapple		
8. Custard apple		
9. Watermelon		
10. Jack Fruit		
11. Rockmelon		
12. Pomegranate		
13. Lime		
14. Gooseberry		
15. Lichi		
16. Apricot		
17. Sapota		

Names	Understands	Says/signs
18. Almond		
19. Cashewnut		
20. Papaya		
Category-6 : Flowers		
1. Jasmine		
2. Rose		
3. Sunflower		
4. Lotus		
5. Crysanthamum		
6. Marigold		
7. December		
Category-7 : Insects		
1. Cockroach		
2. Mosquito		
3. Ant		
4. Fly		
5. Bed-bug		
6. Moth		

Names	Understands	Says/signs
7. Butterfly		
8. Dragonfly		
9. Spider		
10. Centipede		
11. Millipede		
12. Caterpillar		
13. Earthworm		
Category-8 : Birds		
1. Crow		
2. Sparrow		
3. Parrot		
4. Hen		
5. Duck		
6. Crane		
7. Cuckoo		
8. Eagle		
9. Pigeon		
10. Chicken		
11. Rooster		

Names	Understands	Says/signs
12. Peacock		
13. Owl		
Category-9 : Vegetables		
1. Potato		
2. Onion		
3. Tomato		
4. Beans		
5. Brinjal		
6. Beet-root		
7. Ladies finger		
8. Lemon		
9. Coconut		
10. Chilli		
11. Green leaves		
12. Cabbage		
13. Cauliflower		
14. Carrot		
15. Pumpkin		

Names	Understands	Says/signs
16. Ginger		
17. Garlic		
18. Raddish		
19. Peas		
20. Capsicum		
21. Snakegourd		
Category-10: Furniture		
1. Table		
2. Chair		
3. Sofa		
4. Cot/bed		
5. Mat		
6. Stool		
7. Bench		
8. Desk		
9. Mirror		
10. Easy chair		
11. Cup-board		
12. T.V.Stand		

Names	Understands	Says/signs
13. Dressing table		
14. Dressing mirror		
15. Dining table		
Category : Vehicles		
1. Bicycle		
2. Bus		
3. Car		
4. Lorry		
5. Scooter		
6. Moped		
7. Auto		
8. Rickshaw		
9. Motor Bike		
10. Bullock-cart		
11. Horse-cart		
12. Van		
13. Train		
14. Aeroplane		

Names	Understands	Says/signs
15. Tractor		
16. Tricycle		
17. Ship		
18. Boat		
19. Helicopter		
20. Rocket		
21. Minibus		
Category-12 : General items		
1. Bed		
2. Pillow		
3. Bedsheet		
4. Blanket		
5. Refrigerator		
6. T.V.		
7. Radio		
8. Light		
9. Bulb		
10. Tube		
11. Fan		

Names	Understands	Says/signs
12. Switch		
13. Plug		
14. Coolers		
15. Tape recorder		
16. Iron box		
17. Cassette		
18. Video		
19. Camera		
20. Photo		
21. Watch/clock		
22. Wind/Air		
23. Diesel		
24. Petrol		
25. Bag		
26. Waste-paper basket		
27. Spectacles		
28. Curtains		
29. Carpet		

Names	Understands	Says/signs
30. Calender		
31. Comb		
Category-13 : School items		
1. Book/paper		
2. Text book		
3. Note book		
4. Pencil		
5. Pencil box		
6. Colour pencils		
7. Crayons		
8. Sketch pens		
9. Pen		
10. Black-board		
11. Ball pen/ink pen		
12. Pen nib		
13. Pen cap		
14. Rubber/eraser		
15. Chalk		
16. Slate		

Names	Understands	Says/signs
17. Uniform		
18. Duster		
19. Ink/refill		
20. Scale/ruler		
21. Bag		
22. Test/exams		
23. Holiday		
24. Time-table		
25. Marks		
26. Period/class (duration)		
27. Desk		
Category-14 : Body Parts		
1. Head		
2. Neck		
3. Hands		
4. Legs		
5. Chest		
6. Stomach		
7. Back		
8. Face		
9. Eyes		

Names	Understands	Says/signs
10. Ears		
11. Nose		
12. Mouth		
13. Cheek		
14. Chin		
15. Forehead		
16. Hair		
17. Fingers		
18. Wrist		
19. Forearm		
20. Biceps		
21. Thigh		
22. Foot		
23. Palm		
24. Lips		
25. Knee		
26. Waist		
27. Ankle		
28. Tongue		
29. Nails		

Names	Understands	Says/signs
Category-15 : Family Members		
29. Father		
30. Mother		
31. Brother Elder/younger		
32. Sister Elder/younger		
33. Paternal Grand Father		
34. Paternal Grand Mother		
35. Maternal Grand Father		
36. Maternal Grand Mother		
37. Uncle		
38. Aunt		
39. Friend		
40. Cousin		
41. Niece		
42. Nephew		
43. Father-in-law		
44. Mother-in-law		
45. Sister-in-law		
46. Brother-in-law		
47. Son		
48. Daughter		

ARTICULATION INVENTORY

Each sound has 3 words in each position initial, medial & final. Top word is in Telugu language. Middle word is in Hindi language. The bottom one is in English language. These words are not prescriptive. They have been selected because they are commonly used. Any other word which is more common can be used. For assessment method, please refer to text. Commonly used sounds have been listed.

PHONEMES

WORDS

	Initial	Medial	Final
i:	i:ga i:kh eat	ml:sam dl:pak people	lā:ri: rə:ti: ski
i	illu lɪlɪ ink	klɪtkɪ til knɪt	baɪl pa:ni
e:	e:nugu e:nak	me:ka pe:ra	sare: sa:re:
e	eddu seva lame	ʃeruvu me:re bay	o:nte
a:	a:vu a:lu: ankle	da:ram ba:val rat	ɖabba a:ta
a	addam amma up	pa:laka ghar hut	i:ga dha:ga
o:	o:ɖa o:khli	ko:ti do:ti	ku:rɔ: bha:go:
u:	u:gu u:nɪh	mu:ta pu:ri food	blue

u	udata ullu	talupu kutta book	mukku bha:lu chew
ai	ai du eyes	paisa bike	high
ou	ounu our owl	gounu bhouj house	cow
p	puvvu pa:ni pig	pa:pa kapaḍa puppy	sa:mp cup
b	buṭṭa billi bottle	tabala kabu:tar baby	ki:ta:b bulb
t	talupu titili	kattera patta	ra:t
c	ṣe:pa ṣappal chin	maṇṇamu maṇṇli teacher	na:ṣ watch
z	ze:bu zi:b zip	ga:zulu ga:zar razor	ka:gaz nose
f	fo:nu sa:f four	ka:fi safari sofa	barf roof
v	va:na van	pa:vala hava seven	five
sh	ṣankam ṣikar sheep	tamaṣa nasta fashion	ramesh push

s	si:sam sa:mp soap	pasupu paisa pencil	bus
r	railu rel rope	parupu su:radz arrow	car car
d	di:pam da:da the	addamu bandar mother	madad
k	kannu ka:n cow	akka lakdi accident	pa:lak book
g	guddu gamala goat	godugu angu:r wagon	a:g leg
t	topi tama:tar tea	ceṭṭu katori cotton	si:t coat
d	dabba dera dog	gudi sadak body	ghu:d head
y	yantram yam you	ra:yi cha:ya crayon	ga:y buy
m	me:ka mo:r man	bomma gamla lemon	na:m arm
n	niccena namak nose	kannu khana banana	pen ka:n spoon
l	laddu palak lamp	cilaka na:la balloon	til ball

CASE EXAMPLE
SPEECH AND LANGUAGE ASSESSMENT PROFORMA

Name CM Date 07-06-91

Age/Sex 11 File No. 109-90

Language used : At Home : Telugu

At School : Telugu

At other situations : Telugu

Significant History : Nil

Any other information :

Child has Mild Mental Retardation

1. Structure and functions of speech mechanism:

Structure	Appearance		Function	Present	Absent
	Normal	Abnormal			
Lips	Normal/Abnormal		Protruding	✓	
			Retracting	✓	
Tongue	Normal/Abnormal		Pulling out	✓	
			Taking back	✓	
			Lifting up		✓
			Moving to side	✓	(Sluggish)
Hard palate	Normal/Abnormal				
Soft palate	Normal/Abnormal		Up/down movement	✓	

2. Hearing screening checklist*:

	Check Yes or No	Impression
i) At birth :		
a) Does your child awaken at loud sounds?	Yes	
b) Does your child startle or cry at noises?	Yes	
c) Does your child listen to speech?	Yes	
ii) 3 months:		
a) Does your child listen to soft sounds?	Yes	
b) Does your child seem to recognise mother's voice?	Yes	
c) Does your child stop playing and appear to listen to sounds or speech?	Yes	
d) Does your child try to turn toward the speaker?	Yes	
iii) 6 months :		
a) Does your child respond to <i>no</i> and his/her name?	Yes	
b) Does your child turn his/her head toward the side where the sound is coming from.	Yes	

* Adapted from, NAHSA (The National Association for Hearing and Speech Action Rockville Maryland, USA) Brochure *How Does Your Child Hear and Talk*, 1986)

Hearing screening checklists contd....

iv) 9 months - 1 year :

- | | |
|--|-----|
| a) Does your child search or look around when hearing new sounds? | Yes |
| b) Does your child turn to look up when you call? | Yes |
| c) Does your child respond to requests (<i>come here, Do you want more?</i>) | Yes |

v) 2½ years - 4 years :

- | | | |
|---|-----|------------------------------|
| a) Does your child notice sounds : (dog barking, telephone ringing, television sound, knocking at the door and so on) | Yes | Hearing within Normal limits |
| b) Does your child hear television or radio at the same loudness level as other members of the family? | Yes | |
| c) Does your child hear you when you call from another room? | Yes | |

Instructions : Read each question through the child's age group and check Yes or No. If majority of the answers are yes, the child is normal in hearing and if majority of the answers are *no* refer the child to an Audiologist and Speech Pathologist.

3. Language input to the child:

Parent-child interaction:

I) Quantity :

Time spent and the frequency with which the child is spoken to by caretakers.

Frequent/Occasional

II) Quality :

a. Type of sentence frequently used

Questions and commands only used frequently - Yes/No

b. Method employed

Only during situations like story telling - Yes/No

During daily activities - Yes/No

c. Frequent demand for correct production of speech

Yes/No

III) Any other information :

4. Content/Language ability of the child:		
I. Words :		
a. Nominals :		
Items	Comprehension No. of items	Expression No. of items
Food	20/30	12/30
Fruits	8/20	4/20
Clothing	13/39	6/39
Furniture	5/15	3/15
Parts of the body	15/29	9/29
Names of family members	10/20	6/20
Vehicles	8/21	6/21
Others	41/158	27/158

b. Action words:							
Items	Comprehension			Expression			
	Present	Absent	Not sure	Present	Absent	Not sure	
Sleeping	✓			✓			
Sitting	✓			✓			
Standing	✓			✓			
Running	✓				✓		
Jumping	✓				✓		
Brushing	✓			✓			
Hitting	✓			✓			
Giving	✓				✓		
Talking	✓				✓		
Combing	✓				✓		
Going	✓				✓		
Pushing		✓			✓		
Pulling		✓			✓		
Dropping		✓			✓		
Others							

c. Pronouns :						
	Comprehension			Expression		
	Present	Absent	Not sure	Present	Absent	Not sure
Me/I	✓			✓		
Mine	✓			✓		
You	✓			✓		
Yours	✓			✓		
He	✓				✓	
His	✓			✓		
She	✓				✓	
Her's	✓				✓	
They	✓				✓	
Their's		✓			✓	
It		✓			✓	
It's		✓			✓	

d. Noun modifiers :							
	Comprehension				Expression		
	Present	Absent	Not sure		Present	Absent	Not sure
Big	✓				✓		
Small	✓				✓		
Near			✓				✓
Far			✓				✓
Happy	✓						✓
Sad			✓				✓
Tall	✓				✓		
Short	✓				✓		
Good			✓				✓
Bad			✓				✓
Fat			✓				✓
Thin	✓						✓
Clean	✓						✓
Dirty	✓			✓			
More	✓						✓
Little	✓						✓

e. Verb modifiers :						
	Comprehension			Expression		
	Present	Absent	Not sure	Present	Absent	Not sure
In	✓			✓		
Qn	✓			✓		
Under	✓				✓	
Through		✓			✓	
Beside		✓			✓	
Between		✓			✓	
Fast	✓				✓	
Slow	✓				✓	
Now	✓				✓	
There	✓				✓	
Here	✓				✓	
Up	✓				✓	

f. Connecting words:

	Comprehension			Expression		
	Present	Absent	Not sure	Present	Absent	Not sure
And		✓			✓	
But		✓			✓	
or		✓			✓	
Because		✓			✓	
So		✓			✓	
So as to		✓			✓	
Neither-Nor		✓			✓	
Either-or		✓			✓	
Later		✓			✓	
Unless-Until		✓			✓	

II. Semantic intentions :						
Item	Comprehension			Expression		
	Present	Absent	Not sure	Present	Absent	Not sure
Existence	✓			✓		
Non-existence	✓			✓		
Disapperance	✓			✓		
Recurrence	✓			✓		
Rejection	✓				✓	
Denial	✓				✓	
Location	✓			✓		
Possession	✓			✓		
Action	✓				✓	
Attribution	✓				✓	
Object	✓				✓	
Agent	✓				✓	

III. Early sentences :

Item	Expression			Examples
	Present	Absent	Not sure	
Agent + Action	✓			
Action + Object	✓			
Agent + Object	✓			
Action + Location	✓			
Entity + Location		✓		
Possessor + Possession	✓			
Entity + Attribute		✓		
Demonstrative + Entity		✓		

IV. Sentence types:

		Comprehension			Expression		
		Present	Absent	Not sure	Present	Absent	Not sure
Declarative/ Statement		✓			✓		
Negative	- No	✓			✓		
	- Not	✓				✓	
	- Can't	✓				✓	
Questions							
	<i>Yes/No</i>	✓			✓		
	<i>Wh form</i>						
	Who	✓				✓	
	Where		✓			✓	
	What	✓			✓		
	Which		✓			✓	
	When		✓			✓	
	How		✓			✓	
	Why		✓			✓	
Complex/Compound sentences			✓			✓	

V. Word endings (Grammatical morphemes) :

Item	Comprehension			Expression		
	Present	Absent	Not sure	Present	Absent	Not sure
Plurals	✓				✓	
Present progressive	✓			✓		
Past tense	✓				✓	
Future tense	✓				✓	
First person		✓			✓	
Second person		✓			✓	
Third person		✓			✓	
Gender						
- Male	✓				✓	
- Female	✓				✓	
- Neuter		✓			✓	

5. Language use :

I) Mode of Expression:

- a) Predominantly verbal
- b) Predominantly non-verbal
- c) Both

II) Speech sound production:

Types of erros

- Substitutions
- Omissions
- Distortions
- Addition

Word positions Initial Medial Final

All the voiceless for voiced
in all positions.

Of /s/, /r/ at the word
final position

Nil

Vowel /i/ before /s/.

III) Intelligibility of speech :

Good, Fair Poor

IV) Usage skills:

Present Absent Details

- a) Beginning conversation

✓

He begins
whenever
in need of
information.

b) Turn taking

✓

c) Ending conversation

✓

V) Gestures :

a) Number of gestures used

about 15

b) Combination of gestures

Present

Absent ✓

Details

c) Gestures understood by
others (Intelligibility)

Good

Fair ✓

Poor



SELF TEST - 6

I. Study the following statements carefully and say whether they are *true* or *false*

1. Speech & Language Assessment is not needed for speech and language intervention. True/False
2. Speech and Language assessment is difficult because population undergoing assessment is not uniform. True/False
3. Assessor should be equipped with sufficient amount of information regarding normal speech and language development. True/False
4. Parental interview is one of the procedures for assessment. True/False
5. LAT is a test for assessing IQ. True/False
6. Hearing assessment in mentally retarded children is not needed. True/False

II. Fill in the blanks

7. The primary reasons for assessment are -

8. While assessing language input to the child one should observe _____ & _____ of input provided to the child.

9. The best way to assess the child's language ability is to observe the child in a _____ situation.

10. Assessing during the intervention programs is known as _____

11. While assessing the area of language use, one should include the following items (give any three):

12. Language assessment is very important because it gives information on the following aspects:

III. Choose the correct answer

13. Speech and language assessment includes following procedures

- a) Direct interaction with the child
- b) Parental interview
- c) Observing parent-child interaction
- d) All the above

14. Speech & Language assessment gives a large amount of information except,

- a) Child's current level of functioning in the area of language use

- b) Relative strength and weakness in various aspects of communication
- c) Intellectual ability
- d) None of the above

15. The common sound production errors are

- a) substitutions
- b) omissions and distortions
- c) distorting and additions
- d) all of the above

16. Intelligibility of speech is found to be poor when

- a) speech is understood by parents only
- b) Speech is understood by both parents and strangers
- c) Speech is not understood by both
- d) None of the above

17. Turning the head towards the side where source of sound is located is an auditory behaviour attained by the age of _____ by normal children

- a) at birth
- b) after 2 1/2 years
- c) 6 months
- d) none of the above.



KEY TO SELF TEST - 6

1. *False : Assessment is very important and needed for speech and language intervention.*
2. *True*
3. *True*
4. *True*
5. *False : LAT (Language Assessment Tool) is a test for assessing speech & language development.*
6. *False : Hearing assessment is important because children with hearing loss may be helped.*
7. *The primary reasons for assessment are*
 - a) *To identify children with language problems*
 - b) *To establish a baseline functioning*
 - c) *To evaluate the progress*
8. *The quantity and quality of language input.*
9. *Natural situation.*
10. *Re-evaluation.*
11. . *Mode of expression*
 - . *Speech sound production*
 - . *Intelligibility*
 - . *Usage skills*
 - . *Gestures*
12. . *Relative strength and weakness in the aspects of communication.*
 - . *Deciding whether language and communication difficulties of the child require help or not.*
 - . *Child's current level of functioning.*
13. *d*
14. *d*
15. *d*
16. *c*
17. *c*

CHAPTER-7

Language and Communication Intervention

The reader may notice that in the title of the chapter the word speech is conspicuously absent. This is not to rule out the role of speech as an integral part of our communication, but to highlight the role of communication as the major process in which speech also forms a part.

