NETAJI SUBHAS OPEN UNIVERSITY

B. Ed. Spl. Ed. (M.R./H.I./V.I.)-ODL

INTERVENTION AND TEACHING STRATEGIES

C-14 (H.I)

B. Ed. Spl. Ed. (M. R. / H. I. / V. I)-
ODL Programme

AREA - C

C - 14 (H.I) : INTERVENTION AND TEACHING STRATEGIES

A COLLABORATIVE PROGRAMME OF
NETAJI SUBHAS OPEN UNIVERSITY
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AREA - C
DISABILITY SPECIALIZATION
COURSE CODE - C-14 (H.I)
INTERVENTION AND TEACHING STRATEGIES

Chairman		**Prof. Subha Sankar Sarkar,** Vice Chancellor, Netaji Subhas Open University, Kolkata-64
Convenor		**Prof. Atindranath Dey,** Director, School of Education, Netaji Subhas Open University, Kolkata-64
Course Writers		
Unit - 1	Sub-Unit-1	Mr. Dibyendu Bhattacharya
	Sub-Unit-2	Mr. Dibyendu Bhattacharya
	Sub-Unit-3	Mrs. Arpita Chatterjee
	Sub-Unit-4	Mrs. Arpita Chatterjee
	Sub-Unit-5	Mrs. Arpita Chatterjee
Unit - 2		Mr. Prosenjit Banik
Unit - 3	Sub-Unit-1	Mrs. Minakshi Kusari
	Sub-Unit-2	Mrs. Minakshi Kusari
	Sub-Unit-3	Ms. Pamela Samaddar
	Sub-Unit-4	Ms. Pamela Samaddar
	Sub-Unit-5	Ms. Pamela Samaddar
Unit - 4		Mr. Bivu Prasad Hota
Unit - 5	Sub-Unit-1	Mr. Prabir Naskar
	Sub-Unit-2	Mr. Abhedananda Panigrahi
	Sub-Unit-3	Mr. Abhedananda Panigrahi
	Sub-Unit-4	Mr. Abhedananda Panigrahi
	Sub-Unit-5	Mr. Prabir Naskar
Editor		Mr. Indranil Chatterjee & Dr. Papiya Upadhya
Processing		
General and Format Editing		Ms. Swapna Deb
In-house Processing In-charg		Ms. Swapna Deb

The Self Instructional Material (SIM) is prepared keeping conformity with the B.Ed.Spl. Edn.(MR/HI/VI) Programme as prepared and circulated by the Rehabilitation Council of India, New Delhi and adopted by NSOU on and from the 2015-2017 academic session.

Mohan Kumar Chattopadhyay
Registrar

Netaji Subhas Open University

From the Vice-Chancellor's Desk

Dear Students, from this Academic Session (2015-17) the Curriculum and Course Structure of B. Ed.- Special Education have been thoroughly revised as per the stipulations which featured in the Memorandum of Understanding (MoU) between the Rehabilitation Council of India (RCI) and the National Council for Teacher Education (NCTE). The newly designed course structure and syllabus is comprehensive and futuristic has, therefore, been contextualized and adopted by NSOU from the present academic session, following the directives of the aforesaid national statutory authorities.

Consequent upon the introduction of new syllabus the revision of Self Instructional Material (SIM) becomes imperative. The new syllabus was circulated by RCI for introduction in the month of June, 2015 while the new session begins in the month of July. So the difficulties of preparing the SIMs within such a short time can easily be understood. However, the School of Education of NSOU took up the challenge and put the best minds together in preparing SIM without compromising the standard and quality of such an academic package. It required many rigorous steps before printing and circulation of the entire academic package to our dear learners. Every intervening step was meticulously and methodically followed for ensuring quality in such a time bound manner.

The SIMs are prepared by eminent subject experts and edited by the senior members of the faculty specializing in the discipline concerned. Printing of the SIMs has been done with utmost care and attention. Students are the primary beneficiaries of these materials so developed. Therefore, you must go through the contents seriously and take your queries, if any, to the Counselors during Personal Contact Programs (PCPs) for clarifications. In comparison to F2F mode, the onus is on the learners in the ODL mode. So please change your mind accordingly and shrug off your old mindset of teacher dependence and spoon feeding habits immediately.

I would further urge you to go for other Open Educational Resources (OERs) - available on websites, for better understanding and gaining comprehensive mastery over the subject. From this year NSOU is also providing ICT enabled support services to the students enrolled under this University. So, in addition to the printed SIMs, the e-contents are also provided to the students to facilitate the usage and ensure more flexibility at the user end. The other ICT based support systems will be there for the benefit of the learners.

So please make the most of it and do your best in the examinations. However, any suggestion or constructive criticism regarding the SIMs and its improvement is welcome. 1 must acknowledge the contribution of all the content writers, editors and background minds at the SoE, NSOU for their respective efforts, expertise and hard work in producing the SIMs within a very short time.

Professor (Dr.) Subha Sankar Sarkar
Vice-Chancellor, NSOU

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C-14 (H.I) ❐ INTERVENTION AND TEACHING STRATEGIES

Unit - 1 ❐ Need & strategies for early intervention of hearing loss

Structure

1.1 Introduction

An early intervention is very important aspect for management of any diseases or disabilities and the success of early intervention depends primarily on early identification of the disease or disability. The term early intervention is about taking action as soon as possible to tackle problems for children and families before they become more difficult to reverse.Early intervention involves identifying children and families that may be at risk of running into difficulties and providing timely and effective support. Generally early intervention is importantfor children to develop better social and emotional skills, communication, the ability to manage their own behaviour and mental health, a stronger foundation for learning at school, an easier transition into adulthood, better job prospects, healthier relationships and improved mental and physical health.

Like other disabilities early intervention of hearing impaired children is also an important to develop better communication skill, better social and emotional skill, a stronger foundation for learning at school. The eventual language learning and educational success of any child with any type and degree of hearing loss whether unilateral or bilateral, depends on early diagnosis, early amplification, and early intervention. These three EARLY's must be all before age 2! Without these, children are at risk for both language and learning delays.Today's technology available has made it more easy to deaf and hard of hearing children than ever before. Having the ability to hear speech does not automatically ensure the development of good spoken language. However, there is much training that must take place over a period of time.

Parents and the special educator of HI children must take advantage of the prime "critical

age for learning language" of the first three years of life to give their children an auditory-oral approach to the development of spoken language. This includes using listening and speech - not signing - to develop the families' mother tongue.

1.2 Objectives

Children born with any type of developmental delay are at risk for falling behind in their educational potential. When hearing loss is diagnosed, it is very important to begin the planning process for child's educational future. That is where early intervention services come in. Early intervention services are designed so hearing impaired children receive the early intervention or other services they need in a timely manner so they can enter preschool and elementary school ready to succeed. Studies have shown that the following three goals are vital to any early intervention plan:

- A service plan developed as early as possible after the child's diagnosis.
- Heavy involvement by families in the development and execution of the plan.
- A highly structured plan that provides clear and measurable goals.

A child's brain is programmed to learn foundational language skills during the first six years of life, the first three years being the most critical. After age 6, it is increasingly difficult for the human brain to acquire language and speech skills. Therefore, families who choose listening and spoken language for their children with hearing loss need to recognize that their child will need some degree of educational and (re)habilitative intervention, and then start taking steps in that direction as soon as they suspect their child has a hearing loss. The earlier the intervention, the easier it will be for the child to acquire listening and spoken language. As with every aspect of raising the child, parents full commitment and involvement in an early intervention plan is vital to the success of the child. Even with regular speech therapy, the vast majority of child's learning will take place with the parents at home.

1.3 Parent-infant programmes for children with HI

1.3.1: Overview

The advancement in hearing screening technology makes it possible to identify hearing-impaired infants soon after birth and thereforeincreases the opportunity for early intervention. To provide services for families of hearing-impaired infants, the Parent Infant Program (PIP) was established. The importance for parent infant programme

emerged from the concept that, the most important learning environment for a child during the early years is the home and during these early formative years, the child's most important relationships are with their parents and other primary care-givers, such as siblings, grandparents and other family members. The children come out to the best of their abilities when their emerging speech, language and auditory skills are reinforced by their parents and other family members at home.

The emphasis of PIP is a home-based, family-centered, parent-guided, child-specific, natural approach to learning. The parent infant program brings together children from infancy through pre-school age, their parents, family and a variety of early intervention professionals to work as a team and offer services to assist families in communicating and bonding with their children in the child's natural environment. Parents are encouraged to network with other parents. PIP helps hearing impaired children and their parents to develop their potentiality in primary areas and helps the child to develop his language, literacy skills, and growth in world awareness, positive self-esteem, and personal responsibility.

1.3.2: Need

The Parent Infant Program offers parents and caregivers the skills and confidence they need to help their young children learn to listen and talk. Individualized sessions provided at home or in childcare settings are guided by teachers of the deaf and focus on auditory habilitation and speech/language development. The aims of parent infant programme are as follows:

1) To understand their child's deafness

Parents must understand the basic of hearing mechanism and hearing loss. The information regarding hearing loss includes type and degree of hearing loss. Children with sensory neural hearing loss will have more adverse effect on language development than the conductive hearing loss. Degree of hearing loss also plays important role. Sever to profound degree of hearing loss will have great difficulty in developing language than mild or moderate degree of hearing loss. Even children with unilateral hearing loss may have some problem in the early stage of their life.

2) To monitor growth in their child's listening, speech and language skill.

The Parent infant program also provides auditory habilitation services to the child which include fitting of appropriate hearing aid, to show parents how to use the hearing aid, and auditory training to develop listening skill with the parents so that the child learns

to respond through hearing and increases his/her receptive and expressive language. Baseline audiological and language data on the children also helps to monitor the growth of listening, speech, and language skill of the child.

3) To help the parents to coordinate their child with medical personnel, equipment dealers, and school systems.

The parents infant program is also designed to help parents to cordinate with medical personnel, mainly with Otorihnolaryngologist for any ear check up as and when required and with Paediatrician for general chek up. It also helps to cordinate with equipment dealer mainly with hearing aid dealer for after sale services of hearing instrument. Cordination with school system for mainstreaming of the child to normal schhool.

1.3.3: Reqirement

Early identification: Early identification and intervention with family support are important factors which determine the success of parent infant program for children with hearing impairment. Therefore whenever a hearing problem is suspected immediate action is imperative. Hearing impairment not only affects the child's speech and language development but also impedes the child's social, educational and personality development. If hearing impairment is identified early, these adverse effects due to hearing impairment in the child can be minimised.Drugs and surgery are useful in treating middle and outer ear problems. In case where the hearing impairment is irreversible, hearing aid fitting is recommended. Significant hearing loss is one of the most common major abnormalities present at birth. If undetected, it will impede speech, language and cognitive development. Significant bilateral hearing loss is present in 1 to 3 per 1000 new born infants in the well-baby nursery population. It is an established fact that if hearing loss is present it should be detected and remediated before the baby is 6 months old. A two-stage screening protocol is projected, in which infants are screened first with otoacoustic emissions (OAE). Infants who fail the OAE are screened with auditory brainstem response (ABR). Early intervention is about taking action as soon as possible to tackle problems for children and families before they become more difficult to reverse.

The rehabilitation process includes training to make the best use of residual Hearing, speech reading instruction, speech-language stimulation and therapy and the services of special educators.