Communication is the major aspect in which speech forms a part

Language and communication intervention (LCI), has benefitted from the studies on normal language development in recent years. Recent research in this area has brought forward the role and importance of experience, in both linguistic, and non-linguistic activities, during language learning. Similarly the role of cognitive development is of critical importance. All our intervention efforts are in fact attempts, indirectly or directly to improve cognitive development.

LCI is a deliberate attempt to improve the existing communicative behaviours and facilitate learning of new communicative behaviours. This involves rearrangement of factors that can be manipulated to facilitate language and communication acquisition. LCI should assist the child in developing a desire to communicate and provide him with a means to do so in meaningful situations.

LCI involves rearrangement of factors that can be manipulated to facilitate language and communication acquisition

Objectives of the chapter

To enable the reader to,

1. understand major principles influencing language and communication intervention,

2. select intervention targets, based on the various assessment data in a realistic manner,
3. select activities from the child's day to day life to achieve intervention targets,
4. incorporate communication training into school activities, and
5. appreciate the need and role of non-verbal communication for the mentally handicapped in the Indian context.

Major principles of LCI

Currently used programmes for helping children acquire language and communication skills are mainly derived from two sources namely, the increasingly expanding knowledge from the studies of language acquisition in normally developing children and growing importance of the functional communication in daily life situations.

As a consequence of availability of information from the above mentioned areas there is a change in the view that language and communication intervention should be done only by a speech pathologist in his clinic. Language and communication training can also be done more effectively by parents and teachers who are in contact with the child's daily life with assistance from a speech pathologist. The training targets selected should focus on the immediate usability of words and sentences. It can be restated that speech pathologist can work as a facilitator or guide in helping mentally retarded children to learn better. Actual implementation of the programme, and in many occasions planning of the programme, can be effectively carried out by teachers. Without the involvement of parents and other family members,

Language and communication intervention can be done effectively by parents and teachers

a communication training programme cannot become a success.

Some of the important principles on which language and communication programmes are based are given below.

1. A central element in the intervention is the close relationship between the child and significant adults around him. The child attends to what parents and teachers do and say and enjoys their attention and praise, as well interacts with them.

In language intervention the close relationship between adults and children is of paramount importance

2. There is a considerable emphasis on the child's reason for learning speech or other modes of communication, i.e., to attract attention, to protest, to request and so on. Learning to use words or gestures for one reason will not guarantee generalisation to other functions.

3. Language and communication learning takes place in the routines of interaction between adults and the child such as routines surrounding dressing, feeding, washing and so on. These activities can be called as *joint action routines*.

4. Children need to get interested in the world around them, including the person who in turn helps the child to relate events and objects. We need to encourage the child or adult with mental handicap to be more involved and interested in the world.

5. As the child learns more and more information about his environment - *people, actions, objects* - he/she requires more and more sophisticated ways to express and understand. This may be speech or any other mode of communication i.e., a person with mental retardation may need to be given more and more experience in dealing with the environment

as well as increasingly improved ways of communication.

6. Mentally handicapped children need to be given opportunities to interact with others, so that they can indicate their preferences, elicit attention, ask questions and give instructions. They may need to learn how to initiate a conversation, how to choose and maintain a topic how to guess what other person knows, how to wait for their turn and how to close a conversation.

7. Creating a communication oriented situation is of great importance, where the child requires to communicate and not merely get things done without asking for them. This emphasises the role of the reason for communication.

Create a communication oriented situation

8. Language must be considered as a social act that occurs in an environmental context, then communication becomes one aspect of interaction among people.

9. Language learning involves both comprehension and expression of sounds, words, sentences, gestures and their use. Any intervention which focusses on only production is clearly inappropriate.

10. Children must not only be helped to move from stage to stage (such as words to phrases) but must be helped to expand in an existing stage.

Intervention programme based mainly on production is inappropriate

11. Children do not start to speak with adult forms of words, but use self made (child like) words and only gradually move to use adult words. Hence, even mentally retarded children should be given similar opportunity. One must not demand adult like **correct** forms.

12. In the social environment, play activities form major learning modes for children and should be made use of optimally.

13. It is essential to emphasize all forms of expression, speech, gestures, signs, communication boards, and emphasis must not lie only with *speech*.

All forms of expression should be emphasised and preference should not lie only with speech

14. The whole process of intervention has the child in focus, i.e., selection of targets and activities should be suitable to the child's level and problems rather than adult's wishes.

15. Language learning can be considered as having atleast three components which interact.*

- i) What to communicate (*content*)
- ii) In what way to understand and express (*form*)
- iii) How, when, where of language utility (*use*).

These three aspects, content form and use are learnt simultaneously .

16. The social basis of language gives importance to the interaction of the child with the caregiver. The aspect that is of importance is the way and how much the caregiver provides speech and language stimulation (*input*) to the child.

17. The importance of the language and communication will become clear to the child, only when he/she starts controlling the environment - people, objects and actions.

Child will use language for communication only if he/she learns that one can control the environment through language

* Refer to Bloom & Lahey (1978) and chapter 2 of this manual for more details.

Based on these broad principles, the LCI is discussed further. The following sections will cover some commonly used teaching strategies and their disadvantages, suggestions for improved teaching practices, the linking of assessment data with selection of targets and finally activities to achieve these targets.

Common intervention strategies*

Four typically used strategies for teaching receptive and expressive vocabulary have been highlighted along with their usefulness.

1. Teaching comprehension skills:

In this situation, the student is initially asked to choose from two or more alternatives as a response to a question like *show me the keys*. The response is typically pointing to a correct alternative. Generally, a reward is presented, material or verbal praise on correct response.

This strategy is well tried and can be effective if judged by acquisition of correct responding to the situation. However, this situation is peculiar for many reasons. The situation is entirely controlled by the teacher or the instructor, who decides what should be talked about and what the responses shall be. Further the rewards are arbitrary in relation to the content of the interchange. In other words, we are dealing with a very artificial teaching strategy when we compare it to normal acquisition of language.

While teaching comprehension asking the child to point to different alternatives is an artificial situation

* Based on the work of Kiernan, C., Ried, B. and Goldbart, J.C. (1987).

2. Teaching instruction following:

Rather than just teaching the person to point a specific object students are taught to follow instructions such as *come here Sit down stand up* etc. Rewards again are arbitrary and situation is highly teacher controlled.

This strategy has some value while dealing with individuals who show a complete lack of social interaction. This can also be used while teaching following two term constructions such as *noun + verb* in many combinations.

While teaching instruction following, rewards are arbitrarily used

3. Imitation training:

This strategy is generally used effectively in the initial teaching of expressive speech or signing. Modelling is used by the teacher with the student being physically prompted in the first instance.* With practice, the child may learn to imitate novel responses and this makes the strategy very valuable.

Imitation training again is typically controlled by the teacher or instructor. The format is basically one in which the student is taught to sit watching the teacher, until cued by a specific instruction. child should respond by copying as precisely as possible. The rewards are arbitrary, for example, child may be asked to imitate words, *tea* and given a pat on the back as a reward. The teaching situation is highly artificial.

4. Teaching expressive skills:

The most frequently used procedure for teaching expressive skills is to show the student an object,

* Mc Brien, F. (1981) as quoted in Kiernan et. al, (1987).

picture or event and say *Look here, What's this?* (Naming) or *What's the man doing ?* (Describing) etc. If the child responds correctly he is rewarded. If incorrect, prompt is provided and rewarded.

Once again, the procedure can be effective, but it represents a situation which is highly artificial and controlled by the teacher. Responses, deviating from the expected are not considered important.

The above four strategies, suggest that children are made to either imitate, name or describe the objects, events or people. However, it must be remembered that *teaching the individual to imitate, to name or to describe will not necessarily lead to using the vocabulary and syntax, which the child acquired for other purposes*. Moreover, in the strategies mentioned above the child is a passive participant, who reacts only when asked. It may be recalled that communication is the way in which the person acts on his/her environment and changes it in a way he/she requires, i.e., the child may ask what he/she wants, says no, maintains social interaction, questions and so on. Keeping this perspective, it is not very difficult to notice that the routine teaching situations are not allowing the child to be an active participant and hence require modifications.

Teaching an individual to imitate, to name, or to describe will not necessarily lead to using the vocabulary and syntax

Suggested modifications*

A major aspect of the *facilitative* role adults play in acquisition of language and communication by both normal and mentally retarded children is the modification of the child's environment. Modifying the environment leads us to create an effective *communication context*. If one learns to incorporate

* Based on the works of Kiernan et.al., (1987); Synder-Mclean et.al., (1984); Van Riper (1990); and Winitz (1983) etc.,

aspects relating to creating a communication context, then teaching strategies would help the child in acquiring effective language and communication. Some of the more active interaction patterns are mentioned below.

1. Satisfying child's communication needs:

This involves identifying what the child requires to communicate and rearranging the environment so as to make the child ask for the same, i.e., we create a need to communicate in the communication context.

Active interaction patterns allow a child to acquire affective language and communication

2. Learning to say *no*/indicating *no*:

A child requires to refuse either by using a gesture or using a word, for this to happen the environment has to be rearranged, adult deliberately gives the wrong choice after the child requests.

3. Violation of routine events:

Here routine events such as getting water, going for food are intentionally violated to evoke protest or focus child's attention to particular language aspects.

4. Withholding objects and turns:

This helps children in initiating language to gain attention, request an object or make a comment.

5. Violation of object function or object manipulation:

When children are familiar with action routines such as opening a pen and writing, putting on a dress, the adult deliberately violates the routines, so that children need to initiate directives and make protests.

6. Hiding objects:

This strategy is particularly useful in facilitating development of question forms and early forms of negation. Child finds that an object is not present and asks *where it is?*

7. Role reversal:

Here the child follows the adult's instructions and answers questions and then the roles are reversed, so that child gains the control of situation by asking questions. Here imitation is less adult controlled and motivational level for the child is high.

***Meaningful contexts
are most important for
Language learning***

8. The tea-party technique:*

In this technique language is taught in a meaningful setting such as a tea party, dinner situation etc. Here the child first acquires a knowledge base in simple meaningful situations, eg, a tea party. The idea is that children learn how a tea party runs in terms of the use of cups, saucers, plates, knives, tea, milk, sugar etc. and associated actions like stirring, cutting, pouring etc. In a carefully planned - controlled but naturalistic situations, the child is taught to involve in the situations, where comprehension is facilitated. Reversing the roles, expression is also facilitated. Variation of routine can also be used to provide an opportunity for new forms of communication to be taught and used.

9. Joint action routines:**

This is a procedure similar to tea party technique, in which a situation or a series of situations such as

* Based on Brinker (1978) as quoted in Kiernan et .al, (1987) .

** Based on Snyder-Mclean et .al,(1984) as quoted in Kiernan et.al,(1987) .

bus travel, lunch period etc., with a unifying theme are selected and the expected words, sentences, gestures or signs are carefully selected so that the roles can be assigned. While the situations is carried out the adult who is involved can use any of the following techniques to vary the use of different utterances/signs.

Sabotage - deliberately modifying equipment/toys so as to lead to an unpredictable event.

Omission - not doing something which students/ children expect to happen.

Error - doing something incorrectly - eg: mixing sugar in tea with a knife.

Events - doing new things in routine contexts

Choice - offering alternatives eg: two kinds of books are offered in a class room set up.

Some of the strategies are effectively used in combination to suit the level of the child and the facilities available in the situation.

10. Language story technique:*

A story means fun and excitement to most children, especially if the teller adds a lively dramatic touch to the announcement of story time and to the reading of appropriate material.

Using stories specially constructed around themes loaded with familiarity and fanciful happenings can provide the learning experience that may satisfy the

Joint action routines or daily situations are to be skillfully utilised to involve the child in communication

* Based on MC Givern et.al., (1978).

challenge that the teachers of children with retarded development face.

This technique emphasizes the improvement of language through teaching grammatical rules. It can be used to teach a controlled set of syntactic structures, vocabulary items and concepts. Language stories provide an opportunity to the students to practise the grammatical rules by telling them about events and repeating statements made by characters in the story. The story medium emphasizes the semantic content rather than a rigid imitative system. The students are provided with a semantic base. They should understand and formulate the structures present in the story.

Story telling should help a child to grasp semantic content initially, then emphasis should shift to syntactic aspects

A note on language

Our society by nature is bilingual or multilingual i.e., most of us use more than one language. Most normal children do not find it difficult to learn two or three languages simultaneously. However, mentally retarded children may face problems in acquiring more than one language. It is clear that the mentally retarded child faces problems in mastering one language itself, even with training and help. So it is recommended that one language may be selected in which the training is carried out. This language could be the one to which the child is maximally exposed to in his daily life. Teachers will have to take most pragmatic decision in consultation with the parents.

Maximally exposed language to the child should be preferred

Using assessment data for intervention

The reader is requested to keep the appendix 6.2 of chapter 6 in view, as the discussion proceeds. Assessment data should be available for each child

on the proforma and will be essential to provide effective intervention.

Intervention involves making appropriate referrals as well as carrying out suitable activities to achieve targets. Teachers are encouraged to use the format of IEP (individualised education programming) as this would ensure uniformity of records used in school settings.

Language and communication intervention can be recorded on IEP formats also

As discussed, the intervention to be more effective requires that the professionals,

1. get an assessment data which is large enough to know the child's present performance level,
2. keep in mind the ways in which the activities that are already happening in school and at home, could be modified to generate communicative interest in the child, and
3. need to keep the complex nature of the language in mind.

Some sample targets and the few activities are described as examples in each of the three areas, viz., *the input, language ability/content*, and *language use* by the child. The example targets and activities may be treated as stimulatory starting points for the creative and exploring minds of the professionals.

Sample targets and activities for intervention

1*. Aspects related to structure and functions of speech mechanism

• These numbers correspond to the serial numbers given in Appendix 6.2 .

Common problems observed -

- a) Slit in the lips or palate (cleft lip and cleft palate).
- b) Tongue held to the floor (tongue tie).
- c) Problems in moving tongue, particularly lifting.
- d) Drooling.

What could be done ?

a) For cleft lip and palate referral could be made to a dentist or a plastic surgeon.

b) Removal of tongue tie may be decided with caution in consultation with parents and medical person. It must be remembered that removal of tongue tie does not lead to production of speech.

***Removed of tongue-tie
doesnot lead to produc-
tion of speech***

c) In tongue if structural problems are not present and still movement problems exist, an attempt to get the child to make the movements may be made. For helping the child to put out the tongue, sugar/ jam in a spoon can be held near the lips and child gradually is made to lick it with tongue tip, gradually distance from the lips can be increased. Using a mirror during these activities will help the child in learning faster. For other movements of the tongue, providing physical assistance using a blunt spoon may be useful. In difficult cases consult a speech pathologist /occupational therapist/ physiotherapist.

d) Drooling occurs when the child fails to swallow the saliva produced in the mouth. Reduction in drooling will happen only if the child learns to swallow the saliva. Helping children to learn to swallow saliva may be done in the following steps:

***Reduction in drooling
will happen if the child
learns to swallow the
saliva***

- i) Gently close the lips of the child with fingers,
- ii) keep a finger on one nostril of the child and,
- iii) say *swallow* and continue to hold for a few seconds,
- iv) watch for movement on the front of neck, as the evidence of swallowing, and
- v) remove the hand.
- vi) Initially the procedure needs to be carried out every few minutes. As the child understands, mere mention of the word *swallow* (in the particular regional language) will stimulate the child to swallow.

Physiotherapists and occupational therapists may also be consulted for drooling problems.

Children should be helped to notice the differences between drooling and not drooling. Encouraging the child by telling him how smart he looks and similar appropriate reinforcements can be provided.

To sustain control of drooling, child should be encouraged to notice the difference in appearance when not drooling

2. Aspects related to hearing

Common problems observed -

- i) Majority of 'no' answers on the checklist leading to suspected hearing loss.
- ii) Frequent ear discharges.
- iii) Not responding to environment sounds, or not turning when sound is made.
- iv) Poor understanding of instructions.

What can be done?

i) For problems of suspected hearing loss, referral may be made to an audiologist for confirmation and further help. When audiologist is not available an ENT surgeon may be consulted.

ii) Children with frequent ear discharge should be referred to an ENT surgeon or any other medical person.

iii) If Children are not responding to environmental sounds it may sometimes be due to inattention on part of the child. However, it may also be because of hearing loss. In such cases referral to an audiologist is necessary.

iv) Not understanding instructions in mentally retarded children may be due to deficits in language rather than deficits in hearing capacity. Refer to an audiologist and also carry out language evaluation.

Even a mild hearing loss or infection of the ear can cause lot of hindrance in language development in a mentally retarded child

Children's poor understanding of instructions, may be related more to language deficits rather than hearing

Using a hearing aid - a note :

Hearing aids are prescribed to individuals with hearing impairment for whom, medical help is not possible. Just wearing a hearing aid will not help the individual to hear well. A careful *hearing/listening training* is essential. Hearing sounds through a hearing aid is different from hearing through the natural channel (ear). For this reason, the child should, be repeatedly exposed to various sounds and listen to them through the hearing aid. Later on speech sounds and words can be introduced.

Even if the child is already wearing hearing aid, a referral to an audiologist every 6 months for hearing re-evaluation and follow up is necessary. Some mentally retarded children are more prone to ear

infections and conductive hearing loss. So frequent hearing evaluations should be done to be on a safer side.

Note: *Generally when a child is said to be having hearing loss, it is assumed that the child is deaf. However, a majority of mentally retarded children present mild to moderate degrees of hearing impairment. Presence of even mild hearing impairment in a mentally retarded child can be harmful to language and overall development. Hence even milder hearing loss should not be ignored.*

Very frequently mentally retarded children, inspite of having normal hearing capacity, show problems in understanding sounds, both speech and nonspeech. Children initially require to become aware of sounds, learn to recognize the sounds and later learn to discriminate between the sounds. It may be useful to begin with environmental sounds for training. A list of commonly observed sounds in the child's environment is essential. Once, one environmental sound is selected, the child should be made aware of it by frequent exposures. Over a period of time, child will learn to recognize the sounds, and the speed of learning depends upon the quality of training. Subsequent to recognition, other sounds should be taken up for training. Once most of the common environmental sounds are recognized, discrimination training can be initiated.