Amplification devices: When babies are born, they are still developing their ability to use their senses, including hearing. Babies who can use at least some of their residual hearing will benefit from early chances to listen, provided by devices like hearing aids

or cochlear implants. Using these devices infant hears sounds louder and clearer. Not every baby born with a hearing loss can benefit from amplification, but most can.Parents need to make decision, what kind of hearing aid to select, and whether or not to consider a cochlear implant. To make any of these decisions, information may be gathered from many sources: professionals, other parents, and the Internet. Using of ear mould with the amplication devices are mandatory.

A team of professionals: Parent infant programs require involvement of a team of professionals along with the parents. These include an audiologist, speech and language therapist,primary care physician, Special educator etc. From special educators, audiologist, speech/language therapist, parents can learn to see that the hearing aids are functioning optimally,care and maintenance of the hearing aids, can learn how to call baby's attention to sounds and what they mean. Parents also can learn how to make speech as audible as possible, and how to encourage infant to listen to his or her own voice as well as parents Ensure hearing aids are used by the child. The professionals also advice parents to talk to the child most naturally preferably in a slightly slower manner ensuring that the child is looking at them, consciously label the things around the infant, converse on all the incidents and activities going around him. Team of professionals understand the emotions of parents therefore help them to make difficult decisions about their children's communication.

Parents and other family members including caregiver play the main role in the team for a successful parent infant program. All children learn from their environment. Babies absorb language, thinking skills, and social skills as they experience the world with their caretakers and others. Most children acquire skills, especially language, effortlessly, because others are fluent in the language and use it all the time. Children who are deaf or hard of hearing can usually acquire language in the same way as hearing children, but they will not know that people around them are using language unless they have a teacher and parent/family members who can help them access the language environment. Once the baby is diagnosed as hearing impaired, it's the parents who have to take all the decisions from amplification device, mode of communication to be used to school placement. They have to develop the listening skill of their baby, they have to provide adeqaute language and stability of their child and so on.

Apprppriate listening situation: Parents can make their house a good listening environment. If possible one of the room can be made acoustically apprpriate for the heaing impaired infant where formal way of training can be done by the parents.Finding appropriate amplification is just the beginning, however. Because hearing aids and cochlear implants work differently than glasses, or ears with normal hearing, infant will

need parents to guide those early listening experiences

Training materials: Training materials include toys and books,tools for listening training such as different noise makers and instruments generate different frequency tone.

1.3.4: Plan of action

It is possible to identify hearing-impaired infants at birth with advances in hearing screening technology therefore enhancing the opportunity for early intervention. The Parent Infant Program (PIP) was established to provide services for families of hearing-impaired infants. It is assumed that children advance to the best of their abilities when their emerging speech, language and auditory skills are reinforced by parents during early years and there the enthusiasm for PIP emerged. The most important learning environment for a child during the early years, is the home.

During these early years, the child's most important relationships are with his or her parents and other primary care-givers, such as siblings, grandparents and other family members. Therefore, the emphasis of PIP is a home-based, family-centred, parent-guided; child-specific which is a more natural approach to learning. The parent infant program brings children from infancy through pre-school age, Parents, other family members and early intervention professional work as a team and offer services in communicating with their children in the child's natural environment. Parents are encouraged to network with other parents. Parent infant program helps hearing impaired children and their parents to develop potential in primary areas and nurture the child to develop language skills, better social and emotional skills, the ability to manage their own behaviour and mental health, a stronger foundation for learning at school, an easier transition into adulthood, better job prospects, healthier relationships and improved mental and physical health. Language development is vital as it is the basis of communication. It is the most important factor in the all-round development of a child. It is the basis of most learning, not only in the formal aspects of education, but also in the development of character, emotional state and social relationship of the children. The questions are 'who should develop language and how it should be taught to the children'.

In order to answer both these questions the simplest thing is to recollect how hearing babies have acquired language. The hearing baby acquired or learnt it from the parents and the family members around them through constant exposure and interaction. Parents unconsciously teach and reinforce the language. It is an established fact that the hearing impaired child also has the same innate capacity to learn language as a hearing child but the reason that he has not learnt it, is because he has not heard the language around him.

Parents of a hearing impaired child may therefore interact and talk to him as naturally as they would do with hearing children. Action plans are designed based on short term and long term goals.Parents of a hearing impaired child should interact and talk to their child as naturally as they would do with hearing children. They should remember

- To see that hearing aids are used by the child.
- That the hearing aids are functioning optimally.
- Talk to the child most naturally preferably in a slightly slower manner ensuring that the child is looking at you.
- Consciously label the things around him.
- Converse on all the incidents and activities going around him.

Throughout the day there are plenty of ideal moments to give a hearing impaired child an opportunity to acquire language, these are: getting up, washing, bathing, dressing, undressing, cooking time, meal time, going out to the market garden or zoo, visiting friends, playing, going to bed etc.. These are the times when the phrases used have real meaning and so the parents could plan to help in developing vocabulary, meaningful language structures and communication skills in the hearing impaired child.

The following examples of the action plan will describe some of the ways to help parents and their family at home.

- Work with parents and other family members to identify priority needs for the child and family. Evaluate the child's strengths and current developmental skills. This information will be used as base line of PIP Plan. This document is like a road map. It will guide parents and specialist for learning and growing of the baby.
- Work closely with family to address priority goals you have set for yourselves and for the baby. Specialist will work with parents to evaluate the progress you are making and to set new goals.
- Support parents in communicating with their baby and encourage in baby's development through natural daily routines.
- To provide support and resources as families work to cope with and understand the diagnosis of hearing loss.
- Assist parents and family members in identifying sources of support, if this would be of help to them.

- Recognize expertise of the parents and other family members and develop a comfortable and effective partnership with them.
- Become a resource to parents and other family member as they search for answers and how best to help their baby to learn
- Help parents and their family to choose the best methods of communicating with their baby, provide support in evaluating how the child is responding and in making decisions about communication approaches. Not all children with hearing loss learn in the same way.
- Watch as parents interact naturally with their baby, pointing out the many positive things parents already do to support their baby's learning and suggests additional techniques to encourage the baby's listening, babbling, watching and learning.

1.4 Pre-school training programmes

1.4.1 Overview:

Children born with hearing loss are at risk for falling behind in their educational potential. When hearing loss is diagnosed, it is very important to begin the planning process for the child's educational future. Children receive the early intervention or other services they need in a timely manner so that they can enter pre-school and elementary school with an ease. The pre-school program starts for children from three to approximately five years of age. The school provides a language intensive program with a curriculum especially designed for children with hearing loss. It is designed with the aim of intensive small group language/listening teaching. The speech pathologists, classroom teachers and teaching assistants work as a team to track the children's vocabulary, listening skills, speech, syntax, and discourse skills.

Children alternate between small group language lessons and larger group content specific lessons. The aims of pre-school training program are as follows:

- Children will be using complex sentences by the time they are ready for mainstreaming.
- Children's receptive and expressive language ages will be within one year (or less) of their chronological ages
- Children will develop oral narrative skills
- Children will develop Theory of Mind skills

- Children will continue developing pre-reading skills
- Children who meet age requirements to attend kindergarten will have their readiness skills assessed

If the gap between language age and chronological age is closed, the children only need to keep up when they get into mainstream, and not catch up.The pre-school training covers all essential areas of early childhood development like self-help, cognitive, motor, and social with special emphasis on language skills development. The pre-school training programme is backed with development and on-going up gradation of the curriculum for training in different skill areas and in different languages.It Supports for successful mainstreaming of children passing out of pre-school and follow-up services.Pre-school training program also helps to develop of varied innovative teaching-learning aids for pre-school children for skill training in different areas (visuals, manipulative models, educational play materials, and interactive multimedia materials).Apart from providing preparatory services to children with communication disorders, preschool is also involved in capacity building of important stakeholders involved in education of children with communication disorders like trainees from related professional fields and caregivers.

1.4.2 Need:

The ultimate goals of pre-school functions are of catching children with communication disorders early and provide all-round development, as well prepare them for mainstreaming. With this intention, the pre-school aspires to:

- Provide early stimulation and developmental training in all areas of early childhood development.
- Provide effective pre-school training that prepares children with communication disorders for successful schooling, especially in mainstream learning environments.
- Provide stimulating learning environment appropriate for young children with communication disorders with ideal adult: child ratio.
- Empowering caregivers of children with communication disorders through Practical training for diploma, undergraduate and post-graduate students from the fields of speech and hearing, and special education.
- Training for parallel teaching, side by side with teaching in pre-school.
- Periodic orientation programmes for enriching parent knowledge and skill on various topics related to training children with communication disorders.
- Practical training in developing special teaching learning material for children

with communication disorders.

- Provide space for manpower training in related fields like speech and hearing, and special early childhood education among others.

1.4.3 Requirement:

The pre-school should be equipped to enable communication as well as all-round development of children including assistive listening devices such as different class room amplification devices like group hearing aids, FM hearing aids; audio-visual aids like multimedia projector, 52" television; elaborate outdoor play equipment that facilitate therapeutic and academic training; and several computers along with wide range of educational CDs and software for developing multimedia educational materials. Following are the requirement for a successful preschool program.

Amplification devices: Children must use individual amplification devices whether hearing aids or cochlear implant.Children who can use at least some of their residual hearing will benefit from early chances to listen, provided by devices like hearing aids or cochlear implants. Using these devices children hear sounds louder and clearer. Parents need to make decision, what kind of hearing aid to select, and whether or not to consider a cochlear implant. Using of ear mould with the amplification devices is mandatory. Children also use different class room amplification devices in the class for their group activities.

A team of professionals: Pre-school training program for hearing impaired children requires involvement of a team of professionals along with the parents. These include an audiologist, speech and language therapist, primary care physician, Special educator etc. From special educators, audiologist, speech/language therapist, parents can learn to see that the hearing aids are functioning optimally, care and maintenance of the hearing aids. Parents also can learn how to make speech as audible as possible, and how to encourage children to listen to his or her own voice as well as parents ensure hearing aids are used by the child. The professionals also advice parents to talk to the child most naturally preferably in a slightly slower manner ensuring that the child is looking at them, consciously label the things around the infant, converse on all the incidents and activities going around him. Team of professionals understand the emotions of parents therefore help them to make difficult decisions about their children's communication.While these activities are continuously going around at home parents should pay sufficient attention to the following:

- Take the help of special teachers to plan out the educational programme of the child.
- Be a part and parcel of his/her daily lessons at school and inculcate listening, speech reading and reading skills.
- Meet the school teachers as often as possible to carry over and to follow up classroom teaching.
- Learn the techniques used by the teachers in the class-room to teach language and follow them at home.
- Discuss about your queries and doubts with the teachers. Also discuss any intimate daily happening, celebrations, outings within the family so that there is a carryover of the same in the class-room teaching.
- Be more supportive to the child in his success as well as in failures.
- Be a teacher and facilitator for learning and make the child independent and self-sufficient.
- Motivate the child to interact with everybody around him.
- Inculcate good values and develop a sound moral character in the child.
- Help the children express themselves freely and involve them in all family interactions.
- Participate as equal partners in the education of your - children.