***Despite normal hearing
MR Children are poor
listeners***

Discrimination could be initially between grossly different sounds. For example, between door knock and whistle sound. Gradually, finely different sound pairs can be taken up. For example, spoon mixing in a glass sound versus coin shaking. Generally the training programme associates one response action for one sound. (Eg. Pointing to door for door knock and showing mouth for whistle sounds). By repeated trials, child's ability to discriminate between sounds

is increased. It is important to remember that gross and fine differences between sounds are relative. Also the responses could be selected as suitable to a particular child.

3. Language input to the child

Children learn language in a social context. The important element of social context is *the caretaker (or parent) - child interaction*, both in terms of amount (quantity) and the quality. Quantity refers to how much of *talking* is done by the parent and quality is how well this *talking* is done with the child.

Child's daily routine is a powerful source from which caretakers constantly provide language input to the child

Common problems observed are -

i) Parents and other caretakers tend to talk less with their mentally retarded children, mainly because they feel that the child may not understand. Parents tend to talk to the child only during story telling and other such specific activities and little during daily routine activities.

Problems in language input provide serious hurdles in language learning

ii) When MR children are spoken to, often it lacks variety, because stereotyped instructions such as *come, give, eat* are repeatedly used. Instead of telling or giving description of objects and events caretakers tend to keep questioning about the same and issuing commands.

iii) Caretakers may frequently correct the mistakes in utterances and demand correct production of the speech in their mentally retarded child.

Suggestions for modification:

i) Parents and care takers need to increase the amount of talking during daily routines as only

repeated exposure helps children to acquire language. For this purpose a running commentary like description of the events happening with or in front of the child can be used. For example, when playing with the child, continuous description of adult's activities is given to the child as they happen (*self talk*). Adult's can also describe what the child is doing or what is happening outside (*parallel talk*). For example, when vehicles are moving on the road, give a description of what is happening.

Self talk is simultaneously describing what we are doing. Parallel talk is describing simultaneously what others are doing

ii) Suggestions to improve relevancy of *talking* (quality):

Note: a. A first step to select what should be spoken to the child is to identify the routine activities of the child and start giving a running commentary during each of these activities.

b. Parents should not be discouraged if immediate responses are not present.

c. Gradually, the one sided commentary will be modified to allow the responses of the child as parents realise that they are talking to a child who responds.

Describe to the child simultaneously as you do or see activities, and do not get discouraged

Variety in language input helps the child acquire language more effectively. One can increase variety of input by,

- involving the child into all activities where the child can participate, and giving descriptions.
- reducing the commands and questions and increasing description of the activities. Questions when asked may not get an answer from the child and conversation is terminated.
- talking about here and now activities in daily life situations rather than only during specific activities like story telling.

iii) Frequent demands of correct production of speech may result in child being discouraged to speak itself. It may be remembered that when children use words initially they are normally approximations of the adult's words. It is suggested that, the words of the child are accepted even if they are not clear.

Frequent demands for correct production of words may discourage the MR child from talking itself

The suggestions given above can also be used by the teachers. The teachers can pass these suggestions to parents for use at home.

4. Language content/ ability of the child

As already emphasised, this section includes both comprehension and expression of words, phrases and sentences. The expression, includes both verbal and non-verbal forms. For example, the child might indicate objects by looking at or pointing to (non-verbal) as well by naming (verbal). Some children learn to use signs and gestures very effectively for communication.

Common problems observed -

- a) Having a restricted vocabulary for comprehension - limited to familiar items such as to a few food items.
- b) In spite of having adequate comprehension of vocabulary, expression may be limited to few items only or many a times, no verbal expression.
- c) Both the comprehension and expression vocabulary of the child restricted in the categories of noun modifiers, verb modifiers and connecting words.

d) The words may be used for a restricted set of semantic intentions.

e) Having words but shows difficulty in combining them.

f) Difficulties in comprehending and asking questions.

g) Difficulty in following a series of commands.

h) Using simple sentences but not using grammatical morphemes like plurals, tense markers and so on.

MR Children's use of grammatical morphemes is generally poor

Sample targets - content:

(The targets will be more specific when designed for a particular child).

a) Helping the child to increase comprehension of words in the areas of nominals and action words.

b) Increasing the number of nominals and action words expressed by the child.

c) Incorporating noun modifiers and verb modifiers (specific ones) into the child's comprehension and later into expression.

d) Helping the child to use the words he expresses with more number of semantic intentions.

e) Helping the child to express word combinations like agent + action, action + location, etc.

f) Helping the child to comprehend and express various question forms.

Only when based on proper assessment data intervention targets will be specific

- g) Helping the child to follow combinations of instructions.
- h) Helping the child to incorporate grammatical morphemes in comprehension and expression of words and sentences.
- i) Helping the child to combine sentences in order to describe a situation.

The targets and activities described here are only examples and should not be treated as prescriptive

Example Target-a(i): Increasing comprehension of nominals in the area of school items.

On assessment (using suggested word list at appendix-6.3), a child has comprehension of 3 items *bag, book, pencil* only. it is now necessary to help him to comprehend the word *pencil eraser* among others.

The expected responses might be that the child will look, take or move towards the *eraser* when named in actual routine situations.

This target can be achieved by involving the activities in his daily experience based on the principles of Language intervention and active interactional patterns. Some such activities are outlined below.

Sample activities:

- 1) Teacher writes something in the child's book using a pencil and requests the child to bring the eraser to rub, may be while trying to erase with finger. (*violation of routine events*)
- 2) The eraser may be misplaced in some situations and child is requested to search alongwith teacher (*hiding objects*).

For certain activities the referenes to particular active interaction pattern on which they are based, is made in the parenthesis

3) In a similar situation child is given a wooden piece to rub and later the eraser. (*violation of object function*)

Notes: *These activities will be occurring routinely and will be repeated several times. All situations both naturally occurring and created in which pencil eraser is used are potential learning situations Eg: buying the eraser, sharing eraser with friends etc.*

: Compare these activities with the initial guidelines discussed in this chapter.

: Initially the child may be uninterested but will take lead from the successful completion of the communication task.

: The activities will obviously vary depending upon the item.

: The same objective will have to be continued at home, with activities suiting the home situation. Example of one such activity is that, Child goes along with father to buy an eraser.

: The important point is that the child should get exposed to a variety of situations using different items (of the same category) and obtain experience in understanding them in actual situations.

Choosing activities which occur routinely and repeatedly helps the child learn faster

Target a(ii): Helping the child in comprehension of the action word *combing*.

Sample activities:

1. Child is made to comb other children's ruffled hair when requested to do so and also while telling that other child requires help (*satisfying the child's communication needs*).

2. Child can comb baby doll's hair as part of total game of grooming the doll alongwith the teacher who deliberately does not comb well (*joint action routine - error*).

A combination of active interaction patterns can also be utilized

3. This child's hair is ruffled and made to set right again by other children while teacher gives parallel talk (*role reversal*).

4. Child is told that a boy is *combing* when actually the boy is eating (*joint action routine - error*).

Sample Target-(b) : Helping the child to learn to express nominals in the category of clothing. Eg: shirt.

The child comprehends *shirt* for more than six months and points to *shirt* when necessary. The expected response is to say the word *shirt* or its approximation like *sha*. This child already has a capacity to produce 10-15 single words with varied phoneme combinations.

Note that words are to be used from that particular language in which child is communicating

Sample activities:

1. At home, after bathing, the child is made put on his usual dress, except *shirt*. The child is asked *what other dress do you want?* When child looks at the shirt, adults or children can say *oh, is it that, you want a shirt?* and, after child nods to say yes, give him the shirt. After few days, child should get the shirt only on attempting to say the word or its approximation (*creating the need for communication*).

2. During the process of dressing up deliberately the shirt should be put on, as pant, evoking protest for the child, during which adults can ask questions like what should be put on? Similar *violation of*

routine events can be taken up while washing shirts, while ironing, while bringing father's shirt and so on.

3. At school, *withholding turns* can be effectively used for helping child express shirt. Eg: Few children including the child under training, will go on naming the dress of the boys in the class, alongwith the teacher. After the children successfully repeat the teacher's naming of the dress, the teacher deliberately will withhold her turn, prompting the children to fill up the word or its approximation.

4. At school, *Role reversal* is also a useful technique. For example, during watering of plants, the child under training will point to the wet shirt, and either through facial expressions or gestures, indicate other child's shirt is wet. Some roles can be reversed, helping the child to answer that his shirt is wet.

5. In slightly higher functioning children, the child can be involved in joint action routines where two children, one of whom is wearing neat shirt, is complemented for the neat shirt alongwith the teacher.

6. Similarly, activities like hiding the shirt, pretending washing of the shirt can be taken up where the child will be required to answer questions regarding what he is doing or comment on what is going on or question when the expected doesn't take place, like he gets a stone instead of soap.

Note:

The same technique can be used to train both the verbal and nonverbal responses depending upon the level of the child.

Only the items that the child already comprehends should be taken up for expression training, (Preferably, with more than one month of comprehension experience)

: It should be remembered that if the child is at the level of first words, the words, said by the child may be approximations of the actual words (natural phonological process) these attempts should also be accepted.

: The child may require several sessions of each activity to start naming the word. Child can be provided with either an adult model (teacher) or a child model (who can say *shirt*). The reward could be that the teacher shows to the entire class how nicely child is wearing the shirt. Activities at home should be conveyed to the parents in continuation of the school activities.

: A series of action words can be united into a single theme like grooming. Comprehension of combing will be an important step during the training of grooming skills (*teaparty technique*).

: Each action word targetted requires different set of meaningful activities.

Example Target c(i) : Helping the child in the comprehension of the noun modifier *big*.

The reward should be connected to the task and should not be arbitrary. For example, appreciating his neat hair in a mirror is a better reward than saying good

On assessment, a child was found to comprehend common nominals and action words. This child also had a relative concept of big and small, but doesn't identify big or small on hearing the words. Hence the target choosen is comprehension of noun modifier *big*. For this purpose some sample activities are given below.

Sample activities:

1. In the classroom, teacher alongwith the child will pick up two pairs of small and big dolls and consistently use self talk during the entire activity,

stressing on the word *big* whenever possible. A game can be arranged, wherein the bigger dolls are covered under a cloth and smaller ones kept in front of others. Child is asked to discover the covered doll, and teacher exclaims *You found the big doll*.

2. Similarly, hiding the dolls separately using the big doll in the activity of grooming can also be taken up.

Choose the noun modifiers with care in a particular Language

3. In a situation like gardening, the *tea party technique* will prove useful. Children need to be exposed to different items (both big and small) like knives, water cans, leaves, plants, etc. The child under training will be identifying big items along with the teacher initially and on its own later. A careful planning is essential.

4. At home the child can be involved in washing clothes. All big clothes like bed sheet, father's shirt are identified along with the adults. During this situation, child can say which cloth is not *big* and so on. Situations in kitchen, bathroom and other activities can also be used.

Example Target c(ii) : Helping the child in expression of verb modifier *under*.

On assessment a child was found to express the verb modifiers *in* and *on* and also comprehends the term *under*. The child is now required to express *under*. On overall expression, child uses 2 word phrases effectively.

Sample activities:

1. Involving the child and talking to during activities like,

- putting the shoes under the table,
- putting the book under other books,
- pushing papers/postcards under the door,
- hiding a toy under clothes or papers. These activities may be initially repeated in order to help the child to recall the situations in which verb modifier *under* is used.

Using self talk while performing these activities is the main route through which comprehension takes place

2. In an activity like pushing the papers under the door, the teacher performs the activity of pushing or sliding the papers under the door while the child is watching. Alongwith the activity teacher describes the various steps stressing the word *under*. Now the child does the same and teacher continues to describe, over a period of time the child becomes familiar with the use of word *under*. Teacher can now start the activity and while saying halts hesitantly in the place of the word *under*. Here the child fills in the gap. For example, teacher says *I am pushing the papers* (hesitates), child says *under*, and teacher completes by saying *the door* and pushes the papers. Similar activities can be carried out in other situations (*Role reversal and withholding turns*).

3. At home, joint action routines can be useful. For example, child is asked to search for his book, which is usually kept in its regular place like on the rack. The adult can use sabotage, and put the book under the rack with a ribbon or a thread tied to it. On failing to find the book, child is asked to pull the thread to take the book. Child is asked *where was the book?* and helped to say alongwith the adults. Many similar activities involving the child's daily routine can be used.

Note:

Children may initially express this verb modifier through hand gestures and may also confuse it with the other verb modifier *in*.

Example target (d) :

Helping the child to use nominals (like rice, water, mother, father, etc) to intentions other than naming (nomination or existence). The semantic intentions initially selected are disappearance and location.

On assessment, a child uses words *watch*, *ball* to name the items. The specific intentions to be trained are *disappearance* and *location*. The sample activities are given below:

Watch - disappearance:

Child is asked *what is this?* while pointing to watch. As the child already uses the intention of existence, he names the item. While asking the child to close his eyes, teacher hides the watch. On opening the eyes, child will be showing facial expression relating to disappearance. At this juncture, the teacher alongwith the child says watch and probably shakes hand to indicate *no*. Gradually during this game, teacher will not use the word, and allows the child to say on his own.

2. At home, similar games can be continued. Example, mother and child hide and search out father's watch.

Watch - location:

3. While placing the watch at different places like on the table, on the chair, on the almirah, on the

Verb modifiers like under are acquired after children learn to express in and on. A comprehension experience of about one to two months may be necessary before the child attempts to express the same

wall, etc. Child is asked where is the watch, and alongwith pointing child is asked to say the word *watch*. Appropriate intonation can be modelled by the teacher. Similar activities can be formed for other items (eg. ball-disappearance, ball-location).

Note:

: As the child learns to express the intention, the advaced form of expression can be targetted, for suiting the age level. For example, for expressing disappearance, child may learn to say *no ball* instead of *ball* used earlier.

Training to use semantic intentions can be a part of other training activities

: The intentions have to be increased till all the types are expressed.

Example target (e) :

Helping the child in the expression of *agent + action* type of phrases.

For children to combine words, atleast about 40-50 words expressive vocabulary is necessary, which normally developing children possess by about 2 years of age. *Agent + action* type of phrases are initially acquired by children.

The commonly used *agent + action* phrases will have to be prepared which will be combinations of the words the child already has in expression. Initially a small number of combinations need to be selected, to be used in a variety of situations expressing different meanings or intentions (semantic relations).

While training to use semantic relations a limited set of phrases can be selected for a variety of situations

Suppose a mentally retarded child has single word expression level and is ready to proceed to 2 word level, an assessment of his vocabulary is to be

performed. Let us say on assessment the following vocabulary was noticed:

Names of people: mummy, daddy, sister, teacher, ayah.

Names of objects: plate, doll, shoes.

Names of actions: come, bring, give, take, etc.

Now, the examples of *agent + action* phrases could be *mummy give; daddy come; bring plate; give shoes*, etc.

If the specific target is helping the child to use the phrase *daddy come*, the following activities could be performed.

Since developmental data in Indian Languages is not available, careful Selection of phrases is needed depending upon situational needs

1. At Dinner time: Mother tells the child to call daddy, child calls by using only *daddy*. Now mother completes the expression by adding *come*. After a repetition of this activity child will be encouraged to use *come* along with the mother. Gradually, mother will allow the child to say *daddy come* on his own (*withholding turns*).
2. A variation of the same situation is deliberately daddy doing unexpected. Example, when the child says *daddy*, father says *daddy no come*. Child will refuse it and is likely to say *Daddy come*.

3. Play time : Child wants to call daddy to play with her. Child will keep saying *daddy*. Father would say (without coming towards the child), yes, *I am here ____*, till the child says 'come'.

Repeating an activity intermittently along with other activities will increase novelty of the activity

This activity could be carried out when a sibling or the mother provides prompts to the child.

4. School time: Similar agent + action phrases suiting school situation like *teacher come, ayah come*, etc. could be taken up. Here the objective is same but situation is different.

Using of 'agent+action' type of phrases can be increased by involving the child in joint action routines of calling all family members for dinner, call all school children for games or other activities.

Potential situations like child calling *daddy come* to go for shopping, films, parks, etc. should be exploited.

Target f(i) : Helping the child in Comprehension of *where* questions.

Sample activites :

1. In teaching *where* one can use the strategy of hiding objects. When father is playing with the child and child is engrossed with an object hide a toy car. Then as a part of the play look for the car. Bring it to the notice of the child that the car is missing and ask *Where is the car? Where?* Then start looking for it and when the child finds the car you say *Oh!there*.

Asking questions results in obtaining information. Hence selecting targets in this area is very important

2. Similarly ask him where *Mummy is* and after searching say *there in the kitchen*. In the same way with other objects and people before searching or looking for, use *where*? After sometime you stop looking around and only make him search when you ask *where*?

3. Activities in classroom situations could be hiding the pencil or book; when child starts writing, covering the drawings; children searching for each other in hide and seek games; during lunch made to look for plate or spoon and so on.

Note: *It is important to carry out activities during natural and functional situations. Comprehension of different questions can be carried out in a gradual manner starting with yes/no questions and moving on to wh questions, why and how questions could be one of the last learnt. Comprehension of question forms is necessary when the child starts using two word phrases. Activities should be carried out in as many varieties of situations as possible.*

Example target f(ii): Helping the child in expression of *which* question form.

On assessment, a child comprehends *which* question form. In expression, *what* and *where* question forms are used in simple phrases and sentences.

Sample activities:

1. Role reversal is a useful technique to help children express question forms.

For example, during shopping, father asks the child *which* pencil do you want, when he points to several pencils. After the child selects one pencil, child is encouraged to ask father *which one you want* and father selects one pencil and thanks the child.

2. During shopping for vegetables, mother asks the child *which one do you like ?* and child points to the required vegetable. Roles are reversed and child is encouraged to ask *which one you want?* and mother points to the required vegetable.

3. In a classroom situation, teacher can ask the child to select toys, books, etc. by saying *which one do you want?* Role reversal can then be implemented.

4. Story telling is also a potential learning situation. For example, in a story of *boy eating fruits*. Teacher says *look, there are fruits - banana, mango, apple. Which one the boy would eat?* The child says/shows a fruit. This child is encouraged to ask other children, *Which one the boy would eat?*

Many joint action routines can be utilized for question form learning

Example target (g): Helping the child to follow two step commands.

To follow two step commands, a child will require to have the ability to comprehend conjunction *and*, and also have the ability to follow single instructions.

Initially, two commands that usually occur together need to be trained, followed by two step commands, which may not be related to each other. For example, *bring me food and get me water* are related. *Bring me food and take bath* may not be related.

On assessment, a child is found to have the basic requirements and is targetted to learn to follow the related command *open the door and switch on the light*. usually the child follows the first part only when the instruction is given.

Sample activities:

The child is asked by the adult to follow the

command *open the door and switch on the light*. The child follows the first part and opens the door. Immediately, the adult repeats the entire instruction and takes the child to the light switch and makes the child switch on the light. After sufficient number of trials are done, the prompts are reduced and the child allowed to complete the task. The completion of the communication situation will itself be a strong reinforcer. In order to strengthen the learning, child can be asked to give the instruction to another child using a combination of *words and gestures* or any expression mode the child uses.

It is important to incorporate many two step directions, in different situations in order to cover the child's various communication situations

Note:

Instructions such as *go to the door and open it* are mainly single instructions.

It is important to select instructions, which will have immediate relevance to child's communication needs.

Example target (h): Helping the child in comprehension of plurals.

Plural markers vary in different languages. There are regular markers and there could be exceptions to the general plural rule.

In Telugu, the regular plural marker is adding *-lu* to singular forms [*Pustakamu* (book) - *Pustaka:lu*; *pilla* (child) - *pillalu* (children)]. In Hindi, the regular plural marker is adding *-en (-/yan)* to singular forms [*Kita:b* (book) - *Kitaben* (books); *Čidiya* (bird) - *Čidiya:n* (birds)].

On assessment, it is found that a child needs to comprehend plural marker *-lu*, in Telugu. The activities could be planned on the following lines.

Sample activities:

1. First step is selecting a situation in which child requires to communicate plurals such as asking for chocolates, biscuits. Present a single chocolate and chocolates as groups and while pointing ask him the choice. When he points to the group, repeat *chocolatelu* once or twice and give him the same. In similar situation, help the child to reject the single chocolate by head shaking or saying *no* when offered.

It is important to be aware of regular and irregular plural markers in a particular language

2. While serving chocolates or fruits to children including this child, deliberately give him *one* and evoke protest. On protesting, ask him if he wants chocolates and give him. (*Creating the need to say*)

3. Let the child locate pencils, stones, leaves hidden in different parts of the room contrasting with single items.

4. This task can be a part of ongoing activity like gardening, cooking, making tea, etc.

5. Plural comprehension could be made a unifying theme, in which different objects could be incorporated. For example, adults alongwith the child can locate buses, seats, tickets, shops, pens, bangles, etc. on a travel programme (Tea party technique),

Note :

- Many of the language structures could be developed upon these lines. Expression of some structures could be enhanced by using role reversal technique, discussed in the earlier part of this chapter.

For a child to comprehend and express plurals, attainment of simple sentences in expression may be essential

- As the child learns one grammatical morpheme, others are to be subsequently taken up.
- At present, for Indian languages there is no information on the developmental order of acquisition, the choice of the grammatical morphemes needs to be carefully done, depending upon the child's context.

Example target (i): Helping the child to combine sentences in order to describe a situation.

Combining sentences is generally done by adding a conjunction between two sentences. Common conjunctions initially learnt are *and*, *after*, *but*, etc. Comprehension of these conjunctions is necessary before expressing them. Child should be having the capacity to state in single sentences, the actions in a situation.

On assessment, the child has above mentioned prerequisites and is targetted to learn the use of *after* (*after* is initially learnt by children in most Indian languages).

Sample activities:

1. In naturally occurring daily situations, description can be done simultaneously. For example, child can describe a series of two actions like *uncle is sitting, after this he is running* or *you are opening the pen, after that you are writing* and so on as necessitated by the context. Initially child is expected to describe one event, for example, *you are opening the pen* and describe second event as it happens. During the interval, the word *after* can be used by the adult and a sort of clue can be provided (eg. hand movement - indicating *later*). Gradually only hand movement is made and child completes the word.

Comprehension and expression of connecting words is difficult for MR Children. Generalization is the most difficult step.

2. Popular and well known stories can be narrated by the teacher, with child describing a part of the action in the method described above.

5. Language use:

This area is concerned with the usage of the learnt content of language. It includes aspects concerned with speech intelligibility, participating in a conversation and similar aspects (refer to chapter 6 and appendix 6.2 for details). Problems commonly observed are:

1. Poor clarity of speech - particularly noticed by the persons unfamiliar with the speech of the child.

This usually results from errors during speech sound production. Commonly encountered errors are :

i) Substitution of one sound with other: Eg: *Penthil* for *pencil* (/th/ is substituted for /s/).

ii) Omission of a sound in a word : Eg: *Butand* for *Bus Stand* (/s/ is omitted).

iii) Distortion of a sound : Sound is said to be distorted when the original sound does not appear to be omitted, and at the same time it is not heard as a different sound (substitution).

iv) Additions : An extra sound is added to the word (adding /i/ to words - *ischool* for *school*).

In addition to the errors in sound production, poor clarity of speech may also result from problems given below.

Error types, substitution, omission, distortion and additions are better remembered with the acronym SODA

(a) Inappropriate use of stress on words in sentences and flat intonation (suprasegmental features).

(b) Whenever the child speaks, it is not loud enough for others to hear. Speaks with very soft voice.

2. Usage skills :

Another problem in language output area is that, the child inspite of knowing what to communicate may find it difficult to participate in a conversation. Eg: Difficulties in beginning a conversation or maintaining a topic in a conversation.

3. Non verbal communication :

Predominantly non-verbal, but limited in non-verbal expression, i.e., many children have no speech and their gestures and signs are limited.

Target-1 Articulation Training:

It is one of the most common problems that parents and teachers are concerned about, in a mentally retarded child. The effect of poor articulation skills in a person is that the person will have unclear speech. Many a times the presence of unclear speech, masks the greater presence of a language deficit in mentally retarded children.

Many times presence of articulation defects masks the language deficits

The over all goal of articulation training is to improve the overall clarity of speech by correcting defective sound production methods used by MR persons.

As discussed common sound production errors are
- using a new sound instead of correct sound

(substitution); leaving out the sound in a word (omission); imprecise production (distortion) and adding a new sound in a word (addition). Of these substitution, omission and distortion errors are frequently noted in the speech of mentally retarded children.

Generally articulation training is carried out at four levels namely,

1. Isolated sound level (Eg. k, t, d).
2. Syllable level (Eg. ki, ku, te, du).
3. Word level, and (Eg. king, take, duck).
4. Sentence level (Words in sentences).

Note: *It has been argued by many that training should start at word level itself. This view argues that learning at isolation level may not be useful because we do not speak using isolated sounds in everyday speech. The method best suited to the child under training could be used.*

Success at each level should prompt moving on to the next levels. The training at each level involves the following 4 steps.

1. Sensory/perceptual training.
2. Correcting
3. Stabilizing
4. Transferring

The common goals aimed at in each step of training are given below:

A person should become aware of the correct sound, learn to produce it correctly and use it in words & sentences for everyday use

1. The person becomes aware of the characteristics of the correct sound that should be produced (target sound) and recognise how the errors that are being made by self differ from target sounds.

Sensory/ perceptual training assists the person under training in listening for his/her errors and comparing them with normal speech.

2. The person must discover how to produce the standard phoneme at will, ie., he/she will discover how to produce or establish a new sound. That is varying and correcting the various productions of the sound until it is produced correctly.

Note :

Learning how to produce the speech sounds by the trainer is important, so as to correct the errors of the person under training. Chapter 3 gives guidelines on speech production. An important piece of information which can help the trainer to understand how sounds are produced is, producing that sound 8-10 times by self and noticing the place and manner of production.

3. The person must stabilize or strengthen the use of standard phonemes in isolation (sss...), in syllables (sa, si, su), and in words, phrases and sentences ie., strengthening at each level.

4. The person must be able to use the target sounds in spontaneous speech under all conditions. This transfer or maintenance is important for the success of the programme ie., transferring skills to everyday usage.

Figure-7.1 shows the points discussed so far.

Selection of target sounds:

Assessment of articulation (see Chap.6) gives the

list of types and number of errors. The question encountered now would be which sound should be corrected first. If the error is only one, that will be the target. However, more than one errors are generally presented by mentally retarded children. In such a condition, the target sound could be chosen depending upon the following suggestions.

When articulation errors are more than one, the target sound should be selected carefully

1. Professionals usually select as the first targets, those speech sounds which are occasionally misarticulated i.e., in some situations they are produced correctly.

2. Relatively simpler sounds are selected first. Eg. if the errors are present with /r/, /l/, and /f/, /f/ would be selected first.

3. Sounds that are produced correctly on strong stimulation are selected first. For example, if /d/ and /l/ sounds are the misarticulated sounds, trainer can find out which of these two are produced under repeated imitation in isolation or in a nonsense word, start training with that sound.

4. If a number of speech sounds misarticulated, the ones that developmentally occur earlier in normal children are selected first.

It is important to remember that the judgement regarding which sound to be selected first has to be the clinician's, considering the priorities of the situation

The training or therapy is focussed on the error sound. It is the misarticulated, nonstandard sound that spoils the words or sentences. Hence, acquisition and use of standard sound is the main goal.

Sequence of training:

Stage 1. Sensory-perceptual training:

Listening to the error sound and comparing it with standard sound, is a difficult task for a mentally

retarded child. Of the ways this could be achieved is by, *making the target sound prominent.*

Making the target sound prominent:

The first thing one must do is to make the target sound more important, to increase it's stimulus value. We can achieve this, by following interrelated steps:

A. Identification:

Target sound gets a separate character. For example, the target sounds can be depicted as animals or objects (/g/ becomes /frog/, /ga:di/; /sh/ becomes /ushsh.../; /s/ becomes /tusss.../ a nonfiring cracker, etc.). Here the auditory, visual and tactile features of the target sound are highlighted.

B. Isolation:

Once the standard sound is identified, the child should respond to it as a signal. This helps the child to detect the sound easily in words and sentences. Child can respond to words containing standard sound only by lifting hand, moving a car or jumping when standard sound is produced; or touching all children whose name has the standard sound.

To isolate the standard sound in a word, response selected for the child should suit the physical capacities

C. Stimulation:

The trainer can increase the target sound's presence by bombarding the child's senses with its production. Eg. Telling stories using words with standard sound, or producing the sound in different rhythms.

D. Discrimination:

Before we can help child recognise the errors in his/

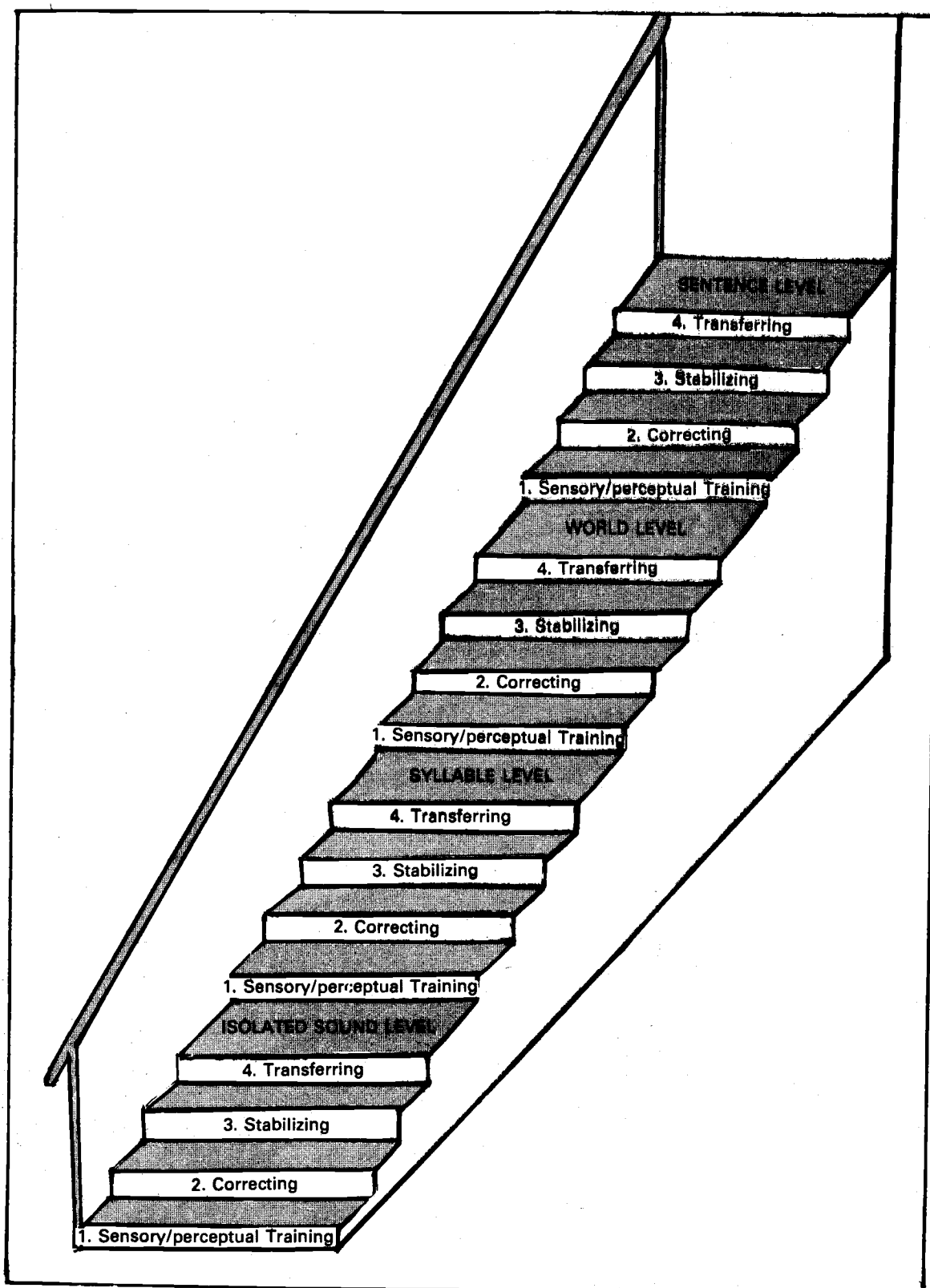


Fig: 1 : Stepwise arti.

Fig. 7.1 Stepwise articulation training programme

her own speech, we must make sure that the child recognises the errors when others (teacher/clinician) make them.

Child can be asked to locate errors when the teacher deliberately makes them. Child can also tell which way it is to be correctly done.

During this entire period of *ear training* child is not asked to produce a new sound. Child observes the model and learns which sound is defectively produced and which is the standard sound.

The aim of ear training step is not producing the new sound but to identify the new sound by hearing

Enhancing self-listening, is an important step, where he hears/listens to himself than to other's speech. When this connection between the child's ear and mouth gets established chances of the errors persisting will diminish. Tape recording and playing back could be a very useful task in this regard. Children if possible, could be made to predict errors on new words. Not all mentally handicapped children may participate in this step. However, once child differentiates between error sound and standard sound, next step would be producing the new sound.

Stage 2 : Production of the new sound:

As mentioned the production of new sound should be possible at all levels from isolation level to general situations. Some ways of getting children to produce new sounds are:

- Child learns progressively to approximate the standard sound. In this procedure teacher makes the same errors that the child makes simultaneously. A series of intermediate sounds are produced by the teacher and child follows, gradually standard sound is produced. This shaping method encourages

variation and is very useful, particularly with mild mental retardation group.

- In mildly retarded groups, pictures, diagrams, mirrors and other instruments can be used to point to appropriate tongue, jaw and lip placements. After helping the child approximate the positions, production could be initiated. It may be remembered that blunt edged spoons, paper pieces, candles, mirrors, sugar, salt and such simple material could be useful.

Simple materials like paper pieces, mirrors etc. can be used to help the child locate correct place and manners for the target sound production

- Some times modifying the already existing another sound could be useful. For example, a child who substitutes /sh/ for /ch/ is told to say the words *it* and *she*, first separately and then gradually faster and faster together. The word *itchy* will merge. This method is also useful in helping children produce blends.

Stage 3 : Stabilisation:

Unless the new skill is carefully and systematically strengthened, it soon may be forgotten.

In isolation:

The new sound should be repeated and prolonged as soon as possible. this could be a whisper, little voice or silent production. the prolongation should be decreased as the child gains more and more expertise in producing the new sound.

Unless the newly learnt sound's production is strengthened in syllables, words and sentences it may soon be forgotten

In syllables:

Using syllables enhances production in words at a later stage. The sound in all combinations could be tried. For example, /t/ could be repeated as *tu, ti, te, ta*, etc. Sometimes a nonsense syllable may also

be tried. This may be the first step towards achieving co-articulation abilities.

In word level:

A careful selection of words, that are already in the child's capacity should be done. Simple and short words could be selected first. Sometime therapy itself could begin at word level.

In sentence level:

Sentences which the child already produces should only be selected. As a majority of children use 2 word phrases, stabilization at this level can be taken up. Use of stories and narrating incidences should be cautiously selected as the MR child may not have this capacity. Instead question-answer routines could be used.

Stage 4 : Transfer and carryover:

This may be the most difficult stage for a mentally retarded child to master. The cooperation of parents and others will be needed to watch that the child continues to use the learnt sound in all situations. One way of preventing difficulties is to get the parents involved in all stages of articulation training.

A child needs to learn to produce the newly learnt sound in routine situations for training to be complete (Generalization)

Case example:

The proceedings outlined above will become familiar with use. The example of a child who says /t/ for /s/ is taken to broadly illustrate the steps. This child is a 12 year old mildly mentally retarded child.

Stage 1: Sensory perceptual training:

Training for this child was begun at isolation level.

Making the target sound prominent:

- The target sound /s/ was given the identity of a deflated balloon. Many times a balloon was blown and deflated at the neck and along with the action the clinician made /sss.../ sound.
- The child was given a set of toys, cycle, scooter, photo of brother Sai, along with other toys. Each time the clinician made the sound /s/, child showed the toy and photo in turn. Various commands were used like *push the /s/ cycle*.
- Child was given further stimulation by holding his palm in front of the clinician's mouth and was made to feel the pencil like air hit the palm. Similarly child held several pieces of papers in his palm, in front of clinician's mouth to blow, while producing /sss.../.
- Using the familiar words of the *child-cycle, Sai, scooter*, etc. clinician made the same errors the child makes and asked child to clap at each error the clinician made.
- Child was asked to jump once when he heard /s/ and jump twice when he heard /t/. This game was played with lot of fun and intermixing of /t/ and /s/.