Appropriate listening situation: The pre-school training set-up should have a good listening environment for the hearing impaired children. If possible all the rooms can be made acoustically appropriate for the hearing impaired children where formal way of training can be done. If induction loop systems are used as assistive listening device proper steps must be taken to avoid any spill over effect.

Training materials: Training materials include toys and books,tools for auditory training such as different noise makers and instruments generate different frequency tone.Audio-visual aids like multimedia projector, ; elaborate outdoor play equipment that facilitate therapeutic and academic training; and several computers along with wide range of educational CDs and software for developing multimedia educational materials.

1.4.4 Plan of action

Class room activity

Pretend Play

Children who are deaf have normal intelligence and can study just like other children. However, in the initial years, they struggle with many issues including language and

communication. Activities for the classroom are suggested to help a child build up language, communication and social skills.

Pretend play is a normal part of child development. Most children pick up dolls, talk to them, and play with them. Children with sign language use signs instead of talking. Provide opportunities for the child to pretend play. Provide materials, time and space for a child to practice communication skills with dolls and imaginary friends. If the child is not doing it on their own, you may need to model it and involve the child till he or she learns.

Classroom Responsibilities

In the classroom, children who are deaf should also be given some responsibilities. Responsibilities can be as simple as making sure the board is clean before they leave, or opening the windows in the morning. These responsibilities help the child feel important and valued and helps build up their confidence to work independently.

Story Time

Story time is a great way to develop language skill in children with hearing impairment. Activities should use short stories with pictures and few words perpage. Read the words, and explain them during the story. Get the children to sign some of the wordsused in the story with you. Also, use the story to talk about other things related to the same topic. Even if you have an integrated classroom, the other children will enjoy learning and practicing signs at story time. Allow children to look at books that you have read to them at their own pace.

Music

Children who cannot hear miss out on learning to appreciate and enjoy music. However, you can make this possible by helping them understand vibration. Use drums and other vibrating instruments in your classroom for activities. Allow children to play with instruments and feel the vibrations. You can also play a drum while allowing the child to feel the rhythm with one hand, and follow the rhythm with the other hand on another drum.

Paired Activities

Children who cannot hear find it difficult to work with others, especially other children who can hear. Pair up a child who is deaf with another child to do an activity together. The activity can be a craft activity, or even going to the garden and getting some materials for the lesson. Start with more structured activities that require only the sharing of

materials, and slowly involve the child in more unstructured activities that require planning and communication. All of these various activities will help a deaf child develop necessary communication skills.

Parent Activities for Children with Hearing Loss

Having a child with any disability is overwhelming. Hearing loss is no exception. Having a typical child is an enormous amount of work, as any parent can tell you, so the stress of having a child who requires extra work is understandable. For parents who choose listening and spoken language for their children with hearing loss there are some things that will help in developing speech, language and listening skills.

Read to your child every day: For young children the goal is 10 books a day. As kids get older, at least 30 minutes. When kids learn to read, still read to them every day and try and read things that are a little more difficult than they can read themselves.

Sing to your child every day: Parents don't have to be really good, they just have to be able to carry a tune. Singing provides a good sense of rhythm and the tone helps them recognize the melody in speech.

Rhyming games: As kids get older, play rhyming games. Rhyming is very helpful in building phonics skills which is critical for reading.

Play rhythm games: Clapping out rhythms is fun and a good skill to learn. Clap out a variety of different rhythms starting from something short (DaaDaDa) and building to more complex rhythms.

Language of math: Math is really a language activity. For kids to succeed in math they need to learn the words of math problems. How do you know if the activity is an addition, subtraction, multiplication or division problem? How much more, howmany fewer etc., may be difficult to figure out. Many parents are not comfortable with math and may avoid doing math activities.

Point out words: on packages, on signs, and around the house. Play "sound out the word" games when you see words that could be sounded out.

Watch the sound in your house: Turn off the TV or radio during dinner. Don't have the dishwasher running while you are trying to talk. Background music is not helpful unless it is parent directed. Try to have everyone take turns speaking. It is hard to hear when two people are talking at the same time.

Turn off the TV: Kids do not learn language from watching TV. They learn by interacting with people. So just spend time with them and talk talk talk.

Make hearing technology fun: It is not easy to be different. If we think about hearing aids as ear jewelry, pretty ears. etc. we will help kids have a positive view of their technology. Let them choose a color (my hearing aids are purple, not boring beige). If a child chooses a color or puts sparkles on his or her hearing aids, he will more likely become invested in it.

Talk, Talk, Talk, Talk: Talk all day long. It is a lot of work, but it makes all the difference in the world. There is a lot of research that shows that the number of words a child has at age 4 is directly related to the number of words a child has heard. Since even with the best technology, a child with hearing loss will not be hearing everything, they need more input. So just talk talk talk talk talk. Describe everything you are doing. "I'm cutting up the tomatoes, cut, cut, cut. Now I am putting them into the frying pan. I am going to cook them. I am stirring. Would you like to stir?" It can definitely get exhausting, but keep trying to remember that what you put in is what will come out of your child.

1.5 Individual Speech and Language Therapy Program

1.5.1: Overview

Individual speech and language therapy program helps in the identification, screening, assessment, and rehabilitation of individuals with hearing loss. Speech and language therapists have the specialist skills and training to address communication effectiveness, disorders, differences, and delays that result from a variety of factors, including those that may be related to hearing loss.They provide individualised assessment, diagnosis and intervention to the child and also help the parents to make the choices regarding communication mode and habilitation approach. Individual speech and language therapy program accelerate language development in order to reduce and/or eventually close the gap between the child's chronological age and language age. Individual speech and language therapy program helps to make the choice of mode of communication of the child such as auditory-verbal communication, Aural oral communication, cued speech, sign language or total communication. It helps parents to select hearing devices (analog hearing aids, digital aids, bone anchored hearing aids, cochlear implants) suitable for their children and teaches parents how to maintain and troubleshoot their child's hearing device(s) in order to get the best sound possible.Individual speech and language therapy program provides family-centred therapy that focuses on the child's learning needs and potential which helps the child to develop Skills and sub-skills for learning speech and language.

1.5.2: Need

Children with hearing loss needs speech and language therapy because of the adverse effect of auditory deprivation on communication. Therefore an early intervention on speech, language development is important because of critical period for language learning and brain reorganisation. Children learn the following aspects of speech through the Individual speech and language therapy program.

1) Vocalization and its maningful use
2) To improve the usage of maningful vocalization moe spontaneously.
3) Proper use of intensity and pitch in vocalization.
4) To improve on speech immitation skill.
5) Proper use of respiration and tongue.
6) Maximum use of residual hearing for production of Speech.
7) To teach the child to use visual and tactile clues for learing language.
8) Proper articulation of vowels and consonant sound in syllables, words and sentence level.
9) Spontaneous use of language at phonetic level.
10) Satisfactory use of language for effective communucation.

1.5.3: Reqirements

Amplification devices: Children must be fitted with individual amplification devices whether hearing aids or cochlear implant based on their degree of hearing loss. Childrenwith their residual hearing and amplification devices will be benefitted from early chances to listen. Using these devices children hear sounds louder and clearer.Parents need to make decision, what kind of hearing aid to select, and whether or not to consider a cochlear implant. Using of ear mould with the amplification devices is mandatory.

Appropriate listening situation: Individual speech and language therapy program should have a good listening environment for the hearing impaired children. If possible the room can be made acoustically appropriate for the hearing impaired children where therapy program can be done.

Training materials: Training materials include toys and books,tools for auditory training such as different noise makers and instruments generate different frequency tone.Audio-

visual aids like multimedia projector, ; elaborate outdoor play equipment that facilitate therapeutic and academic training.

1.5.4: Plan of action

- In the recent times, there has been increasing support of intervention occurring within the child's and family's functional and meaningful routines and experiences dispersed throughout the day rather than in tightly planned and executed activities. This shift away from traditional, clinical models for services for young children and their families is aligned with the federal mandate to provide services in natural environments and is responsive to the success of parent-implemented interventions. The use of routines and everyday activities as a context for embedded instruction involves (a) identifying the sources of learning opportunities occurring regularly in family and community life; (b) selecting, with the parents and caregivers, desired participation and desired communication by the child in the routines; (c) mapping motivating aspects and the child's interests within the routines; and (d) identifying facilitative techniques that will be used to maximize the learning opportunity.
- Organization of the ever-expanding research base on effective intervention approaches and strategies in early intervention is challenging for a variety of reasons. The focus of intervention may be the parent or caregiver, the child, the dyadic interaction, the environment, or combinations of these factors. The agent of the intervention may be the SLP, another team member, a family member or peer, or varying combinations. The intervention may be in small or large groups, individual or massed, or distributed opportunities throughout the day. Much of the empirical data collected to date have been on preschoolers rather than infants and toddlers, and the quality and preponderance of the evidence are lacking for some intervention practices. However, there are intervention approaches and strategies for the SLP and team to consider that have some evidence to support their use by professionals and parents in both home and community settings for young children with a variety of disabilities.
- Goals of Early Intervention
- Receptive language
- Expressive language
- Auditory perception
- Speech development

- Strategies with promising evidence fall into one of three groups: responsive interaction, directive interaction, and blended. Responsive approaches include following the child's lead, responding to the child's verbal and nonverbal initiations with natural consequences, providing meaningful feedback, and expanding the child's utterances with models slightly in advance of the child's current ability within typical and developmentally appropriate routines and activities. Responsive interaction approaches derive from observational learning theory and typically include models of the target communication behavior without an obligation for the child to respond. Among others, specific techniques include expansions, extensions, recasts, self-talk, parallel talk, and build-ups and breakdowns. Directive interaction strategies include a compendium of teaching strategies that include behavioral principles and the systematic use of logically occurring antecedents and consequences within the teaching paradigm. Blended approaches, subsumed under the rubric of naturalistic, contemporary behavioral, blended, combination, or hybrid intervention approaches, have evolved from the observation that didtactic strategies, while effective in developing new behaviors in structured settings, frequently fail to generalize to more functional and interactive environments. The emphasis on teaching in natural environments using strategies derived from basic behavioral teaching procedures has been broadened to include strategies for modeling language and responding to children's communication that derive from a social interactionist perspective rooted in studies of mother-child interaction. The core instructional strategies are often identical to those used in direct teaching (e.g., prompting, reinforcement, time delay, shaping, fading) but also may include strategies that come from a social interactionist perspective (e.g., modeling without prompting imitation, expansions, recasts, responsive communication). Naturalistic language interventions may be used as the primary intervention, as an adjunct to direct teaching, or as a generalization promotion strategy.
- Monitoring intervention. Because young children often change very rapidly, and families respond differently to their children at various periods in development, systematic plans for periodic assessment of progress are needed. The three broad purposes of monitoring are to (a) validate the conclusions from the initial evaluation/assessment, (b) develop a record of progress over time, and (c) determine whether and how to modify or revise intervention plans. Thus, the evaluation/assessment and intervention processes can be viewed as a continuous cycle of service delivery. Monitoring includes attention to both the child's IFSP as well as broader aspects of the child's development and behaviors, such as

participation in routines, play, social interactions, and problem behaviors, to determine appropriate goals in these areas. For children in early care and education programs, attending to their levels of engagement in activities can help determine whether changes are needed in their classroom environment.

1.6: Impact of early intervention on school outcomes.