Compare the activities with the steps discussed in the previous section

Activities on similar lines can be created by the teacher

After a period of 2 weeks, during which the above activities were conducted at clinic and home, child was able to differentiate error sound and standard sound about 80% of times.

Stage-2: Production of new sound /s/:

- Initially child was asked to imitate /s/ and after several trials was producing /t/ only.
- Clinician told the child to watch, while he put a soft drink straw (hard) on the tongue tip and partially closed the lips. Lips were opened and closed in front of the child to show how the straw was held at the top by the tongue tip.
- Child was made to feel the stream/pencil beam of cold air on the palm, when the clinician blew.
- The child was given similar situations. The straw holding was done simultaneously by both clinician and child in front of a mirror for proper positioning.
- Child was similarly asked to blow. After about 10 attempts child was able to send cold beam of air through the straw.
- After the child became proficient, the child was asked to continuously blow and the straw was slowly pulled from the mouth. Child continued to produce /sss.../ like sound and stopped immediately. On practising this activity child was able to say /sss.../ continuously.

Stage-3: Stabilization in isolation:

- Child was asked to now say /sss..../ when balloon was deflated.
- Child was made to say /sss.../ rhythmically following the movement of the hand of clinician.
- Child produced /sss.../ each time clinician made /sss.../, and also when child himself tapped the table.

Note that methods of progressive approximation, placement techniques were combined to shape /s/ production in isolation. The place and manner of production of other sounds should be used accordingly

Caution: *It should be said that there will be an intense urge to start getting the child to say the new sound in words. This should be resisted to give enough time to the child to strengthen the new skill. Otherwise the child may easily forget the new sound.*

Stabilization in syllables:

- Initially the syllables *see, sii, suu, soo, saa*, were prolonged and child was asked to imitate the clinician. It took several days for the child to say */ssseee/, /sssuuu/,* etc. After this achievement,
- Child was asked to combine */ssseee/* and */sssaai/* and similar combinations. The child was extremely happy when, the younger brother sitting along with started uttering the same sounds.
- The length of syllable utterance was reduced towards the final stages.

Stabilizing at word level:

- A selection of words involving */s/* was made, which were in the comprehension and expression capacity of the child. For enabling better selection the following grouping was followed.

Words related to objects:

<u>Categories</u>	<u>Words</u>
Toys :	<i>Cycle, scooter, paisa.</i>
Animals :	<i>Pussy (pet cat)</i>
• Vehicles :	<i>Bus</i>
Food items:	<i>sugar, sambar.</i>
Words of people:	<i>Sai (brother)</i>
Word for actions:	<i>ti:sko (take), etc.</i>

It must be remembered that when the child is asked to produce the new sound in words, only the new sound should be the target of attention and not all sounds. For example, in the word/scooter/, it should be accepted if the child says /sooter/ leaving out /k/

- During word production, the child was given a signal by the clinician, by flicking the fingers, when the new sound in the word was to be produced. For example, when the child was to say the word *cycle*, at the beginning, the signal was given. This helped the child to focus attention on the learnt sound.

- After the child learnt to produce the new sound /s/ in the selected words, he was asked to play with the words. For example, the word *Bus* he was deliberately asked to say *But*; similarly *cycle* was made *tycle*.

- During word production, the words were broken down in such a way as to allow /s/ production. For example, the word *cycle* was initially said as /ssss....icle/. This gap was gradually reduced. All the words were worked this way.

- It was necessary to go back to the isolation and syllable level during the word production stage.

Whenever child finds problem in mastering word/ Sentence level stabilization , it may be more useful to briefly go back to isolation level & return to word level

Stabilization at sentence level:

- This child had very few sentences and the words the child learnt, in fact triggered new sentences.

Stage 4 : Carry over :

- Simultaneous watch at the house was kept up to look for maintenance. Parents took the child to various places like bus stop, hotel, and deliberately let the child ask for the items. For example in hotel, *more sambar* was requested by the child.

After the child acquired the production and learned maintenance, new target error was taken up for correction. The intelligibility of speech improved significantly.

Note: *The steps described in the articulation training will hold good for correcting all misarticulations. However, only the stage of production of new sounds will differ depending upon the way (manner) and the place of production of that particular sound. Some consonant sounds (which are not described in the example) which are frequently misarticulated and the activities which might elicit their manner of production are given below for use during articulation training.*

Bilabials : /p/ : Hold the hand in front of mouth. During /p/ production, a puff of air hits the palm. Same puff of air release can be observed if a piece of paper is loosely held in front of the mouth.

/m/ : The nasal resonance can be felt by keeping a finger lightly on the nose. Alternating between /b/ and /m/ makes this feeling more cleaner.

Labiodentals: /f/ : Continuous stream of air and noise felt in front of mouth. Can be shown as constant bending of the paper held in front of lips during /ff.../ production.

/v/ : Saying /a/ continuously and bringing upper teeth and lower tip together will result in /v/ like production.

trill /r/ : Forceful placement for /t/ sound and sudden release, producing /trrr/ like sound, is generally observed, which can be later trained as /r/.

alveolar /t/ : Spitting action like /thu.../ can be a basis for stop plosive action of /t/.

Lateral /l/ : Making the child swallow mouthful of water, without closing lips, results in /l/ like position of tongue.

Velar /k/ and /g/ : Gargling activity initially with and later without water, results in velar stop action.

Glottal /h/ : Coughing and simultaneous production of /a/ can be helpful.

Caution : *Although children learn to produce sounds based on these activities, they will not be using them as speech sounds, unless used in words*

Target 1(a): Helping the child to improve the intelligibility of speech by using appropriate stress in words of a sentence and using appropriate intonation in sentences to differentiate between question forms and statements.

1. Appropriate use of stress depends upon the meaning intended by the speaker. By asking the child appropriate questions and making the child to stress the needed words, the pattern can be brought out. For example,

Q. *What is this?* (While pointing to a monkey in a group of animals)

A. *This is a monkey.* (stress on the last word).

Q. *Who did this ?*

A. *I did it.* (stressing the 1st word) etc.

2. Similarly child can be made to say *I did not do*, when questioned who did this ?

3. Situations like story telling situations, joint action routines, tea party technique etc., can be used for this purpose.

4. If the question and answer routines are used in role reversal, child can be helped to ask appropriate questions with proper intonations.

5. Utilizing a series of activities and acting in different roles like a teacher, like father, like mother, like a maid servant, etc. will also help the child use appropriate intonation.

Using proper intonations requires strengthened auditory feedback. Child may take a longer time to learn to use proper intonations

Target 1(b): Helping the child increase his voice loudness while speaking.

Sometimes a throat infection can be a cause of weak voice. In such cases, a medical person should be consulted. A hearing loss, even mild variety can also cause weak voice. An Audiologist can help such children. However, many mentally retarded children use weak voices despite no apparent problems. In such children some of the following tips can be used.

1. When the child starts talking or reciting numbers, a tape recorder must be played with gradually increased volume. Automatically, when the disturbing noise increases the child has to rise the loudness of the voice. The same may be continued for some time and suddenly the tape recorder is turned off, letting the child realize that he was using loud voice. A radio can also be used instead of tape recorder.
2. Using walkman/taperecorder headphones and following similar steps as described above can also be done.
3. Child can be taken into noisy situations like market and made to ask for things before buying.
4. While talking to the children, gradually move away from them necessitating increased loudness in children's voice while answering.
5. Sometimes in older children, asking them to cough and saying words at cough's loudness level can also be useful.

2. Usage skills :

We use speech and language for a variety of purposes - to inform, make declarations, raise questions, lodge requests and so on. The speaker makes a choice of *what* to say and *how* to say it. For

these abilities to be present, many skills require to be learnt like initiating and maintaining a conversation, awareness of listeners and the situation etc. It is not exactly clear on how children learn these skills. It appears that they need to observe the adults and learn by social experience. It may be remembered that usage skills start at very early prespeech period. Mentally handicapped children often do not start conversation on their own, however seem to be adept at answering some questions atleast.

A child of about 10 years with Down's syndrome and mild mental retardation was having problems in starting a conversation or asking a question. Parents referred to her as a *shy* girl. Some activities used with her to initiate conversation are given below, which can be modified to suit different children. The target was to make the child protest, fulfill the needs, make a command and ask questions *where?* on her own in actual communication situations. The activities done at clinic and home are given below.

Using language effectively is learnt by social experience

Evoking protest:

1. In situations of routine nature like, father asking the child to bring water, deliberately the events were violated. Once the water pot was kept empty, child not finding the water said *no water*. Then mother came and helped her. On another occasion instead of small glass tumbler, big jug was kept, which the child had difficulty in carrying, child said *no* and started looking for the tumbler (In both situations, child initiated the conversation).
2. In the clinic similar method was tried, when child was asked to bring toys from the locked cupboard.
3. Clinician started pretending to eat paper instead of the biscuit in the hand, evoking protest of *oh no*.

Makes a command:

1. A give and take ball game was in progress, deliberately, mother who was throwing the ball back, completed the action without releasing the ball. Child immediately said *give ball*.
2. Child was engaged in a house building game with blocks. Clinician deliberately kept some of the blocks out of reach making the child say *look for the block*.

Asking question *Where?*:

1. A game of naming the objects in the room was played with the clinician asking the question and child saying the names. The game went on like, after being asked *what is this?* (pointing to the fan), child saying *fan*. After several trials, role reversal was used, where child was encouraged to ask questions *What's this?*. After initial promptings child was asking names of even new objects.

Selection of activities will be one of the crucial decisions teachers would be making

2. Before leaving for school, mother hid child's shoes and child started asking *Where shoes*. Many similar situations were used. After about one month of continuous training child started demanding for things using the words on her own.

Teachers are encouraged to select and design their own methods based on the principles discussed in the beginning of this chapter.

3. **Non verbal communication for the mentally retarded children.**

In recent years more and more mentally retarded children are being helped to learn communication modes, other than speech. Although many systems

of sign languages, and communication aids are available elsewhere, their application may not be directly possible with the mentally handicapped children in special schools and homes in Indian context. This section attempts to introduce readers to the concept of non verbal communication for the mentally retarded children.

The objectives of this section are to answer the questions.

1. What is non verbal communication?
2. Who are the candidates among the mentally retarded population who may require non verbal communication?
3. What are the main existing systems?
4. What may be suitable to children in our contexts?

What is non verbal communication?

All of us are familiar with speaking, and this mode of communication is called as *verbal communication*. If you observe persons speaking to others (including all of us) we might notice lot of changes of hand movements, facial expressions and body positions, as we speak, which make us understand the speaker better. Imagine speaking with folded hands, and unmoving on a chair to somebody. These additional actions we do along with speech are informally done, all the time. If we formalize these actions and add specific elements into a system, such as a set of signs and gestures using hands, or a board with pictures for communication the method can be called as *non verbal communication*.

Non verbal methods of communication are used by all normal speakers to communicate effectively

Have you observed 2 deaf persons talking to each other? You might have watched a sign language in use.

The non verbal systems can be grouped into 2 main areas.

1. Unaided communication systems and

2. Aided communication systems

Unaided systems require movement of the parts of the body - arms, hands, fingers, etc. They do not require any equipment or device, examples are sign language systems, such as British sign language, and American sign language.

Aided communication requires some sort of external device or aid for assistance. For example, picture charts, electronic devices, and communication boards.

Who requires these systems?

Generally, it is assumed that, persons who show difficulties in learning to speak need non verbal systems. These persons include children with damage to nervous system, hearing impairment (commonly known as deaf persons), cerebral palsy, autism, aphasia (stroke), degenerative diseases, trauma, multiple handicaps and similar others. Severely mentally retarded persons form a small set of nonverbal communication users.

Any child with a risk for developing verbal communication should be the first candidate for learning non-verbal modes. MR population is one such group

During the 1980s, the major thrust to help mentally handicapped persons to learn non verbal modes was made the argument being that, these children have a right to communicate even if they do not have speech. In a survey of 300 mentally retarded children

done at NIMH 25.67% had no speech and 30.33% spoke only few words.* This is a large population who may require non verbal modes. Clearly the use of non verbal communication should be encouraged.

Recently, even the children who appear to be at risk for learning to speak (Eg: an MR child with hearing loss or a severely impaired child) are being considered as potential candidates for learning non verbal modes. The use of such alternative modes may be an important step towards normalization. The notion that teaching signs and gestures to children will not allow them to learn to *talk* has also been found to be untrue. Infact, the systems of non verbal modes, appear to help children acquire speech.**

What are the existing systems?

Two major unaided systems are British Sign language and American Sign language. Bliss symbolics is an important aided system. This section will briefly review these systems and also those available in indian context and disadvantages of the systems existing, for the mentally retarded population.

British sign language:***

British Sign Language is the sign language of the deaf community in Great Britain. It is a living language, a natural language which develops in line with the day to day needs of the deaf people who use it. The signs do not translate directly into spoken English. In order to make translation from British sign language to spoken English some deaf people and teachers of the deaf have developed a

British sign language and American sign languages are used by deaf community in Great Britain and America respectively

* Subba Rao & Srinivas, (1989).

** Mc Cormick & Shiefel Busch, (1984).

*** The information given here is taken from, Kiernan, C., Reid, B. and Goldbart, J. (1987).

system called *Signed English*. In signed English signs are used in spoken English word order, they are accompanied by speech. New Signs are devised to translate tense endings and other elements of spoken English, which do not exist in sign languages.

British sign language was first introduced to people with mental handicap as *Makaton vocabulary*. Makaton vocabulary uses signs from British sign language, and advocates that users sign key words in sentences. Also users use spoken English word order, but speak the full sentence as they sign.

American sign language :

American sign language is used by deaf persons in the USA. There are several versions of signed English with American sign language also. It is a true language with its own grammar, and is different from spoken English. It is frequently supplemented with finger spelling of words, when no sign exists for object or concept.

Paget Gorman Signed Speech:

Is a contrived sign system which was designed as a sign mirror to speech. Nearly 4000 items help signing spoken English. It is developed from a set of basic hand positions and basic signs. The basic sign represents a conceptual category (Eg. Animal) around which all the relevant terms are organised. Specific signs (eg. cat) are formed by adding other signs to basic signs.

Bliss symbolics :

Bliss symbolics use line drawings varying in appearance from very simple to complex figures. Each figure represents a symbol. Symbols are

constructed within a rectangle and employ a limited number of basic shapes. The shapes include circles, squares, curves and triangles of different sizes. They combine in various ways to produce the symbols. Typically symbols have the words written above them. Symbol construction is the combination of the action symbol with the person symbol. For example, *father* is a male who gives protection. Similarly *mother* is a female who gives protection. Bliss symbols are usually displayed on a board so that the child can point easily and can combine the symbols to form sentences.

Indian sign language*

Indian sign language was developed keeping in mind the diverse needs of our multilingual community. About 2500 basic vocabulary has been documented and presented in Hindi, English, Marathi and Gujarati Languages. It is reportedly being used by about 6 lakh deaf persons in India.

Problems in using these systems for mentally retarded persons in Indian context :

Most of the systems are representative of spoken English in varying degrees and arguably English is not the widely spoken language by MR persons in India. The gestures and signs are highly culture specific and differ in geographic locations. The systems like Indian sign language are not widely used and not accessible. Added to these are the problems in training others (listeners) to understand the systems. Mentally retarded children require that the systems be simple in their abstractness and be limited in number of elements used.

Foreign non verbal systems are unsuitable for use in Indian contexts because of their nature - specificity to a culture, Language, training of listeners, cost etc.

* Developed by Vashista (1980).

Keeping these problems in mind the gestures and communication boards appear to be more applicable. Next section will briefly introduce these modes.

Communication boards

Communication boards are usually developed for individual students. The *symbols* are, typically, photographs or pictures of familiar objects to which the student is taught to point in order that needs be met. For example one child was given a picture of a cup to denote drink, a picture of a toy car to use when he had lost his car and a picture of Smarties to use when he wanted sweets. The symbols may be fixed on a board or each symbol may be separately mounted (For a sample of a communication board see fig.7.2)*. Ease of making and portability will clearly be the basic needs of the user. Some students may only be able to use colour photographs of familiar objects or settings, others may be able to use tracings from photographs or line drawings. Although because of the individual nature of these boards considerable sophistication is possible, facilitating sequencing as in the construction of sentences is difficult but not usually a priority.

There are no formal teaching methods which are special to communication boards. However the general principle that the symbols should relate to needs which can be rapidly met (eg. drinking water, toilet, etc.,) appears to underly most of the thinking in the construction of boards. Yes and no are frequently included on boards devised for people with physical impairments but may well be concepts beyond the initial grasp of many people with severe mental handicap. Symbols used as labels like *shoe*,

There is no alternative to developing our own non verbal communication methods and teachers of the mentally handicapped children are in a better position to develop the same

* Based on Jones & Cregan (1986); Vanderheiden & Grilley, (1976) etc.










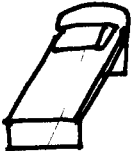







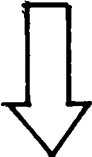

















STUDENTS NAME							Yes	No
 DADDY (MAN)	 MOMMY (LADY)	 BOY	 GIRL	 BABY	 DOCTOR	 DRINK	 BIG	 LITTLE
 BED	 BATH	 CAR	 FISH	 SOME THING TO EAT	 LADDU	 ICE CREAM	 UP	 DOWN
 PLEASE	 SCHOOL	 HOME	 TALK	 PT	I DON'T KNOW	 TOILET	 HAPPY	 SAD
 TRANSISTOR	 LETTER	 TV	 TELEPHONE	 BALL	 SUNSHINE	 RAIN	 NIGHT	 TATA

Fig. 7.2 Picture/Word Communication Board

dog, etc. may be taught by the obvious method of pairing the actual object with the picture.

Importance of Gestures :

Gesture, which is a more ritualised form of body language are more instinctive and are easily understood by parents, teachers and others without specialised training. As they usually involve gross motor movements they are manageable by even physically handicapped persons. More importantly they require no aids or equipment. In addition these gestures are made use of by all normal speakers too. Their main disadvantage is limited range of expressive capacity as compared to other systems.

Gestures developed at NIMH

Keeping in view the importance of gestures and their likelihood of being understood and required by mentally retarded children, 48 gestures have been identified and listed. The list and the gestures represented in picture form are given in appendix-7.1. The gestures follow daily routine and are categorised based on the intentions.

How to use the gestures and communication boards?
There is no different training method other than the ones already discussed. It maybe recalled that during the assessment the expression ability of the child was also noted when child used a non verbal mode.

Obtaining appropriate information in the appendix 6.2, is important to plan a cummunication board or select gestures

The gestures may be introduced separately or in groups and must represent communication needs of the child. Child may be required to be physically guided to form the gestures initially. The training must be conducted in real settings and should be context specific.

The communication boards can be specifically designed to an individual child. The factors we should keep in mind while selecting the words or the pictures are child's needs, level of abstractness, ease of pointing and so on.

See at the end of the manual for a list of additional reading material

Fitting Language and communication intervention LCI into school time table

Language and communication are the integral aspects of our daily lives. The school's daily routine for the child is a potential learning situation in various activities such as, while teaching feeding skills, dressing skills, academics, recreation activities and so on. These activities are regulated through school/class time table. As the language and communication forms an integral part of all these activities, they are all potential communication contexts, i.e., It is emphasized that language and communication should be taught during all these situations in school.

A typical sample school timetable is given below and various example targets that could be achieved during these situations are listed. An attempt is also made to take one example target and identify potential activities during each of the sessions.

A Sample classroom timetable:

1. 8.45 - 9.00 am - Arrival and greeting
2. 9.00 - 9.25 am - Assembly
3. 9.25 - 9.30 am - Getting back to the class
4. 9.30 - 9.45 am - Class discussion - current events
5. 9.45 - 10.15 am - Number work
6. 10.15 - 10.45 am - Drawing and painting/music
7. 10.45 - 11.00 am - Break

8. 11.00 - 11.30 am - Functional writing
9. 11.30 - 12.00 noon - Environmental science
10. 12.00-12.15 pm - Putting away things in order
11. 12.15 - 1.30 pm - Lunch
12. 1.30 - 2.00 pm - Craft/story telling
13. 2.00 - 2.30 pm - Reading
14. 2.30 - 3.00 pm - Outdoor games
15. 3.00 - 3.15 pm - Get ready to leave, greet, go home

1. Arrival and greeting:

Some of the potential targets that can be incorporated are comprehension and expression of gestures and words for social greetings. For example, hand gestures and words for indicating *namaste*, *good morning*, *come*, etc. can be introduced in naturally occurring meaningful situations.

The teacher can become a good source of language input, by incorporating *parallel talk* during this period. For example, children could be given a description of the activities, like *child is coming, is carrying his bag, this child is walking slowly* and so on.

2. Assembly:

This time is suitable to introduce training in auditory discrimination between sounds. For example, during drill exercises, children could be made to perform different actions for different beats (sounds), and words. Drill activities are potential sources for following instructions also.

The targets suggested are only examples and should not be treated as prescriptive

While taking attendance, a child can be helped to recognize the names of other children. A little bit of

description of child's belongings like shirt and its colour, can enhance the language input.

3. Getting back to the class:

When children get back to their class rooms in a line, important adjectives like, *first boy, last boy, middle boy*; position words like, child standing in front of, *right of*, etc. can be incorporated. Use of words like *walk faster, slower*, etc. can facilitate and initiate the comprehension of verb modifiers. Even more difficult post position words in sentences like *you are going through the door, you are in between children* can be effectively introduced.

4. Class discussion:

While discussing current events, the concepts of day, date, month can be introduced. Comprehension of sentences using past, present, and future tenses can be initiated. For example, sentences like, *you slept yesterday night, you are present in class today and you will go home in the evening* can be used. Expression of sentences particularly declarative and negative types can be helped during this session. For example, sentences like *I ate apple* (declarative), *I did not see the picture* (negative), could be introduced. One potential benefit is to help the child learn some pragmatic skills like initiating a conversation, waiting for turns, etc.

5. Number work:

Some of the important language training activities are generalization of object identification, asking and understanding *how many?* question form, and comprehension and expression of plural markers. Eg. one pen vs three pens. Conjunctions like *and* can also be used during number work. For example,

during activities using sentences such as *two bananas* and *one apple*; say one, two and three etc. facilitate comprehension. If rhymes are used like, *one two buckle my shoe* sing song intonation patterns can be practised. By reversing roles during the activities such as teacher asking the child *How many are there?* and child answering *three* appropriate intonation forms can also be introduced.

6. Drawing, painting/Music:

Naming of colours, comprehending shades of colour can be effectively used during painting. Generalization of names of objects can be taken up with drawing activities. For example, drawing of animals, vehicles, body parts, etc. Music can be used not only to bring intonation but to introduce one important aspect of speech i.e. rhythm, or the timing of speech sounds. Valuable practise for the child in controlling length of words and phrases can be obtained. Generalization of skills learnt in articulation training can be taken in music, which can be an enjoyable situation.

7. Break:

This situation provides one important language input activity *Child to child interaction*. Practising of gestures or words for acts like toileting can also be done.

8. Functional writing:

Helping the child to follow commands can be effectively taken up during functional writing activities. For example, while helping the child write his/her name, varieties of instructions like *write now, put a stroke here, write faster, erase it*, etc. can be given. Instructions can be combined while

giving dictation for writing words by asking the child to describe what is written and getting the child to describe what has been done, an effective expressive training activity is done. Comprehension of sentences which are different based on tenses, can be incorporated. Eg: child describing *I am writing my name, I wrote my name, I will write my name.*

9. Environmental science:

Most group activities like identifying flowers, birds, plants, animals, etc. can be enjoyable learning experiences. Comprehending names of animals, flowers and their expression can be taken up. For example, child identifies *rose* upon request and says *rose* when asked to. Various semantic intentions can be introduced. For example, child can also be taught to respond to *Who pours water to the plant* (agent); by saying *the boy is pouring* (action); Similarly combination of words (semantic relations) can also be taken up.

Teaching situations in schools introduce the child to the world of experience in dealing with objects and listening to words & sentences. This is the basis for language learning

Learning noun modifiers like dry, and wet, can also be taken up. For example, child identifies wet soil, dry soil, wet cloth, etc.

10. Putting away things in order:

Comprehension of comparative terms like *big, bigger, biggest, first, last and middle, higher, heavier* etc. can be incorporated. For example, a child is asked to pick up the biggest toy, smallest toy, etc. A child can give the toy to the first person, who passes it to the middle person and so on.

11. Lunch:

Lunch situation provides ample opportunity for naming

different food items and also naming different tastes. For example, children identify and name rice, roti, vegetables, sweets, etc. Similarly, adjectives - hot, warm, cold can also be incorporated. Verb modifiers such as fast/slow eating can be introduced. A child can be made to give instructions to other children on how to eat, etc. which initiates conversation.

12. Craft/story telling:

Comprehension and expression of various sentence types can be well incorporated into story telling. For example, converting statements into questions can be taken up. In a story of *thirsty crow*, the sentence *Cow is thirsty* can be followed by questions *is crow thirsty?* forming yes-No questions. Similarly other questions can be taken up.

One can notice that the number of language aspects that can be taken up for training during each of the sessions in school is endless and limit is set only by our creativity

During story telling, code switching can be tried. In a story with an adult and a child, adult and child forms of sentences can be tried out showing the differences. Helping a child to tell a story requires a child to combine sentences and keep the topic constant. Here the use of conjunctions can be effectively trained and so on.

13. Reading:

Reading of name, address and other survival words can be used as platform for generalizing articulation training skills. For example, In a child who has learnt to use /k/ correctly, the words, *Kamala, Carpenter, Krishnapuri Colony*, etc. can be useful words for stabilization at word level. Reading words (similar sounding) can be an important activity for auditory discrimination training. For example, Reading *danger* car can be gross phonetic discrimination and reading aloud *men* vs *women* can be example for a fine discrimination task.

14. Outdoor games:

Out door games provide extensive opportunities for child to child interaction. A series of instructions can be well tried out. For example, in a game of searching for a doll, instruction series like *get the box, there is a marble, take that, look at the ball, run behind the ball*, etc. can be of use. Child can also give instructions from long distances. Activities like tea-party technique can be well adjusted in these games.

15. Getting ready to leave, greet and go home:

Children can use gestures like, *bye-bye*, words like *see you, tata*, etc., during these situations. While searching for their belongings, naming, asking where are the things, searching for his/her classmates, etc. can be incorporated. Similarly other aspects of *language use* can be taken up during this session.

The description of the targets in each of the sessions on the time table is sketchy and is certainly not all inclusive. The targets should not be taken as prescriptive, and must be treated as only guidelines. The simple fact is that many language training aspects can be incorporated in each of the sessions.

In order to aid the teacher in understanding the above discussion further, one sample target is taken up and different activities that could be incorporated into various sessions of the sample time-table is given.

Sample target: Helping a child to express the semantic relation *agent + action* during the school time, to describe actions and direct others.

1. Arrival and greetings:

Child is made to use the combination *Ramu come*,

Try out planning for different targets in each of the sessions of class room timetable for developing comprehension as well as expression

teacher come etc. Similarly child can request another child *take bag, give pencil, etc.*

2. Assembly:

Child acting as a monitor, calls children saying *Ramu stand, Raju sit, Ravi run*, etc. depending upon the needs of the situation.

3. Getting back to the class:

Child is made to use expressions like *Ramu stay* when it is required. similarly *Ravi noise* with increased tone, to make others quiet, etc.

4. Current events:

Child asks other children, *you tell tell date, Ramu say* (with increased tone), etc.

5. Number work:

Child is helped to use agent + action combinations like *Ravi add, Anil give*, etc. After numbering each child, child can call out *one come, two go*, etc.

6. Drawing/music:

A child can direct others by saying *Ramu sing, Ravi point*, etc.

7. Break:

A child can tell other children *boy come, girl come*, etc. Can request *open door, pour water*, bring bucket (in toilet activities), etc.

8. Functional writing:

A child can request other children to come to the black board and write by saying *Ravi write, Ramu go*, etc.

9. Environmental science:

Child can describe along with the teacher, what other children are doing like *Ramu running, Sita sitting, Ravi planting*, etc.

10. Putting away things in order:

Description of actions of teacher and other children can be taken up. For example, child describes 'Ramu takes', 'boy kept', etc.

11. Lunch:

Activities during lunch like passing food, washing hands, etc. can be utilized. For example, *Give roti, eat rice, drink water, wash hands*, etc. can be utilized appropriately.

12. Craft and story telling:

Child can request *teacher tell* and can fill in various gaps that teacher leaves in the story of thirsty crow etc. When teacher starts *here is ...* (and pointing to crow's picture), child can fill in.

13. Reading:

Child can request other children to read picture, read words, read signs and can also describe *Ramu reading, Ramu sleeping*, etc. during appropriate situations.

14. Outdoor games:

Various actions children do can be described by the child along with the teacher, for example, *boy jumps, girl skips, Ramu runs*, etc.

Although the targets are individually developed, common structures across children will enable use of techniques like joint action routines, tea party technique etc.

15. Getting ready to leave, greet and go home:

Child can direct others to *take bag, open door, wear chappal*, etc. Gestures like *tata, bye-bye*, etc. can also be used.

It is important to remember that activities suiting a particular child's need, comprehension level, expression capacity, home environment, etc. should be formed on the guidelines described in this chapter.

Note that all the phrases selected for expression are of the variety agent + action. Any other semantic relation can also be introduced. Phrases of a appropriate language only should be tried



SUMMARY

This section defines language and communication intervention (LCI) and describes major principles as well as common strategies involved in the LCI. Various suggestions to improve the common strategies along with how to incorporate assessment data into intervention were also discussed. In this chapter the LCI follows the same pattern as seen in that of speech and language assessment proforma. To make the understanding easier, under each area example targets and sample activities have been added.

Keeping in pace with the developments, we have added various non-vocal communication modes being used in few parts of India and abroad. To make this more practical, a list of gestures developed at NIMH were presented in the appendix 7.1 along with pictures. Readers are encouraged to make use of additional reading list provided.



LIST OF GESTURES DEVELOPED AT NIMH

A. Gestures expressing intention of -

Existence (comment/request)

A1. Eating

A2. Drinking

A3. Combing

- Location

A4. Here

A5. There

A6. Up

- Agent

A7. Bird

A8. Mother

- Object

A9. Money

A10. House

A11. Medicine

A12. Time

A13. Book

B. Gestures expressing Semantic intention of -

- Action

B14. Pull

B15. Writing

B. Gestures expressing intention of action contd.,

- B16. Turning
- B17. Keep quiet
- B18. Picking up
- B19. Toilet-urinals
- B20. Toilet-stools
- B21. Washing face
- B22. Hitting
- B23. Closing
- B24. Open
- B25. Pouring
- B26. Give
- B27. Get up
- B28. Go
- B29. Come
- B30. Keep it there
- B31. Hearing
- B32. Seeing film
- B33. Jump
- B34. Sleeping

C. Gestures expressing intention of -

- | | |
|--------------------------|----------------|
| - Social gestures | C35. Namaste |
| | C36. Tata |
| - Recurrence | C37. Much more |
| - Negation | C38. No |
| - Possession | C39. Me |
| | C40. You |
| - Questions | C41. What |
| | C42. Which |
| - Attribution | C43. Yes |
| | C44. Think |
| | C45. Victory |
| | C46. Little |
| | C47. Fever |
| | C48. Tall |