1.6.1 Schooling Outcomes

Children with hearing impairments are at risk for serious difficulties acquiring and developing literacy skills. Among children with severe to profound hearing impairment, low literacy rates have frequently been reported in the literature. Numerous studies with children who are deaf show that literacy development and proficiency has been challenging for this population (Spencer et al., 2003). Literacy difficulties can impact the child's academic, social and emotional success. When hearing children learn to read, most are competent language users and map their existing phonological, syntactic, semantic and discourse skills onto the newly acquired task of reading. The deaf child approaches the reading task with an incomplete spoken language system and, because reading is a speech based system, this significantly increases the difficulty of the task. As a result, this may facilitate and improve development of speech perception skills in children with hearing impairment (Watson, 2002).

1.6.2 Academic problems faced during classroom situations

- Unmanaged hearing loss can result in lagging behind at least 1 grade level
- If untreated by 4th grade these students are at least 2 grades below level
- Compared to peers with normal hearing-10xs greater risk for academic failure
- Cannot "overhear" others' conversations therefore misses passive learning opportunities
- Cannot hear soft/distant voice and described as "daydreaming" or "not trying"
- 50-75% of information missed in classroom situations
- Articulation and syntax deficits as well as limited receptive and expressive.
- Distinguishing and understanding speech in classroom environment (even when

presented in the "good ear")

- Distinguishing soft/distant speech
- Responding to subtle cues in conversation
- Rapid-paced information/transitions
- Distinguishing grammatical markers (possessive, plural, verb tense forms, etc.)
- Localizing source of sound and filtering speech in noise
- Not as confident and more dependent on others as compared to peers with normal hearing.

1.6.3 Early stimulation, at preschool age

Schooling outcomes, which range from the number of years completed to academic performance, were some of the most widely studied in the evaluations of interventions from early childhood on later outcomes. There are a number of possible pathways through which early childhood interventions could affect schooling. For instance, improved cognitive development could result in increased scholastic achievement, while healthier children are better able to attend classes.

A 2003 systematic review of the effectiveness of comprehensive early childhood development (ECD) programs in the United States revealed significant improvements in school readiness, achievement, and retention rates among enrolled children (Anderson and others 2003). Additional long-term studies demonstrated that children who attend these programs were less likely to repeat a grade and more likely to graduate high school when compared with their peers who had not been enrolled (Schweinhart 2007). Two decades after children participated in Chicago's Child-Parent Centers, they demonstrated lower rates of grade retention, a lower likelihood of being enrolled in special education programs, and a higher percentage of high school completion (Reynolds and others 2001). At age 28, their schooling achievements translated to labor market gains and reduced arrest rates.

Evidence exists that early childhood interventions can successfully promote on-time enrollment. The most widely studied educational outcome was years of schooling completed, and the evidences suggest that over time, various intervention types could positively affect this indicator. Attendance and completed schooling are important measures, but they do not necessarily indicate if students are learning. children with early intervention are more likely to be in mainstream education, including a special unit within the school (75 to 95 per cent), than in a school for the deaf (five to 21 per

cent); second, children with early intervention are less likely to be in schools for the deaf (five to 21 per cent) than profoundly deaf children without early intervention (29 to 46 per cent).

Over half of the children in the early intervention group scores within the average range for their age, when compared with hearing children. Factors such as higher nonverbal intelligence, higher socio-economic status, female gender and onset of deafness (later as opposed to earlier) were all associated with reading competence.

In children with normal hearing, language skills and literacy are highly interdependent and progressively develop throughout the elementary school years (Watson, 2002). During the initial stages of reading (from birth to six or seven years of age), the child develops the knowledge that words are made up of individual sounds and there is a relationship between each letter and its' sounds (Spencer et al., 2003). During the later stages of reading (from seven years of age to approximately fourteen years of age), the literacy demands increase. Children are expected to develop both "top down" (i.e., meaning to print) and "bottom up" (i.e., print to meaning) processing skills to aid in comprehension (Spencer et al., 2003). It is hypothesized that early intervention provides the child with the ability to utilize phonological ("bottom up") strategies therefore allowing them to decode unfamiliar words.

Stimulation, whether through home visits or preschool, can positively affect children's academic performance. Evidence suggests that the persistence of effects over time varies by outcome domain, and longer exposure to some programs can be beneficial.

1.7 Intervention of late identified children with hearing loss

A hearing loss in a child, regardless of type, can lead to a variety of consequences like significant delay in language development or disorder in speech perception and production or an interference with both receptive and expressive language. Other effects include effects on cognition, educational attainment, social development and family child interaction.

1.7.1 Challenges of Intervention:

- The first premise is that it makes sense to begin intervention with children who have hearing loss when they are very young because of the research on particular sensitivity of the brain's neural pathways to auditory input prior to the age 3 (Sharma et al., 2005) as well as because of the verbal and academic deficits often seen in

children whose audiological and educational management begin later (Geers & Moog, 1989; Nicholas & Geers, 2006).

- The second premise is that it makes sense to help these children learn to listen and talk in order to keep as much as the world open and available to them as possible.
- The third premise is that it makes the most sense to help the parent help the child learn spoken language through listening. The idea is to maximize the child's development through optimizing the family's capacity to address the child's needs. Working in partnership should result in the most effective intervention with very young children (Bromwich, 1981; Yoder & Warren, 1998, 2002).
- The fourth premise is that in acquiring spoken language through listening, a child with a hearing loss will generally follow a normal developmental path. The pace may be somewhat slower, and there may be some asynchronies in learning related to difficulty in hearing particular aspects of language (Estabrooks, 2006; Tye-Murray, 2003).

1.7.2 Habilitation Strategies:

Often with children, aural rehabilitation services would more appropriately be called habilitative rather than rehabilitative. Rehabilitation focuses on restoring a skill that is lost. In children, the skill may not be there in the first place, so it has to be taught-hence, the services are habilitative, not rehabilitative.

Specific services for children depend on individual needs as didtacted by the following:

- The current age of the child
- The age that the hearing loss started
- The age at which the hearing loss was discovered
- The severity of the hearing loss
- The type of hearing loss
- The level of hearing loss
- The age at which hearing aids or assistive devices were introduced

The aural habilitation plan is also influenced by the communication methods the child is using. Examples of communication methods include the following:

- Auditory-oral
- American Sign Language
- Total communication
- Cued speech
- Manually coded English

One of the most serious concerns of a hearing loss beginning in childhood is its disruption to learning speech and language. The combination of early detection and early use of amplification has been shown to have a dramatically positive effect on the early language abilities of children with a hearing loss. In fact, infants identified with a hearing loss by age 6 months can be expected to reach language development similar to hearing friends.

Aural habilitation/rehabilitation services for children typically involve the following:

Training in auditory perception. This includes activities to increase awareness of sound, identify sounds, tell the difference between sounds (sound discrimination), and attach meaning to sounds. In the end, this training increases the child's ability to tell one word apart from another using any remaining hearing. Auditory perception also includes developing skills in hearing with hearing aids and assistive listening devices, and learning how to handle easy and difficult listening situations.

Using visual cues. This goes beyond separating sounds and words on the lips. It involves using all kinds of visual cues that give meaning to a message, such as the speaker's facial expression, body language, and the context and environment in which the communication is taking place

Improving speech. This involves skill development in the production of speech sounds (by themselves, in words, and in conversation), voice quality, speaking rate, breath control, loudness, and speech rhythms.

Developing language. This involves developing language understanding (reception) and language usage (expression) according to developmental expectations. It is a complex process involving concepts, vocabulary, word knowledge, use in different social situations, narrative skills, expression through writing, and understanding rules of grammar

Managing communication. This involves the child's understanding the hearing loss,

developing assertiveness skills to use in different listening situations, handling communication breakdowns, and modifying situations to make communication easier.

Managing hearing aids and assistive listening devices.

Because children are fitted with hearing aids at a young age, early care and adjustment are done by family members and/or caregivers. It is important for children to participate in hearing aid care and management as much as possible. As they grow and develop, the goal is for them to do their own adjustment, cleaning, and troubleshooting of the hearing aid and, ultimately, to take over responsibility for making appointments with service providers.

CARHART (1947)

Includes both childhood and adulthood procedures. It has 4 stages. It is based on the belief that since listening skills is normally learned early in life, the child possessing a serious hearing loss at birth or soon after will not move through the normal developmental stages important in acquiring these skills.

Development of awareness of sound

The child has to recognize when a sound is present and attend to it. The child should be surrounded with sounds that are related to daily activities and that are clearly audible.

Development of gross discrimination

Initially involves demonstrating with various noisemakers that sounds differ. Training at this level involves discrimination of several parameters of sound, such as intensity (loud versus soft) duration (long versus low)

Development of broad discrimination among simple speech patterns

By now the child is aware that the sound differs and is ready to apply this knowledge to the understanding of speech. Familiar meaningful phrases that is sufficiently different to minimize confusion.

Development of finer discrimination for speech.

Fine discriminations of speech stimuli in connected discourse and integrating an increased vocabulary to enable him or her to follow connected speech in a more rapid and accurate fashion.

Carhart also felt that the use of vision by the child should be encouraged in most auditory training activities.

1.7.3 Traditional approach:

Hirsh 66, ling 76, has described 4 levels of audition that contribute to the perception of conversational speech, detection, discrimination, identification and comprehension.

Detection requires only the child should be able to distinguish between the presence and absence of sound.

Discrimination: involves differentiation of speech sounds.

Identification: requires the child to recognize the speech signal and to be able to identify.

Comprehension: involves understanding of the message on a cognitive and linguistic basis.

Erber and Hirsh 78 suggested an auditory training program in which increasingly complex speech stimuli are presented for processing through 4 levels of audition.

	Speech	Syllables	Words	Phrases	Sentences	Connected discourse
Detection(+/-)						
Discrimination (same/diff)						
Recognition(identification)						
Comprehension(understanding)						

The first 2 stages are not usually done. The suprasegmental part is not included here; it taps only long term memory. Mastery of the lower levels of detection and discrimination is considered to be the pre requisite for successful performance at the higher level of identification and comprehension. Children should progress through the four levels and the various stimulus complexities at their own rate and to the extent dictated by the status of their residual hearing.

The detection level in the matrix does not correspond to the awareness stage as proposed by Carhart, because it focuses on speech reception rather then awareness of the sounds in general. In addition, there is no corollary in the Erber and Hirsh paradigm for the development of gross discriminations of non speech sounds as proposed by Carhart.

Acoupedics:

- The term coined by Dr. Henk.
- Developed by Pollack (1964)

Principle: Early training using audition only, avoidance of lip reading and other cues, and use of normal speech pattern.

Pollack proposed a unisensory approach toward education and habilitation of hearing impaired children. Pollack's procedures exclude the use of all visual cues, such as speech reading during early training. She emphasizes only on audition and said that audition gets hampered when attention is divided between two or more sensory inputs.

The acoupedic approach is also called as the unisensory approach and its recommendations are:

- Hearing impairment should be detected early in life. No age is suggested.
- Binaural hearing aids should be selected as soon as the hearing impairment is diagnosed.
- The child must be given the fullest opportunity to use his residual hearing; hence visual stimuli are not provided initially in other words, lip reading cues available to the child are kept minimal. This does not mean that the child never has the opportunity to see the speakers face. It means that no formal lip reading instruction is employed and the child is expected to develop his auditory capacity in preference to his visual skills in developing speech and language.
- Normal patterns of language are stimulated through the visual auditory channel eliminating the need to present language visually.
- A favorable attitude must be established for auditory learning. In short, the people who are involved must believe that the child can hear and learn to communicate normally.
- Parents must become the primary teachers, assuming responsibility for providing intensive auditory stimulation more or less continuously.
- A special educational environment must be avoided. The goal is for the child to be educated with normally hearing children.