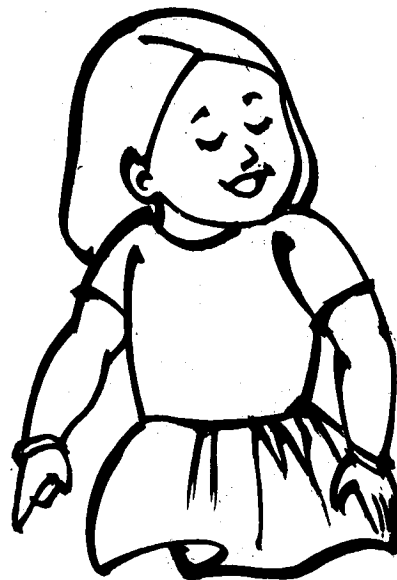
A1. EATING



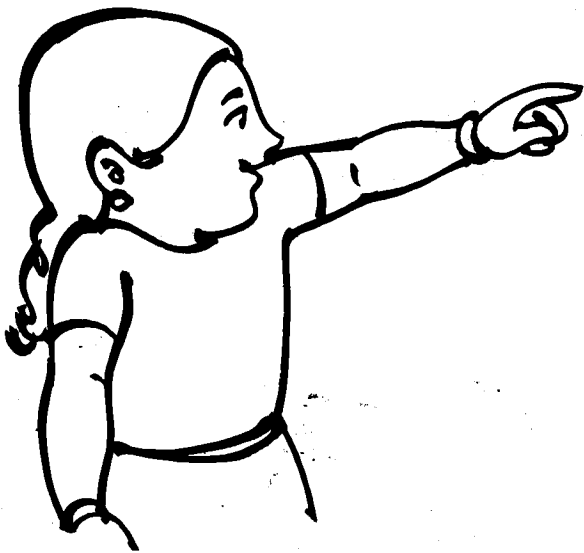
A2. DRINKING



A3. COMBING



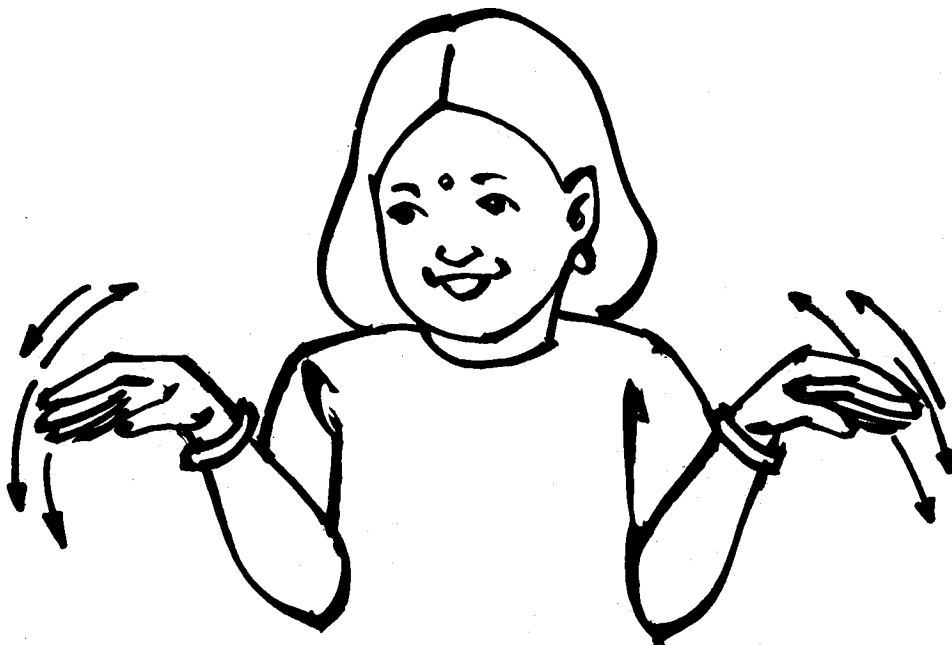
A4. HERE



A5. THERE



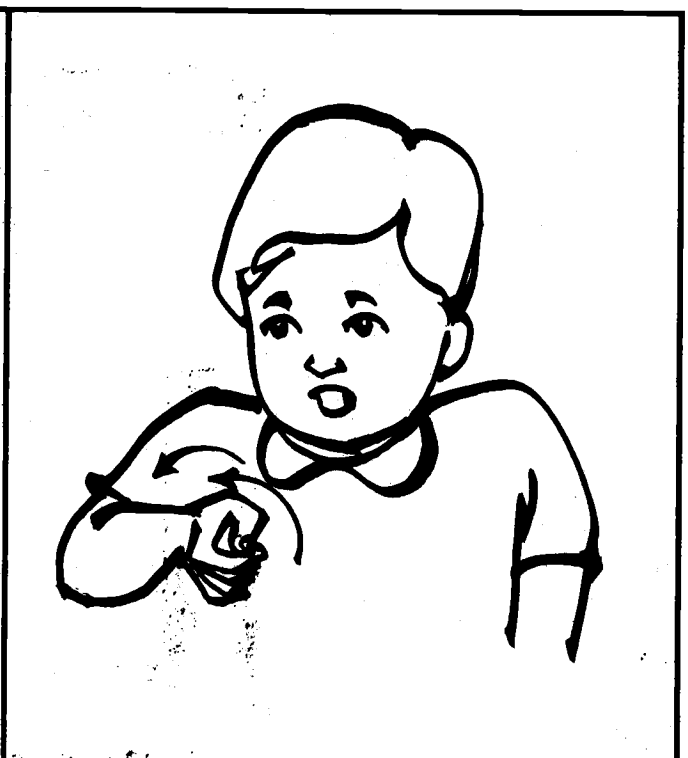
A6. UP



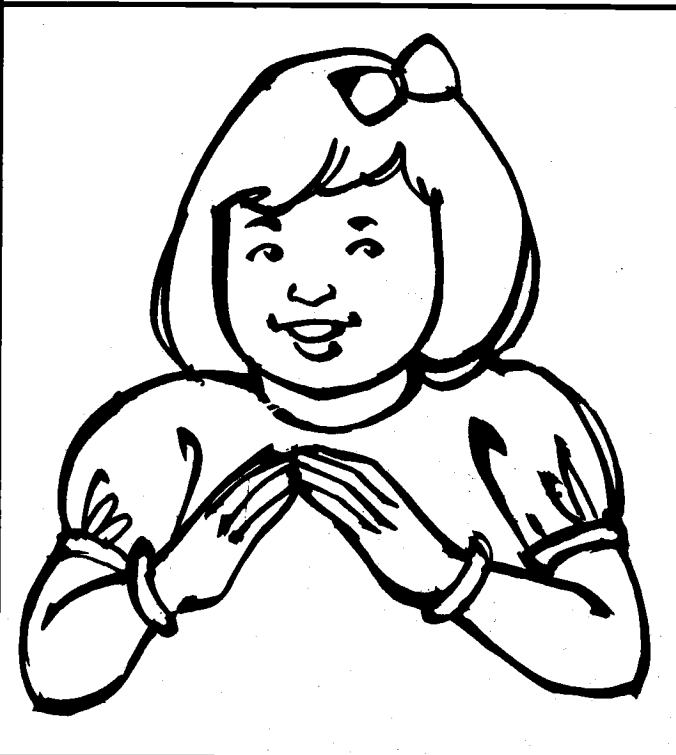
A7. BIRD



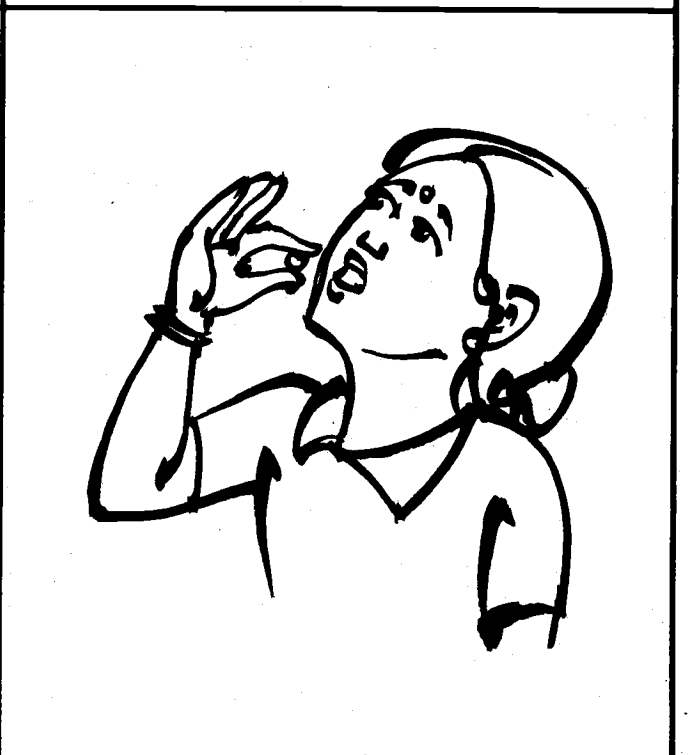
A8. MOTHER



A9. MONEY



A10. HOUSE



A11. MEDICINE



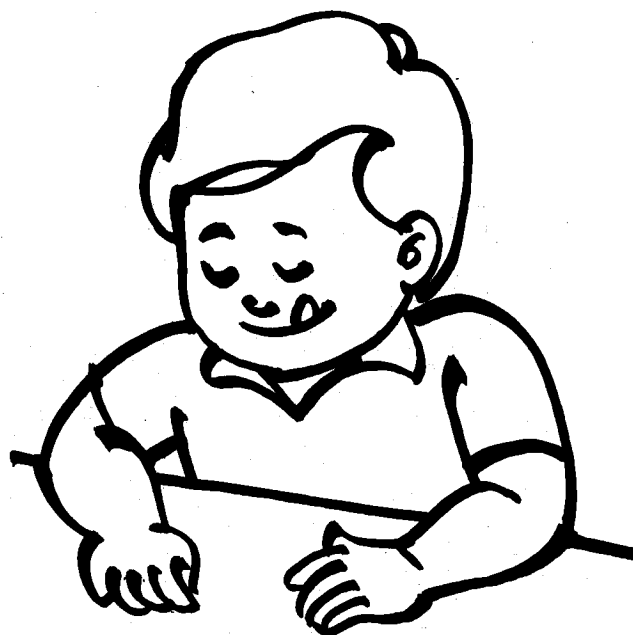
A12. TIME



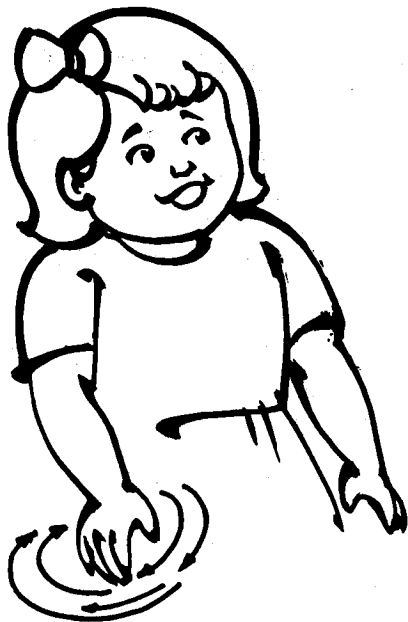
A13. BOOK



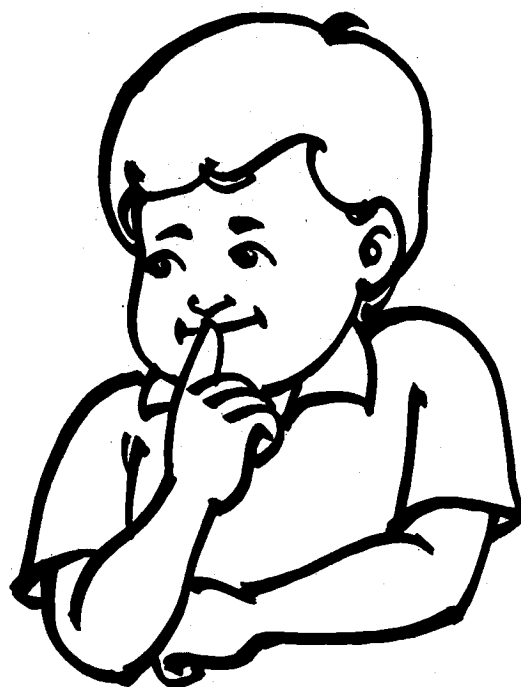
B14. PULL



B15. WRITE



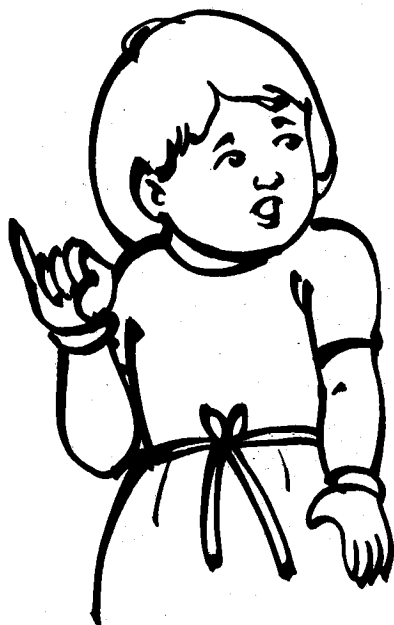
B16. TURN



B17. KEEP QUIET



B18. PICKING UP



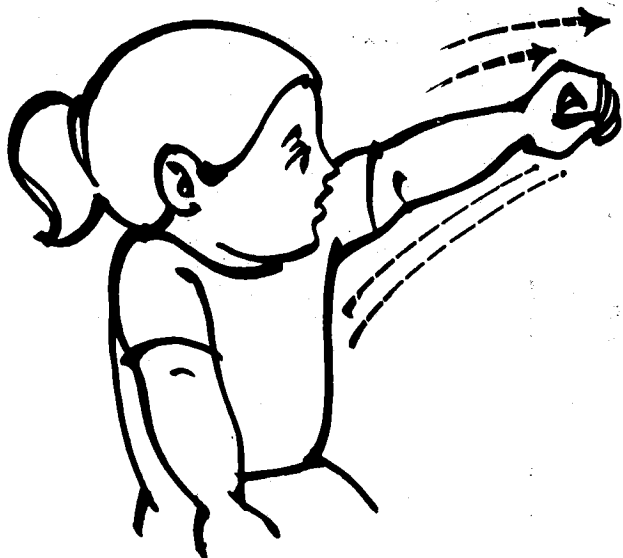
B19. TOILETING/URINATING



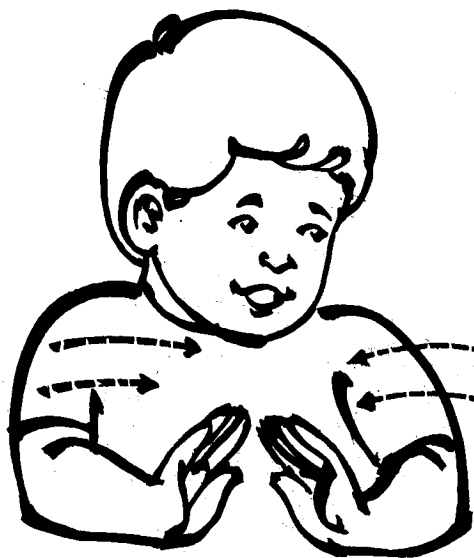
B20. STOOLS



B21. WASHING FACE



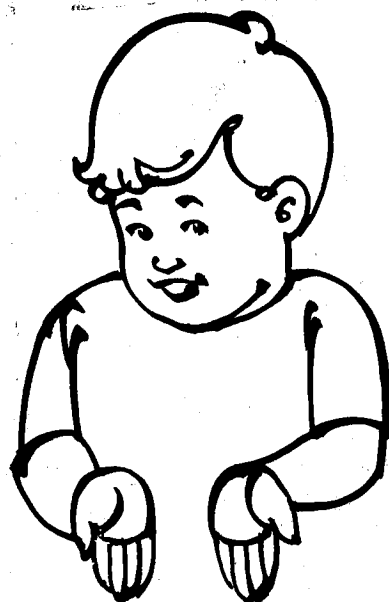
B22. HITTING



B23. CLOSING



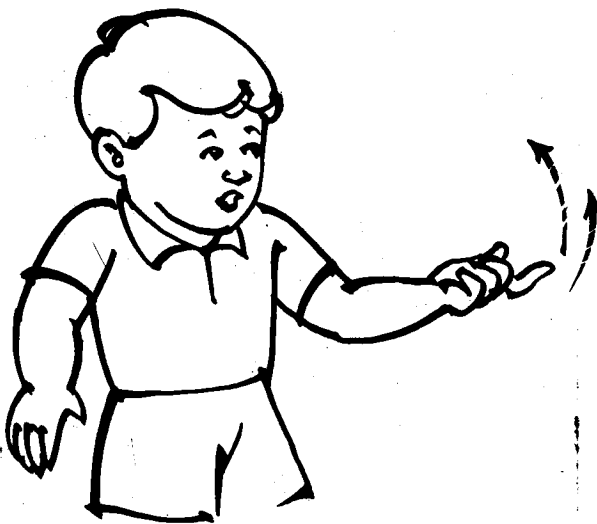
B24. OPEN



B25. POURING



B26. GIVE



B27. GET UP



B28. GO



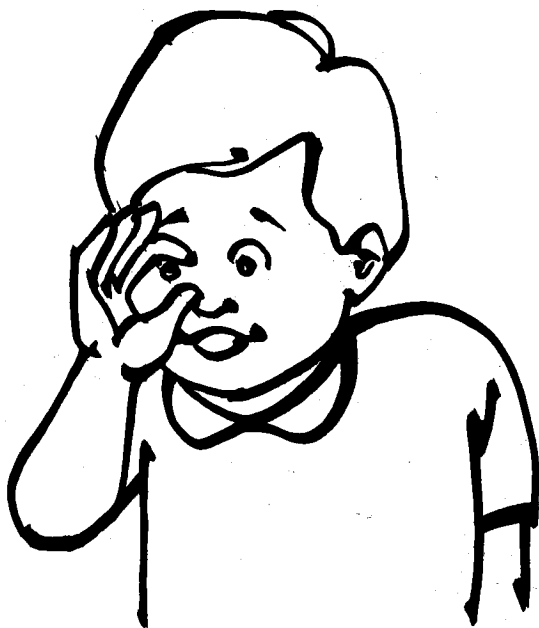
B29. COME



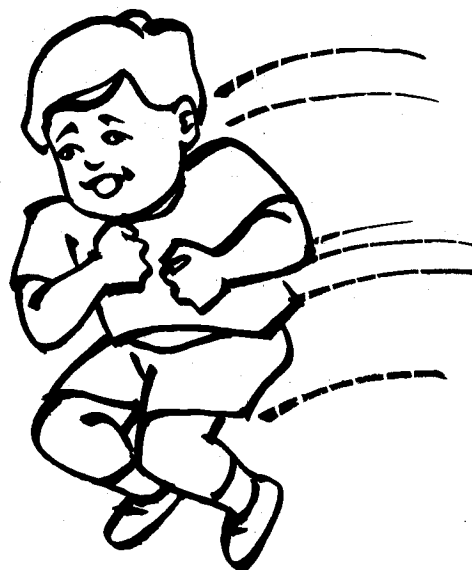
B30. KEEP IT



B31. HEARING



B32. SEEING



B33. JUMP



B34. SLEEP



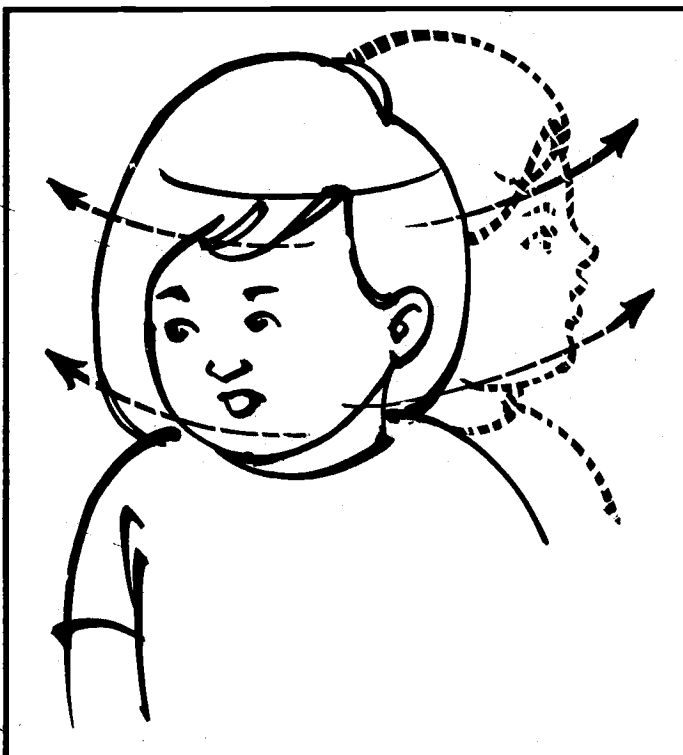
C35. NAMASTE



C36. TA -TA'



C37. MUCH MORE



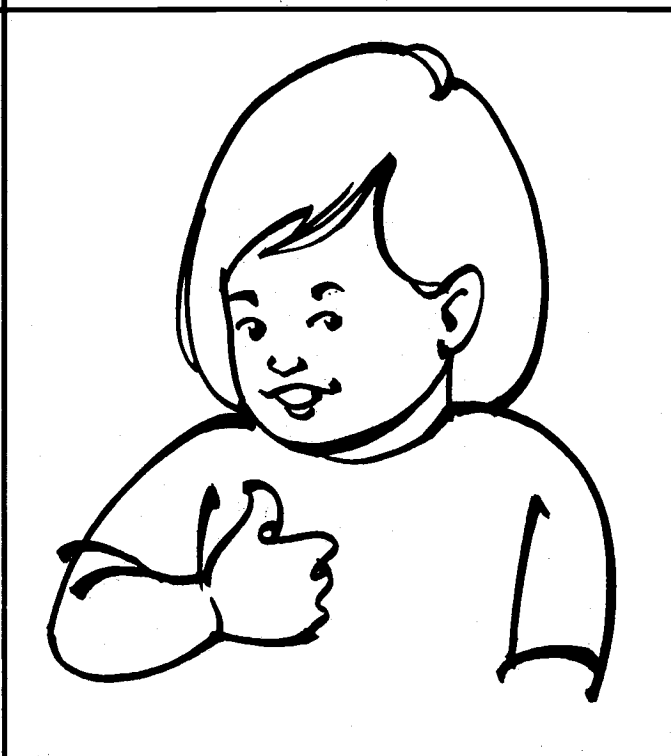
C38. NO



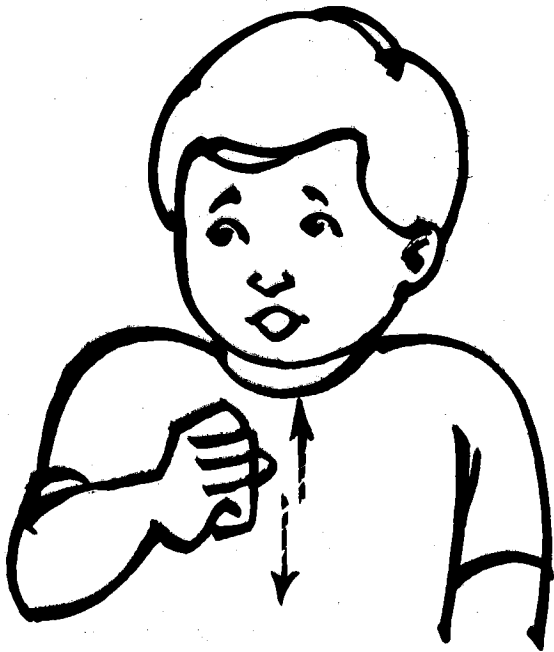
C39. ME



C40. YOU



C41. WHAT



C42. WHICH



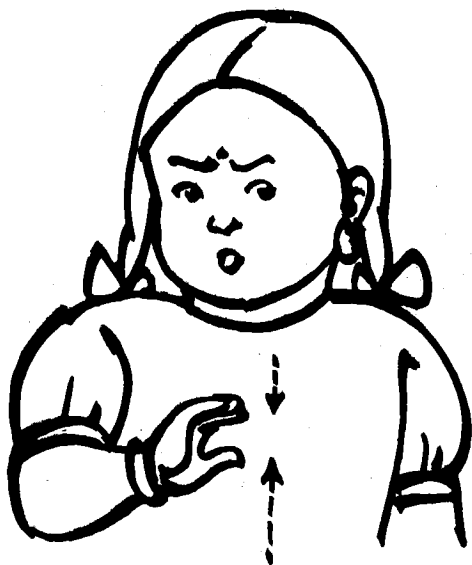
C43. YES



C44. THINK



C45. VICTORY



C46. LITTLE



C47. FEVER



C48. TALL

SELF TEST - 7

I. State whether the following are *true* or *false*:

1. One of the major principles of LCI is language learning which can be considered as having atleast 3 components which interact. True/False
2. Parallel talk is describing simultaneously what the child is doing True/False
3. If the child is able to produce target sound accurately at isolation and syllable levels he is taken to the word level True/False
4. Non-verbal systems can be grouped into two main areas. True/False
5. Bliss symbolics is the sign language used by hearing impaired in Japan. True/False
6. Communication boards can be specifically designed to an individual child.