The following are the listening skills to be worked on:

- Awareness of sounds, loud then quiet sounds.
- Attending to sounds, increasing the range

- Responds to sounds.
- Localizing to sounds.
- Discrimination of sounds.
- Developing auditory feedback mechanism.

She emphasized on the development of language through the auditory feedback loop, which is demonstrated and referred by repeated imitation of auditory stimuli. Pollack does not suggest an age but says introduction of the acoupedic approach beyond 7yrs of age may not be feasible, but the procedures are designed for infants and toddlers.

1.7.4 Wedenberys Approach (Wedenbery 1951):

It is an early approach to auditory training, used with children with severe to profound hearing loss. It was first described by Wedenbery.

His training also served to exploit whatever residual hearing a child possesses. His approach was eventually labeled as unisensory, since he advocated that speech reading should not be consciously emphasized until the child developed a proper listening attitude. His program was directed towards increasing the Childs attention to the sound. Both environmental and speech sounds were used in the early stages, which he referred to as "ad concham amplification". This involved speaking directly into the Childs ear at a close range (1/2 inches) rather than having the child use hearing aids. Exercises, which helped the child become aware of and attend to sound at increasing distances, were used. These included presentation in isolation vowels & voiced consonants whose formants were thought to be within the hearing impairment Childs audible range. Syllables were used in a variety of formal therapeutic activities, as well as informal settings at home. Combining individual vowels and consonants learned in isolation resulted in perception of a limited number of words. At this point Wedenbery advocate part time use of hearing aid.

Later, training progresses to short sentences formed by words already recognized by the child acoustically. Although not given direct focus, speech reading could be used as a supplement. His method directed towards development of auditory, speech and language skills in children with either a congenital or prelinguistic hearing loss. Of severe to profound proportion. Similar auditory training methods were proposed by Goldstein 39, Watson 61, and Whitehurst 66.

Verbotonal: Peter Guberina 1952

It is effective for establishing good spoken language and listening skills. Based on a developmental model of normal hearing children

Guberina's concept is based on that low frequency of spoken language don't mask high spoken frequencies. He believes that amplification of auditory cues below 500 Hz to include rhythmic patterns and sound fundamentals can help HI to perceive higher speech frequencies.

1.7.5 Ling's approach:

Training programme is based on:

- Acoustic characteristic of speech
- Emphasis on listening aided by amplification
- Involves segments as well as supra segmental
- Recognizes need to attain vocal system, respiration, motor control and coordination. Prior to use of speech in meaningful contexts.

Ling emphasized that speech should be taught at phonetic level rather than phonological level. Child's ability to detect all six sounds demonstrates that ability to detect all aspects of speech.

Auditory Verbal Practice

The goal of Auditory Verbal Practice is that children who are deaf or hard of hearing can grow up in regular learning and living environment enabling them to become independent, participating and contributing citizens in mainstream society.

Principles:

Auditory verbal practice (Pollack, 1970, 1985, 1997) have been incorporated by AV I.

To detect hearing impairment as early as possible through screening programs, ideally in the new born nursery and throughout childhood.

- Prompt detection is critical in that any auditory deprivation can leads to delay in language development.
- Lowered the age of candidacy for CI.

1) To pursue prompt and vigorous medical and audiologic management, including

selection, modification, and maintenance of appropriate hearing aids, a cochlear implant or other sensory aids.

- Appropriate well defined hearing technology in conjunction with AVT can lead to the development of spoken communication.

2) To guide, counsel, and support parents and caregivers as the primary models for spoken language development and to help them understand the impact of deafness and impaired hearing on entire family.
3) To help children integrate listening in to their development of communication and social skills.
4) To support children's auditory verbal development through one to one teaching.
5) To help children monitor their own voices and the voice of other in order to enhance the intelligibility of their spoken language.
6) To use developmental patterns of listening, language, speech, cognition to stimulate natural communication.
7) To continuously assess and evaluate children's development in above areas and through diagnostic intervention, modify the program when needed.
8) To provide support services to facilitate children's educational and social inclusion in regular education classes.

The listening environment:

AVP encourages the maximum of hearing in order to learn language and stresses listening rather than watching.

Listening environment can be enhanced by following conditions.

- Parents / therapist sitting beside child, on the side of better ear
- Speaking close to child's hearing and / or CI microphone
- Speaking in quiet voice at regular volume
- Minimizing background noise
- Using speech that is repetitive and rich in melody, expression and rhythm.
- Using acoustic highlighting technique to enhance the audibility of spoken language.

(Anditory Verbal Techniques) includes

- Education
- Guidance
- Advocacy
- Family support
- It is a part of ongoing, individual, diagnostic evaluation of child's and parent's progress.
- Sessions are generating conducted jointly by AVT therapist and parents.
- Child learns to listen to his or her own voice. The voices of others and sounds of environment in order to communicate effectively and naturally through spoken language.
- Most AVT offers weekly therapy session, lasting for 1 to 1.5 hours.
- Mere therapy may or may not be advantageous and depends on many variables.
- It is parents / care givers who need to apply targets from each session in natural language contents throughout the day.
- Auditory verbal therapist demonstrates parent and the child practice and interaction are discussed.
- Auditory verbal therapist outlines specific goals to work towards at home and suggests ways through which they may be achieved.

Auditory Verbal Techniques

1) Using acoustic highlighting
2) Using auditory closure
3) Recording
4) Asking "what did you hear?"
5) Providing alternatives
6) Pausing
7) Repeating a previous strategy
8) Waiting

9) Rephrasing
10) Labeling by category
11) Asking for providing a definition
12) Changing the task from open set to closed set
13) Providing rhyming words
14) Suggesting opposites
15) Providing a visual clue and putting the stimulus back into hearing
16) Moving closer to the child
17) Directing the child to listen closely
18) Repeating part of the story message containing the answer
19) Using the often misunderstood technique and hand cue

1.7.6 Ski-Hi Approach

Clark & Walkins (1985)

- Which is a comprehensive identification and home intervention treatment plan for HI infants and children.
- This program explains all auditory skills in four phases.
- As skill level changes, auditory behavior becomes more complex.

Phase I: 4-7 months

- Attending
- Early vocalization

Phase II: 5-16 months

- Recognizing
- Locating
- Vocalizing with inflection

Phase III: 9-14 months

- Hearing at distance and levels

- Producing some vowel and consonants

Phase IV: 12-18 months

- Environmental sound discrimination and comprehension
- Vocal discrimination
- Speech discrimination
- Speech initiation and uses speech meaningfully

Developmental approach to successful listening II (DASL- II):

This approach is highly structured and used with preschool and school age children using hearing aids or cochlear implant. The hierarchy used in this approach is:

Sound awareness: includes detection, discrimination of both environmental and speech sounds.

Phonetic listening: the fundamental aspects of speech perception like duration, intensity pitch and rate are emphasized. In this stage development of discrimination and identification of vowels and consonants in isolation and inwards are kept in mind while planning the activities.

Auditory comprehension: comprehension of complex verbal messages in everyday settings is considered.

Other communication strategies:

Sign Language: Signs in ASL are created using handshapes, facial expressions, body posture and movement. Some examples are:

- Handshape - a spread-out hand, as in a "high-five" or a pointing handshape
- Fist movement - how you move your hands in space, such as from left to right or in a circling or a bouncing motion,
- Facial expression - raised eyebrows when asking a question and smiling when signing about something that is fun to do.

Visual Attention: People with hearing can hear voices even when they cannot see who is talking. People who communicate in ASL need to look at the person who is signing to them. It is important to make sure your child is looking and paying attention when you are signing.

Eye contact:

Eye contact is very important when you are signing in ASL. If you have eye contact with your child, then you can be sure that you are paying attention to each other.

Fingerspelling: Fingerspelling began as a part of ASL. Fingerspelling spells words by forming each letter using the hands and fingers. Very young children do not need to know how a word is spelled to understand fingerspelling. Instead they learn fingerspelled words by the shape and movement of the hand.

Spoken English

Spoken words: Spoken words are formed using the vocal cords (voice) and mouth and are made of speech sounds such as vowel and consonant sounds. Auditory training and listening: Auditory training teaches a child or an adult to rely on listening to communicate. It takes advantage of a person's residual hearing. That is the amount of hearing that a person with a hearing loss still has, even if it is very minimal. Many children who are deaf have some residual hearing. Speech: Speech uses the mouth, lips, tongue, and vocal cords to produce sounds for communication. Speech and auditory training (or listening) are often used together. Different speech sounds can make a difference in the meaning between two words. For example, the only difference between the two words "big" and "pig" is in the first speech sound ("b?" rather than "p?"). Speech reading: In speech reading (also known as "lip reading") a person who is deaf or hard of hearing watches a speaker's mouth and facial expressions to understand what is being said. Speech reading is also used along with other building blocks, such as listening, to communicate.

English Coding Systems

English coding systems use visual methods to express the spoken English language. Coding systems are not a language of their own. Instead of using speech and hearing, coding uses signs borrowed from ASL to represent the English language. English grammar and word order are used.

Manually Coded English (MCE):

Manually Coded English, or MCE, is made up of signs (hand shapes and hand motions) that represent English words. You might have heard of Morse code. Morse code is a system of dots and dashes that can be tapped out to form English words and phrases. MCE is a code for the English language. Many of the signs in MCE are borrowed from ASL. However, the grammar, word order, and sentence structure used in MCE are those

of the English language. MCE does not use the grammar, word order, and sentence structure of ASL. Finger spelling: Finger spelling began as part of ASL. Finger spelling is the spelling of words by forming each letter using the hands and fingers. It is used with English coding systems, as well as in ASL.

Other communication tools:

The remaining three building blocks can be used for communication and language. These three building blocks are cued speech, simultaneous communication, and natural gestures.

Cued Speech: Cued speech, or cueing, can help people who are deaf or hard of hearing understand speech. Cued speech is not a language or a representation of a language. Instead, it is a system of hand signals used by the speaker to help the listener tell the difference between certain speech sounds. Some speech sounds are hard to tell apart using speech reading alone. (One example is the difference between the sound of "b" and the sound of "p"). Cued speech consists of eight hand shapes representing consonant sounds. These are placed at four locations near the mouth to represent vowel sounds. Cued speech must be used in combination with speech reading.

Conceptually Accurate Signed English (CASE): Conceptually Accurate Signed English, or CASE, is sometimes used by people who are deaf or hard of hearing to communicate with one another. Sometimes it is called PSE, or Pidgin Sign English. CASE is a mix of English and ASL. CASE is not a language. It is a form of communication that varies depending on the experience and preferences of the people using it.

Simultaneous Communication: Simultaneous communication is a technique that can be used with MCE. The person signing speaks and signs at the same time. The person listening and watching uses speech reading, hearing, and MCE or CASE to understand what is being said.

Natural gestures:

Natural gestures are body movements and facial expressions that you often use to help others understand your message. For instance, if you want to hold a child, you can simply stretch your arms towards the child. Or, when you put your index finger over your mouth and nose you are telling someone to be quiet. These are examples of natural gestures.

1.8 Let Us Sum Up

Regardless of culture, children around the world with untreated hearing loss tend to experience:

- problems with speech development, language, and communication skills (especially if severe hearing loss occurs at birth or before speech and language is acquired)
- emotional difficulties and low self-esteem
- learning and behaviour problems in school

Children, who have their hearing loss treated, enjoy many life benefits including:

- closer relationships with their family and friends
- better feelings about themselves and higher self-esteem
- improved mental health, greater self-confidence, independence, and security
- learning skills equal to children with normal hearing

Having a hearing loss brings with it many characteristics that affect the learning of the student. However, the hearing loss alone is not necessarily accompanied by such characteristics as visual-perceptual problems, attention deficits, perceptual-motor difficulties, severe inability to learn vocabulary and English structures, consistent retention and memory problems or consistent distractive behaviors or emotional factors. If any of these kinds of behaviors characterize the student who is deaf or hard of hearing, then an investigation into the possible influencing factors should be requested.

1.9 Check Your Progress

1. Discuss the Parent-infant programmes for children with HI
2. Discuss the goal of early intervention
3. Write notes on

- early intervention
- responsive approaches
- directive interaction
- blended approaches

4. Discuss the academic problems faced during classroom situations

5. Discuss the challenges and strategies used for late identified children with hearing loss.

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Unit -2 ❑ Auditory Learning (Auditory Verbal Therapy and Auditory Training) and Speech Reading

Structure

2.1 Introduction

Development of communication skills is the primary need of any child. There are many terms used to refer to bring about these skills in the child with hearing impairment. Among these, Audiologic habilitation, (ASHA, 1974), Rehabilitative audiology (Dyer & Frankmann, 1975) and Aural Rehabilitation (Ross, 1972, O'Neill & Dyer, 1973, Schow & Nerbonne 1980; Sanders 1982) are common. Audiologic habilitation or rehabilitation is defined as such professional efforts that are designed to help a person with hearing loss. These include services and procedures for lessening or compensating for a hearing impairment involving facilitation of adequate receptive and expressive communication (ASHA 1984 & ASHA 1982). There is a distinction between 'habilitation' and 'Rehabilitation'. 'Habilitative' treatment is applied when early onset of hearing impairment has prevented the initial development of language and other communication skills (Prelingual hearing impairment). 'Rehabilitative' treatment focuses on the restoration, the maintenance and in some cases the expansion of communication skills developed prior to the onset of hearing impairment (i.e. post lingual hearing impairment).

The main objective of this process involves assisting the persons with hearing impairment to attain full potential by using personal resources to overcome difficulties resulting from the hearing loss. There are other closely related important services for the persons with hearing impairment but distinct from audiologic habilitation or rehabilitation process. These are Medical intervention and Education of the children with hearing impairment. After thorough audiological evaluation and completion of medical treatment, aural rehabilitation is generally started. Education of the children with hearing impairment generally begins and simultaneously continues with the rehabilitation process.

Management of these conditions is dependent on the individual needs of each child with hearing impairment and these include:

1. Hearing aid selection and fitting.
2. Auditory training.
3. Speech and language stimulation.
4. Speech reading training.
5. Enrollment in proper educational setting.

A child with hearing impairment should depend upon his or her residual hearing and need to develop his auditory listening capacity to acquire verbal language skills. There is a well established relationship among hearing or auditory listening ability, language acquisition and speech development. For development of speech and language or verbal communication skills one has to depend on his auditory listening capacity. Such kind of rehabilitative management is guided by the professionals working as a Team.

The Team:

In audiologic rehabilitation process all aspects of the management are not performed by one person. In fact, professionals from several different disciplines are often involved, including Special educator, Psychologist, speech language Pathologist, social workers and rehabilitation counsellors. Nevertheless, the Audiologist is often considered the major provider of such services with specific goals as needed by the child with hearing impairment.

Goal:

Although primary and secondary prevention of the hearing loss can be initiated through different awareness and immunization programme and proper medical treatment, the major goal of aural rehabilitation is the improvement of communicative abilities in the persons with hearing impairment. Early identification, proper audiologic evaluation and management are essential to the remediation of hearing handicappedness which is dependent upon some factors.

Factors:

The important factors relating to audiologic rehabilitation include:

1. Degree of Hearing impairment.
2. Time of Onset.
3. Type of loss.
4. Auditory Speech recognition abilities.

5. Parental involvement.

1. Degree of Hearing loss: The prime factors for aural rehabilitation are the person's loss of hearing sensitivity or degree of hearing loss (vide table 1). Depending on the residual hearing along with the other factors the communication options can be selected.

	Classification	**Hearing level (dB)**
1.	Normal hearing sensitivity	0-25 dBHL
2.	Mild Hearing loss	26 - 40 dBHL
3.	Moderate Hearing loss	41 - 55 dBHL
4.	Moderately severe Hearing loss	56 - 70 dBHL
5.	Severe hearing loss	71 - 90 dBHL
6.	Profound hearing loss	91 dBHL or more.

Table 1. Classification of Hearing Sensitivity; Goodman 1965

However, the category of hearing impairment can be broadly classified into two types:

i) Deaf and

ii) Hard of hearing.

The term Deaf is used to denote any person whose auditory channel is sufficiently damaged to preclude the auditory development and comprehension of speech and language with or without amplification (Ross 1977). Generally, when hearing loss measured by pure tone average (PTA) and speech recognition threshold (SRT) are poorer than 80 to 90 dBHL, a person is considered to be audiometric deaf (Schow 1989).

Hard of Hearing : Hard of hearing child is such child with hearing loss who is more like the normally hearing child and primarily uses the auditory channel for speech and language and social development. They can be divided into two groups:

i) Hard of hearing I (HOH-I): These children with hearing loss of mild to severe degree uses their hearing aid in their daily routine and academic vocabulary fair to excellent. They sometimes use full sentence and their parents are involved with them.

ii) Hard of hearing II (HOH-II): These children with hearing loss are of mild to moderate degree and they never use amplification by any means. Their parents

are unaware about it. Their language is usable but immature. They are easily getting bored, inattentive and frustrated.

2. Time of onset: According to the onset of Hearing loss there are two categories of deaf persons:

i) Pre- lingually Deaf: These persons were either born without hearing (congenitally deaf) or lost hearing before the development of speech and language i.e. 3-5 years of age.

ii) Post lingually Deaf: These persons were those who became profoundly deaf after the age of 5 - 10 years i.e. the development of speech and language.

3. Type of Loss: Hearing impairment can be of five types: such as

i) Conductive hearing loss: damage in the outer and middle ear.

ii) Sensorineural hearing loss: impairment in the inner ear and nerve of hearing.

iii) Mixed hearing loss : Combination of conductive and sensorineural.

iv) Central auditory processing disorder (CAPD):

v) Functional hearing loss (nonorganic) or Pseudohypacusis.

Generally conductive hearing losses are treated with medical intervention whereas sensorineural hearing losses are primarily aided through audiologic rehabilitation. In case of sensorineural losses auditory speech recognition or hearing clarity is usually affected. This is also the case in difficult listening situations for those with central auditory processing problems.

4. Auditory Speech Recognition Abilities: The terms speech detection, speech discrimination or word discrimination, Speech recognition or identification and speech intelligibility are used with signal as the stimulus. It is the major goal to communicate with verbal language. The speech recognition ability in an individual who is hard of hearing typically is better than a person who is Deaf. Person who are deaf are generally considered unable to comprehend conversational speech with hearing alone whereas those who are hard of hearing can use their hearing to a significant extent for speech perception. But Ramsdell (1978) pointed out that however some minimal auditory recognition may be present in a person who are deaf even if verbal speech reception is limited; since a person may use hearing for alarming purposes or simply to maintain communication with the auditory environment. Nevertheless, auditory recognition ability and degree of hearing loss are somewhat independent.

In adult person, a mild degree of loss sometimes may be accompanied by very poor speech recognition. This is referred to as phonemic regression and is not usual in hearing loses among elderly persons who show some degree of central degeneration. Disparity in degree of loss and speech recognition ability is also possible in young persons with hearing impairment. For example, a child may be considered deaf in terms of sensitivity but not in terms of auditory recognition or educational placement. Some children with a degree of loss that classifies them as audiometrically deaf (PTA = 90+ dB) may have unexpectedly good speech recognition.

Thus speech recognition also is an important variable in describing hearing loss.

5. Parental Involvement:

The parents of the child with hearing impairment should understand the needs of the child and provide a normal happy environment in which they enjoy the activities and experiences of the hearing child. The needs for these children with hearing impairment are:

i) Regular use of the hearing aid and importance of improving listening.

ii) Effective speech and language stimulation.

iii) Training of the other senses like vision and tactile to aid learning.

Parents should help the child with hearing impairment to accept the hearing aid and taking care of it in terms of checking and maintenance. They can provide Role model to the child for speech and language stimulation and create an optimal listening environment and carrying out activities at home that will facilitate good listening habits. All the daily events which create sounds can be converted into listening activities. Parents provide the child various opportunities for language stimulation and make every daily routine activity into an interesting language learning experiences. Parents must speak to their child naturally and clearly. They can create every opportunity to present meaningful language to the child. Mother can talk on behalf of the child as well as herself. They can play, sing and dance with the child and encourage the child to talk and explain when he attempts to express himself. They can involve other siblings in various activities and play with noise making toys. Parents can give children opportunities for sorting, making various objects, feeling the objects and guessing them. These activities also provide ample opportunities to the child with hearing impairment to learn language auditorily for mainstreaming.

2.2 Objectives

The primary objectives of Auditory Learning is -

1. to use their even minimal amounts of amplified residual hearing.
2. to listen to speech and learn to speak using their amplified residual hearing.
3. to grow up in regular learning and living environment through developing the ability to listen to and to use communication with their family and mainstream community.
4. to develop personality and emotional adjustment.
5. to open up vocational opportunity.

2.3 Concept of Auditory Listening: Unisensory and Multisensori approaches:

2.3.1 Human communication System:

In prehistoric period human being used to vocalize or signing with his fingers or made marks on sand or caves to share their thoughts with others. With the evolution of the auditory system human being developed and refined their communication system. The structure of language is unique to the human beings although researchers have demonstrated that signed symbols and other visuals language forms can be taught to chimpanzees and believe that the beginnings of true language are evidence in these primates (Gardner and Garner,1969; Premack and Premack, 1972; Savage- Rumbaugh et. al. 1980).

Today we possess the most advanced communication system among all creatures of the universe because we have developed the auditory system and vocal mechanism through which language is customarily learned and communicated. The interdependence of the ear and speech is found in the direct relationship between the frequencies that make speech intelligible and differential sensitivity of the human ear which is most sensitive precisely at the frequencies of speech.

The human baby appears to be born with "preexistent knowledge" of language - specialized neural structures in the brain that await auditory experience with language to trigger them into functioning. These structures which are termed as Language acquisition device (Chomsky, 1966) which is dependent on auditory stimulation for

their emergence provided all other factors are normal. The auditory linked acquisition of language is further unique to human beings because it is a time locked function related to early maturational periods in the child's life. The longer the auditory language stimulation is delayed, the less efficient will be the language facility. The reason is that critical periods exist for the development of biologic functions and language is one of the biologic functions of humans (Chomsky 1966, Lenneberg 1967).If a child is deprived of language stimulation in his critical age period they will never attain his or her best potential language function due to hearing impairment or lack of language experience.