II. Choose the best answer from the below:

1. Pick up the suggested modification of commonly used strategies to teach language:
 - a) Teaching comprehension skill
 - b) Teaching expressive skill
 - c) Joint action routine
 - d) Imitation training
 - e) All of the above
 - f) None of the above.
2. *Routine events such as getting water, going for food are intentionally violated to evoke protest or focus child's attention to particular language aspects.* The teaching strategy involved is -
 - a) Withholding objects & terms
 - b) Learning to say *no* or indicating *no*
 - c) Violation of routine events
 - d) Hiding objects
 - e) Role reversal.

3. To improve the quality of input to the child
 - i) use more commands and questions,
 - ii) talk about here and now
 - iii) involve child into all activities where child can participate
 - iv) increase descriptions
 - a) all of the above,
 - b) only i, ii, & iv,
 - c) only ii & iv,
 - d) ii, iii and iv.

4. The guidelines in selecting a target sound from group of error sounds are
 - i) that sound which child produces correctly sometimes,
 - ii) choose that sound which responds to stimulation
 - iii) select those sounds which are acquired earlier by normal children
 - iv) those sounds which are omitted are taken first
 - v) only sounds which are substituted to be taken first.
 - a) all of the above,
 - b) i, iii & iv,
 - c) v, iv and ii
 - d) i, ii and iii.

5. Children who need non-verbal systems are
 - a) hearing impaired and cerebral palsied
 - b) autistics
 - c) mentally retarded children
 - d) multiply handicapped
 - e) all of the above.

6. Problems faced while using sign language in India are
 - a) most of them represent spoken English
 - b) gestures and signs are culture specific
 - c) indian sign language is not widely used and accessible
 - d) training others to understand the system
 - e) all of the above.

7. Factors to be considered while selecting pictures or words for communication boards are
 - a) child's needs
 - b) level of abstractness (of words/pictures)
 - c) ease of pointing
 - d) all of the above
 - e) only b and c
 - f) only a and c

III. Match the following

- | | |
|---|--|
| 1. Language and communication intervention | a) Ritualised form of body language and are more instinctive and easily understood by others |
| 2. Joint action routines | b) Self talk and parallel talk |
| 3. Gestures are | c) Is a deliberate attempt to develop language |
| 4. These are used to improve quality of input | d) Sabotage, omission, error, events and choice |



KEY TO SELF TEST - 7

1. *True*
2. *True*
3. *True*
4. *True*
5. *False. These are line drawings*
6. *True*

II. Choose the best answer.

1. *c. Others are typically used strategies for teaching language*
2. *c. See the text for explanation of violation of routine events*
3. *d. Only ii, iii and iv*
4. *d. See text*
5. *e. All of the above. Rather any child who is at risk in learning to speak is a candidate for non-verbal communication.*
6. *e. All of the above*
7. *d. All of the above.*

III.

1. *- c*
2. *- d. The strategies used in joint action routines*
3. *- a. Description of gestures*
4. *- b Techniques to improve quantity of input.*



GLOSSARY OF TERMS

- Action words** : They are the words for describing observable actions performed by a person. Example: Sitting, Walking.
- Active Interaction Patterns** : They are deliberately created communication situations.
- Adaptive behaviour** : Effectiveness of the individual in adjusting to the natural and social demands of his environment
- Alveolar ridge** : The elevated part just behind the upper front teeth
- American sign Language** : It is the sign language of deaf community in the USA. the USA. It contains hand signs representing concepts and supplemented with finger spelling.
- Articulation** : It refers to the process of speech sound production.
- Articulation therapy** : Process of correcting articulation defects or speech sound production errors in a person.
- Assessment** : It refers to evaluation where formal and informal procedures are used to obtain information about child's skills, capabilities and limitations in communication.
- Audiology** : It is a field that studies the disorders of hearing for the purposes of estimation of nature and type of hearing loss and further rehabilitation.
- Augmentative communication** : Non-speech communication which may be either aided or unaided depending upon the individuals cognitive and motor ability.
- Babbling** : Production of a series of syllables in vocalization used by pre-verbal children
- Bliss symbols** : Bliss symbols use pictures and line diagrams as symbols to represent words and concepts. It is a type of non verbal communication system.

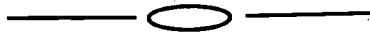
British sign Language(BSL)	: BSL is the sign language of deaf community in Great Britain. This contains hand signs and does not directly translate into spoken English.
Cleft Lip/palate	: Congenital slit in the palate/lips which may be present simultaneously or separately.
Coarticulation	: It is the process in which the sounds in a word or a sentence are influenced by the neighbouring sounds.
Communication	: The process of intentional exchange of messages between the speaker and the listener.
Communication board	: Communication boards generally are a set of pictures or words, placed like a book or a folded sheet, used for communication purposes, whenever oral expression is difficult.
Comprehension	: Understanding what a word or a series of words (sentences) mean, the association of sound sequence with appropriate concepts & meaning.
Connecting words	: They are the words used to link sentences or words in a sentence. Eg: and, because.
Content	: Content is the language ability, the comprehension part of which refers to the semantics or meaning aspects.
Delayed speech and language development	: It is the condition in which children develop speech and language milestones at later stages.
Drooling	: Uncontrolled flow of saliva from the mouth.
Echolalia	: The automatic or involuntary repetition of heard phrases and sentences.

Feedback	: The back flow of information concerning the output of a motor system. Eg: Auditory (self hearing).
Fluency	: The smooth or the rhythmic flow of speech.
Form	: The <i>how</i> element of language; includes phonology, morphology, syntax and the rules for linking sounds with meaning.
Gestures	: They are movements of body parts, usually hands, in order to convey an idea to others. These gestures are common to a group of people Eg: hand gestures for calling others.
Grammatical morphemes	: It refers to words which are used in the word endings which help in changing or specifying meanings of words.
Hearing	: Reception of sound by the ear and its transmission to central nervous system.
Hearing screening	: Process in which certain tests are done or few questions asked to identify persons who have hearing impairments.
Ideomorphs	: Ideomorphs are self made words or sound patterns used by the child in specific situations before adult like words are learnt.
Intelligibility	: It is the clarity of speech, i.e., effectiveness with which a speaker is understood by listeners.
I.Q.	: Abbreviation for Intelligence Quotient, which is a quantified estimate of intellectual status.
Language	: It is a set of arbitrary symbols common to a group of people which is systematically used for communicating needs, thoughts and feelings.

Language and communication intervention	: It is a deliberate attempt to rearrange the environment to help a child in developing a desire to communicate and learn the means to do it.
Listening	: Process of hearing the sound with a purpose of interpreting the meaning.
Morphology	: Component of language studying words and their meaningful units.
Nominals	: They are the words for names (nouns) of objects and persons. Eg: Table, chair, mother.
Noun modifiers	: They are the words which increase or specify the meaning of names of objects and persons (adjectives). Eg: Tall man; big door.
Paget Gorman Signed System	: In this sign system, signs mirror spoken English. The signs are based on certain specific hand signs and reinforced by modifications.
Palate	: It is the roof of the mouth which has two parts, the hard front portion is called the hard palate and a soft back position is called the soft palate.
Parallel talk	: Technique in which the model provides a running commentary of what the listener/others are doing and perceiving.
Phonation	: The process of voice production by the larynx.
Phonology	: The study of the system of speech sounds used by the native speakers of a language.
Pragmatics	: Component of language referring to the rules governing how language is used in social contexts.
Pronouns	: Pronouns are the words used in the place of names in a sentence. Eg: I, He, She.

- Resonance** : It is the process of selective amplification of sounds when the sound enters a cavity.
- Self talk** : Technique in which the model provides a running commentary of what he or she is doing or feeling to the listener.
- Semantics** : The component of language which studies the meaning and how it is acquired.
- Semantic intentions** : Meanings intended by the child's verbal expression during the early pre-word stage of development.
- Semantic relations** : Meanings intended by the child's verbal expression during two word combination stage.
- Speech** : Speech is the major mode of expression of language using vocal symbols.
- Speech Pathology** : It is the science which studies the disorders of speech and language in persons for the purpose of diagnosis and treatment. Professionals in this field are known as Speech Pathologists.
- Suprasegmental features** : The tonal or rhythmic characteristics of language such as intonation, stress, etc., imposed upon a sentence.
- Syntax** : Component of language studying the word order and relationship between words, and is commonly referred to as grammar.
- Telegraphic sentences** : Sentences in which only content words are used and function words are omitted.
- Tongue tie** : Condition where tip of the tongue is attached to the floor of the mouth more than usual, making the raising of the tongue tip difficult.

- Transformation** : It is a grammatical operation in which certain sentences like statements are modified into question forms, negations and other types.
- Use** : It is the *why*, *when* and *where* of the language. It is the pragmatic or social exchange dimension.
- Verb modifiers** : They are the words that qualify the action words(verbs) which include adverbs and pre/post position words.
Eg: run *fast*; *in* the box .



References

1. Adler, S, et.al., (1980) *An interdisciplinary language intervention program for the moderately to profoundly language retarded child*, Grune & Stratton, Inc., New York .
2. Bloom, L. & Lahey, M. (1978) *Language Development and Language Disorders*, John Wiley & Sons, NY.
3. Bochner, S., Price, P. and Salamon, L. (1984) *Learning to talk : A program for helping language delayed children acquire early language skills*, Special Education Centre, Macquire University, North Ryde, Sydney, Australia.
4. Bose,S.(1989) *Augmentative communication - its status and scope in the education of deaf persons in India*. Proceedings of the first ISAAC regional conference in India. Spastic society of Eastern India, Calcutta.
5. Brinker, R.P., (1978) *Teaching Language in Context : A feasibility study*, Le Revue de phonetique Appliquee, 46/47, 159-203. As quoted in Kiernan, C., Ried. B., & Gold bart. J. (1987).
6. Cairns ,S. & Pieterse, M.(1984) *T.E.L.L. A communication programme for children who are at risk for language delay* (3rd ed.). Special Education Centre, Macquire University, North Ryde, Sydney, Australia.
7. Carrow-Wool Folk. E. & Lynch, J.I, (1982) *An integrative approach to language disorders in children*, Grune & Stratton Inc., N.Y .
8. Coupe, J & Goldbart,J (Eds) (1988) *Communication before speech: Normal development and impaired communication*, Croom Helm Pub. London.
9. Crystal, D. (1987) *The Cambridge Encyclopedia of Language*, Cambridge University Press. N.Y.
10. Emerick, L.L. & Haynes, W.O.(1986) *Diagnosis and Evaluation in speech pathology* (3rd ed.), Prentice Hall Inc., N.J.
11. Fletcher, P & Garman, M (Eds), (1986) *Language acquisition-First language development* (2nd Ed.) Cambridge University Press, N.Y.
12. Foxen, T. & Mc Brien, J. (1981), *Training staff in behavioural methods : The EDY in-service course for mental handicap practioners*, Manchester Uni Press. Manchester. U.K.
13. Gayathri (1992). *A Personal Communication*.

14. Gleason, J.B. (1989) *The development of language*, 2nd Ed. Merrill Publishing Company. London.
15. Goetz, L., Guess, D., and Campbell, K.S., (1987) *Innovative program design for individuals with dual sensory impairments*. Paul H. Brookes, London.
16. Grundy, K (1989) *Linguistics in Clinical Practice*, Taylor & Francis, London.
17. Narayan, J & Kutty, J., (1989) *Handbook for the trainers of the mentally retarded persons - preprimary level*. NIMH, Secunderabad.
18. Hixon, T.J., Shriberg, D. & Saxman, J. H. (Eds) (1980) *Introduction to communication disorders*, Prentice Hall Inc., N.J.
19. Jones, P.R. & Cregan, A. (1986) *Sign and Symbol Communication for mentally handicapped people*, Croom Helm, London.
20. Kaul Sudha, (1991) *A personal communication*.
21. Kiernan, C., Reid, B. & Goldbart, J., (1987) *Foundations of communication and language: course manual*, Manchester University Press, Manchester, U.K.
22. Kostic, D. J., Mitter, A., & Krishna Murthi, B.H, (1987) *A short outline of Telugu Phonetics*, Indian Statistical Institute, Calcutta.
23. Makohon, L. & Fredericks, B. H.D., (1985) *Teaching expressive and receptive language to students with moderate and severe handicaps*, Pro-ed, Austin, Texas.
24. McCormick, L. & Schiefelbusch, R.L, (1984) *Early Language Intervention, an Introduction*. Charles C. Merrill Pub. Co., Columbus.
25. McGivern, A.B., Rieff, N.L. and Vander, B.F. (1978) *Language stories*, The John Day Company, New York.
26. Mental Retardation : *A manual for guidance counsellors*, (1989) NIMH, Secunderabad.
27. Mental Retardation : *A manual for psychologists*, (1989) NIMH, Secunderabad.
28. Reich, P.A., (1986) *Language Development*, Prentice Hall, NJ.
29. Schiefelbusch, R.L. (1980) *Non Speech Language and Communication : Analysis & Intervention*, University Park Press, Baltimore.
30. Snyder - McLean, L., Solomon, B., Mclean, J., and Sacks, S. (1984) *Structuring Joint Action Routines : A strategy for facilitating communication and language development in the classroom. Seminars in speech and language*, 5, Thieme-Stratton, New York.

31. Subba Rao, T.A., and Srinivas, N.C., (1989) *Speech and language deficits and mental retardation - A report on the analysis of 300 mentally retarded persons*, IJDR, July, 31-43.
32. Update in Mental Retardation : *Material for Third Refresher Course*, (1989), NIMH, Secunderabad (Unpublished)
33. Valletutti, P.J. and Bender, M. (1985), *Teaching the moderately and severely handicapped, Curriculum objectives, strategies and activities*, Volume 2: Communication and Socialization, Pro-ed, Texas.
34. Vanderheiden, G.C. and Grilley, K. (1976) *Non verbal communication techniques and aids for the severely physically handicapped*. University Park Press, Baltimore.
35. Vashista (1980), as quoted in Sheela Bose (1989) *Augmentative communication - it's status & scope in education of deaf persons in India. Proceedings of the first ISAAC conference in India*, Spastics Society of Eastern India, Calcutta.
36. Van Riper, C. & Emerick, L., *Speech Correction. An introduction to speech pathology and audiology*, Prentice Hall, N.J.
37. Weiss, C.E. & Lilly White, H.S., (1976) *Communication disorders - A handbook for prevention and early intervention*. C.V. Mosby Comp, St. Louis.
38. Winitz, H., (ed), (1983) *Treating language disorders : For clinicians by clinicians*, University Park Press, Baltimore.

LIST OF ADDITIONAL READINGS

1. **Mental retardation - A manual for guidance counsellors, (1989) NIMH. Secunderabad. (Chapter 1).**
2. **Mental retardation - A manual for psychologists, (1989) NIMH Secunderabad (Chapter 1)**
3. **Kiernan, C, Reid, B and Goldbart, J.,(1987) Foundations of communication and language : A course manual. Manchester University Press (Chapter 2, and Chapter 7).**
4. **Winitz.H., (ed), (1983) Treating language disorders for clinicians by clinicians, University Park Press, Baltimore. (Chapter 6 and Chapter 7)**
5. **Van Riper, C and Emerick, L. (1990) Speech correction : An introduction to speech pathology and audiology, Prentice Hall, N.J. (Chapter 2, Chapter 3 and Chapter 7).**
6. **Reich, P.A., (1986) Language development, Prentice Hall, NJ. (Chapter 4).**
7. **Kostic, D.J., Mitter, A and Krishnamurthi, B.H. (1977) A short outline of Telugu phonetics. Indian Statistical Institute, Calcutta. (Chapter 3).**
8. **Jones, P.R. and Cregan, A., (1986) Signs and symbol communication for mentally handicapped people, Croom Helm, London. (Chapter 7).**
9. **Hixon, T.J., Shriberg, L.D., and Saxman, J.H. (Eds) (1980) Introduction to communication disorders, Prentice Hall Inc., N.J. (Chapter 3 and Chapter 2).**
10. **Carrow-wool folk, E.I. and Lynch, J.I. (1982) An integrative approach to language disorders in children, Grune and Stratton Inc., London. (Chapter 4).**
11. **Emerick, L.L. and Haynes, W.C. (1986) Diagnosis and Evaluation in speech pathology (3rd Ed), Prentice Hall Inc., N.J. (Chapter 6).**