Therefore, it is urgent to prevent the hearing problems of children with all skills and knowledge. The prevention of hearing loss in children protects the right of children to their essential humanity which lies in optimal language function.

2.3.2 Communication Model:

Generally the ability to communicate meaningfully has been considered a prime factor in differentiating humans from other forms of life. Human communication can take a variety of forms, involving the conveyance of various stimuli to one or more of our sensory modalities. The form of communication most often used to express oneself, oral communication, involves utilization of speech. This creates an extraordinary dependence on the sense of hearing in order to receive and perceive adequately the complex network of auditory stimuli which comprise speech. The sense of hearing, therefore, is crucial to the process of verbal communication.

Most of the time we are dependent on our ability to receive and interpret auditory stimuli presented during oral communication, though a portion of the communication that normally takes place between individuals is nonverbal as gestures, sign, facial expression etc. Successful oral communication involves a number of key components that originate with a source or speaker who has both a purpose for communication and the ability to properly encode an articulate the thought to be conveyed. The actual thought to be expressed is termed as message which is made up of auditory stimuli organized in meaningful linguistic units. Visual cues are also provided by the speaker in conjunction with the production of the auditory message. An important component of the encoding process is the feedback mechanism, made up primarily of the auditory system of the speaker, which makes it possible to monitor and if need be, correct the accuracy of the intended message. The communication situation in which the message is conveyed is referred to as the environment. The final major component of the communication process is the receiver or listener who is charged with the responsibility of receiving and properly decoding and interpreting the speaker's intended thought.

The basic components of the oral communication process and their sequence are found in figure 1. All the major components are equally important in accomplishing the desire end- communication. Disruption or elimination of any one part may result in partial or complete failure of the communication process.

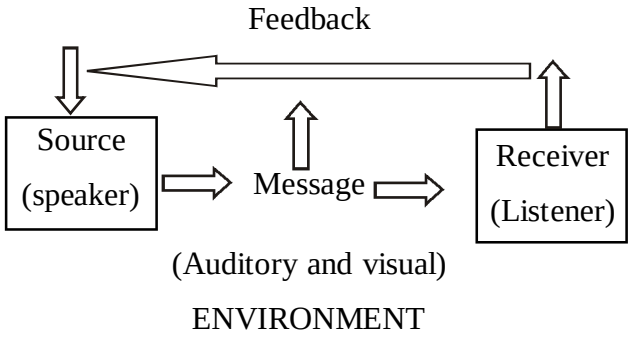

Figure 1. A simple oral communication model.

2.3.3 Auditory Perception: Unisensory Approach

Our ability to communicate verbally with others depends to a great extent on the quality of our auditory perception of the various segmental (individual speech sounds) and suprasegmental (stress, rate, rhythm, intonation) elements that comprise speech. Auditory perception of speech and nonspeech signal involves only one sensory system i.e. Hearing or auditory system. Therefore, it is called as unisensory (uni means single) approach of auditory perception.

Perception of Non-speech Stimuli:

In terms of signal processing the human auditory system has sophisticated perceptual capabilities though it is limited, to some extent, in terms of the signals it can process. Optimally, the normal human ear is capable of perceiving auditory signals comprising frequencies between about 20Hz and 20000Hz. Stimuli made up entirely of frequencies below and above these limits cannot be detected. Intensity limits vary as a function of the frequency of the auditory signal. The maximum range of intensity we are capable of processing occurs at 3000 - 4000 Hz. and varies from about 0-140 dBSPL. Signals with intensity less than 0 dBSPL are generally not perceived; in contrast, signals in excess of 140 dBSPL produce the sensation of pain rather than of hearing.

In addition to the detection of acoustic signals, the human ear is also able to discriminate different stimuli on the basis of only minor differences in their acoustical properties.

Our ability to discriminate differences in auditory signals has based around three parameters of sound; namely, frequency, intensity and duration. Results of such investigations have revealed a complex interaction among these variables. Thus, our ability to discriminate changes in the frequency, intensity or duration of a signal is influenced by the magnitude of each of the other factors. Stevens and Davis (1938) estimated that the normal ear is capable of perceiving approximately 340,000 distinguishable tones within the audible range of hearing. This total number was based only on frequency and intensity variations of the stimuli and it suggests that our auditory system have amazing discrimination powers.

Perception or Comprehension of Speech:

The organization and production of the segmental and suprasegmental elements of speech into a meaningful oral message by the speaker and the accurate reception of this dynamic signal by the listener represent a highly complex, sophisticated process. However mere reception of the speech stimuli by a listener does not result in proper perception of the message. Speech perception implies understanding and comprehension and the reception of speech signals by the auditory mechanism is only a first step in its perception.

In its most basic form, the perception or comprehension of speech may be thought of as involving a number of components. Among these are:

DETECTION : This aspect of auditory perception involves experiencing the awareness of sound. Our ability to detect speech is influenced by our hearing acuity and the intensity level of the speech signal.

DISCRIMINATION : Speech discrimination refers to the ability to distinguish among the individual speech stimuli (phonemes, syllable etc.) of our language. How accurately we perceive the individual elements of speech I is relevance.

IDENTIFICATION : The ability to identify or label what one has heard by repeating pointing to or writing a word or sentence.

ATTENTION : A fundamental ingredient in the perception of speech relates to attending to or focusing on the speaker and the message being conveyed. The degree and quality of the listener's attention will influence how well speech is perceived.

MEMORY : A key component in speech perception is the ability to retain or store verbal information for relatively brief periods or in some instances, extended lengths of time. Memory is also fundamental to other components of speech perception and enables us to combine individual speech units for the purpose of deriving meaning from an entire verbal message, rather than from each individual unit of the message.

CLOSURE: The speech elements which are received properly discriminated and retained for further processing must be brought together into a meaningful whole. This is a difficult task at best, but when we do not adequately receive all the contents of verbal message, as often occurs with a hearing loss, closure can still occur through a process when missing information is deduced by the listener on the basis of the available context.

SPEECH PERCEPTION AND HEARING LOSS

The persons with hearing impairment cannot perceive the speech signal as they are not able to receive and process the coded acoustical information of the speech signal like the person with normal hearing. The effects of different physical properties of speech, redundancy and constraints on speech perception have an effect on their perception of speech.

Physical properties of Speech:

Speech contains energy from roughly 50 - 10000 Hz and is normally presented at average intensity levels of around 45 dBHL; it is well within the sensitive range of the normal human ear. But person with hearing impairment cannot do so. No longer are the intensity and frequency ranges of the impaired ear always sufficient to provide total perception of the speech signal. One or both of these stimulus parameters may be limited such that it becomes difficult to hear specific speech sounds adequately for identification of speech sounds.

For vowel perception, Owens, Benedict and Schubert 1971 studied that most persons with hearing impairment experiences only minimal difficulty. Specifically, they found that the vowel phonemes /e/ and /o/ were found to have the highest probability of error. Only when the degree of impairment is severe to profound does the perception of vowels become significantly altered (Erber, 1979).

Consonant perception is more difficult for the person with hearing impairment. Owens (1978) found phonemes such as /s/, /p/, /k/, /d/, and /th/ to be among the most frequently misarticulated by adults with sensorineural hearing loss. He also found that they have more discrimination problem in phonemes in the final position of word than in the initial position. The most common errors in consonantal phonemes discrimination occur with the place of articulation feature (Boothroyd, 1978; Byers 1973, Owens 1978) followed by the manner of articulation. Errors in the perception of nasality and voice among consonants are generally far less frequent.

Regarding perception of consonants, Owens et al. (1972) examined the relationship between the configurations of the audiogram and the specific consonant perceptual errors made by a group of persons with hearing impairment. The /s/, /S/, /tS/ /dz/, /t/ and /th/ in the initial position only were found to be difficult for listeners with slopping audiogram configurations. The authors also noted that these phonemes became increasingly difficult to hear accurately as the steepness of the slopping high frequency hearing loss increased. Correct recognition of /s/ and the initial /t/ and /th/ were found to be closely related to hearing sensitivity above 2000Hz whereas perception of /s/, /ts/ and /dz/ was very dependent on sensitivity between 1000Hz and 2000Hz. These findings point out the crucial role of hearing sensitivity in these frequency region plays in the perception of several consonant phonemes. Authors pointed out that these information concerning phoneme errors is useful in establishing audiologic rehabilitation strategies for persons with hearing losses of this type.

Redundancy and Noise:

The perception of speech is a highly complex process that involves more than the acoustics of speech or the hearing abilities of the listeners, even though these are important variables. For oral communication to be successful, sufficient information must be present in the message of interest for it to be perceived. The amount of information available for a given communication situation is closely associated with the concepts of redundancy and noise. The degree of redundancy in oral communication varies from one expression to the next, so the extent to which a listener can predict what was said will also vary. Basically, the more redundant a message, the more readily it can be perceived by the listener, especially in difficult listening situations. A number of factors present in a given communication situation can influence the amount of redundancy.

Among the many factors associated with the redundancy or predictability found in conversational speech for the listeners to use for perception are structural, semantic and situational constraints. Structural constraints relate to the predictable manner in which linguistic units are chained together according to the rules associated with a particular Language. The selection and use of phonemes and words in an utterance are strongly influenced by these rules, making it easier for the listener to predict what is to follow after having heard only the initial portion of the sentence. Such syntactic clues can be used in conjunction with another factor related to redundancy, namely semantic constraints to be used based on the general semantic content of the expression. When the topic of conversation is food, for example, the listener can expect to hear a rather restricted range of vocabulary peculiar to that particular topic. Use of this small range

of words will increase the redundancy in what is said. Situational constraints also create redundancy. Our conversational partner, the location of the conversation, the time of the day it takes place and other similar factors all influence what we say and how we say it, which can make conversational speech somewhat predictable. All of these types of constraints, along with other factors collectively produce the redundancy that makes the perception of speech easier for us all.

Noise in oral communication refers to a host of factors that can actually reduce the amount of information present for the listener to use. In this context, "noise" refers to a variety of variables that can be counterproductive to communication, not just competing auditory noise associate with oral communication worth which the listener must contend. Each of these factors may reduce the amount of information in a spoken message, thus reducing the amount of redundancy or predictably which is available for the listener to use in perceiving speech.

Thus the degree of information available for the listener to use in perceiving a message is influenced in a positive or negative manner by a number of related variables that are part of oral communication. For the listener, particularly one with hearing impairment, the importance of each of these variables to the process of speech perception cannot be overstated.

2.3.4 Visual Stimuli in Communication:

During conversation we tend to rely primarily on our hearing to receive and subsequently comprehend the message being conveyed. In addition, given the opportunity, we look at the speaker in order to obtain further information related to the topic of conversation. The speaker's mouth movements, facial expressions and hand gestures as well as various aspects of the physical environment in which the communication takes place, are potential sources of useful information. Humans beings learn to use their vision for communication to some extent, even though most of us enjoy the benefits of normal hearing and find it unnecessary in most situations to depend on vision to communicate effectively.

The person with hearing impairment on the other hand is much more dependent on visual cues for communication. The degree to which persons with hearing impairment need visual information when conversing is proportional to the amount of information that is lost due to hearing impairment. In other words, a person with a severe hearing loss is likely to be more dependent on visual information to communicate than an individual with a mild auditory impairment.

Visual information may be transmitted by means of a manual or an oral communication system. In oral communication, the listener uses visual cues by observing the speaker's mouth, facial expressions, and hand movements to help perceive what is being said. This process is referred to as many terms, such as lip reading, visual hearing, visual communication, visual listening and Speech reading. These terms seem to imply the use of only visual cues for purpose of identifying various articulatory gestures. However, since the use of vision for communication involves more than watching the speaker's mouth, it is preferably called as Speech Reading which is called by the lay person as Lip reading. When the speech reader uses tactile cues for speech perception by placing the fingers and hand on the speaker's lips, face and neck, it is termed as TADOMA. This method has proven successful with some individuals with both deaf and blindness (Reed, et al., 1985).

Manual communication or "Sign Language" also depends on a visual system. Manual communication is transmitted via special signs or a symbol made with the hands and is received visually. This complex form of communication allows for transfer of information via the visual when both the sender and the receiver are familiar with the same system of symbols.

2.3.5 Multisensory Approach of Speech Perception:

Apart from hearing sensitivity, some parts of speech can be perceived by other sense organ like vision and tactile. Multisensory means inclusion of more than one sense organ. Therefore the approach which includes other sense organ for perception of speech is termed as Multisensory approach. It can be included in the second major classification of oral methods named as auditory-visual-oral (AVO) methods. In AVO programs emphasis remains on auditory stimulation, with the addition of training in lipreading and presentation of language in print, either through natural approaches or structural approaches.

Some individuals categorized Finger spelling under multisensory oral approaches. The use of finger spelling has been incorporated into many different names including Visible speech and Rochester method.

2.4 Audotory Training: Importance, Types and Stages

The major component of the audiologic rehabilitation process has been considered as Auditory training which is actually a systematic training of the residual hearing for the improvement of auditory abilities of the person with hearing impairment.

Definition: Numerous attempts have been made to define auditory training in the past. The most commonly referred to definition of Auditory training is attributed to Carhart (1960).According to him Auditory training refers to the process in which hearing impaired persons learn to take full advantage of sound clues still available to him. According to McCarthy and Alpiner (1982) Auditory training can be defined in terms of three (3) activities:

i) Learning to recognize auditorily those speech sounds which are incorrectly discriminated.

ii) Improving adjustment to learning aid fitting.

iii) Recommendation for strategies or assistive devices to resolve the client's specific situational communication problem.

Erber (1982) described Auditory training as the creation of spectral communication conditions in which teachers and audiologist help the children with hearing impairment acquire many of the auditory perception abilities that normally hearing children acquire naturally without professional intervention.

2.4.1 Importance of Auditory Training;

The primary goal of Auditory training is usually to maximize receptive communication ability by using audition. Achieving this basic goal can result in other important achievements;

i. It improves listening skills of the persons with hearing impairment.

ii. Learning to maximize the use of auditory and other related clues available for the perception of speech.

iii. Adjustment, acceptance and orientation to facilitate the optimum use of amplification such as hearing aids, cochlear implant and tactile devices.

iv. It creates better understanding of the spoken language and improves Speech and Language and communication skills with better clarity.

v. Increase tolerance for loud speech and environmental sounds.

vi. The training creates Educational and vocational advancement

vii. Successful psychosocial coupling and orientation to the hearing world.

viii. To improve dynamic range of hearing.

2.4.2 Different approaches of Auditory training:

The earliest efforts in Auditory training date back to the 18th century. Throughout the 1800s, European used auditory training with the persons with hearing impairment and noted success in some cases. Influenced with their achievements Goldstein (1939) introduced the Acoustic method which is centered around systematic stimulation with individual speech sounds, syllables, words and sentences to improve speech perception and to aid deaf persons in their own speech production.

Early applications of auditory training were directed almost exclusively toward children with severe to profound hearing loss in a deaf education setting. In recent times, however use of auditory training has been expanded to include those with less severe impairments, as well as the inclusion of auditory training activities in the rehabilitative management of the hard-of-hearing adults and children. With the improvements of hearing aids and cochlear implants, growth in the use of auditory training increased following World War II and the interest shown by Audiologists in maximizing the use of residual hearing in persons with varying degree of hearing loss as a part of the audiologic rehabilitation process. Therefore all approaches can be divided into two categories:

I. Traditional Auditory training Methods:

Wedenberg Methods: Wedenberg (1951) described a systematic process of auditory training which serves to exploit whatever residual hearing a child possesses. This approach is a unisensory approach as speech reading does not consciously emphasized until the child developed a proper listening attitude. The preliminary efforts in this auditory training program were therefore directed towards increasing the child's attention to both environmental and speech sounds at an early stage. Wedenberg introduced 'ad concham amplification' - which involves speaking directly into the child's ear at a close range rather than having the child use a hearing aid. This type training also included exercises which helped the child with hearing impairment become aware of and attend to sound at increasing distances. Vowels and voiced consonants whose formants were thought to be within the hearing impaired child's audible range were presented in isolation. Syllables were used in a variety of formal therapeutic activities, as well as informal settings at home. Combining individual vowels and consonants learned in isolation resulted in perception of a limited number of words. At this point, Wedenberg advocated part time use of hearing aid. Later, training progressed to short sentences formed by words already recognized by the child acoustically. Here speech reading could be utilized by the child to supplement the information derived through the auditory channel. Wedenberg's method, then was directed toward development of auditory, speech

and language skills in children with either a congenital or prelingual hearing loss of severe to profound proportions. In these respect it was similar to other auditory training methods proposed by Goldstein(1939), Whietehurst (1966), Watson (1961) and others. However his emphasis on management of the deaf child made Wedenberg's rehabilitative methods unique.

Until World War II, the primary focus of auditory training was its use with severely / profoundly deaf children in effort to facilitate speech and language acquisition and increase their educational potential.

Carhart Auditory Training Programme

Raymond Carthart (1960) was among the earlier audiologist to develop auditory training for both children and adults and continued to expand auditory training after world war II. Carhart made one of the first extensive attempts to describe the role of auditory training in audiologic rehabilitation. His auditory training program is based on the belief that in case of pre-or perilingually hearing impaired children, since listening skills are normally learned in early life, the child may not move through the normal developmental steps important in acquiring these skills. In case of adults, when a hearing loss occurs, the auditory skills may become impaired even though they were intact prior to onset of hearing.

CHILDHOOD PROCEDURE: Carhart viewed auditory training for children as an aid in:

- Developing a command of language.
- Instructing the child to speak.
- Encouraging better adjustment to the hearing world.

Carhart auditory training outline for children consisted of four major stages of development.

Stage 1. Development of Awareness of sound.

Stage 2. Development of Gross sound discrimination

Stage 3. Development of broad discrimination among simple speech patterns.

Stage 4. Development of finer discrimination for speech.

Stage 1. Awareness of Sound: The major goal of this stage is to recognize the presence of sound and attending to it with its importance in the child's world. The

child's attention is focused on loud sounds which he is likely to encounter in everyday situations.

Stage 2. Gross sound Discrimination: This stage involves demonstrating with various noise makers that sounds differ. The main aim is to differentiate auditory signals that grossly differ produced by noise makers like bells, drum, tumbler, cymbals, horns, whistles etc. Special attention is given to developing the child's ability to perceive finer types of discrimination task that include variation infrequency, intensity, duration and sound composition of stimuli used.

Stage 3. Broad Discrimination among simple speech pattern: The child moves to this stage only when he has demonstrated skill in recognizing the presence of sound and perceiving gross differences between environmental signals (non verbal stimuli). Here the activities are directed towards learning gross discrimination from speech signals. The child is trained to distinguish differences between vowel sounds with grossly dissimilar phonetic elements (i.e. /u/ vs /i/) and between short phrases which are closely related to everyday experiences such as 'wave bye- bye" and "where's mommy?"

Stage 4. Fine discrimination of Speech: This is the final stage which focuses on repeated drills which train the child to recognize subtle differences between similar vowels and consonant sounds as well as integrating his expanding vocabulary to permit quick and accurate understanding of speech.

ADULT PROCEDURES: As the adult person with hearing loss retains a portion of their original auditory skills, Carhart recommended that auditory training with adult focus on re-educating a skill diminished as a consequence of the hearing impairment. Initially, Carhart felt that it was important to establish "an attitude of critical listening" in the individual. This involves being attentive to the subtle differences among sounds and can involve a considerable amount of drill work on the perception of phonemes that are difficult for the adult with hearing impairment to perceive. List of matched syllables or words which contain the troublesome phonemes, such as 'she'-'fee', 'so'-'tho', 'met' - 'let' or 'mash' - 'math' are read to the individual, who repeats them back. Such training should also include phrases and sentences with the goal of developing as rapid and precise a recognition of the phonetic elements as is possible within the limitations imposed by the person's hearing loss. Speech reading combined with a person's hearing was also encouraged by Carhart during a portion of the auditory training sessions.

Carhart recommended auditory training sessions for adult should be conducted in three situations as follows:

i) Relatively intense background noise.

ii) The presence of a competing speech signal

iii) Listening on telephone.

According to Carhart the use of hearing aids is vital in auditory training and he recommended that they be utilized as early as possible in the auditory training programme.

ERBER (1982) APPROACH:

A flexible and widely used approach to auditory training was designed and described by Erber primarily for use with children. This adaptive method is based on a careful analysis of a child's auditory perceptual abilities which takes into account two major factors:

1. The complexity of the speech stimuli to be perceived (ranging from individual speech elements to connected discourse) and
2. The form of response required from the child i.e.

i) Detection of sound,

ii) Discrimination of sound,

iii) Identification of sound and

iv) Comprehension of sound.

Once the child's auditory capabilities are determined, an auditory training program is outlined by establishing goals and beginning points for therapy. Erber also described three general styles which the clinician may use during auditory training, depending on the communication setting.

1. Natural conversational Approach: This approach describes as

I. The teacher eliminates visible cues and speaks to the child in as natural a way as possible, while considering the general situational context and ongoing classroom activity.

II. The auditory speech perception task may be chosen from any cell in the stimulus response matrix, for example sentence comprehension.

III. The teacher adapts to the child's responses by presenting remedial auditory task in a systematic manner derived from any cell in the matrix.

2. Moderately structured Approach:

I. The teacher applies a closed set auditory identification tasks, but follows this activity with some basic speech development procedures and a related comprehension task. Thus the method retains a degree of flexibility.

II. The teacher selects the nature and content of words and sentences on the basis of recent class activities.

IV. A few neighboring cells in the stimulus response matrix are involved (for example, word and sentence identification and sentence comprehension)

3. Practice on specific tasks:

I. The teacher selects the set of acoustic speech stimuli and also the child's range of responses, prepares relevant materials, and plans the development of the task- all according to the child's specific needs for auditory practice.

II. Attention is directed to a particular listening skill, usually represented by a single cell in the stimulus response matrix (for example phrase discrimination).

Recent Approaches to Auditory Training

The basic intent of auditory training is to maximize the communication potential by developing to it's fullest the auditory channel of the person with hearing impairment. The current approaches to auditory training vary considerably. According to Blamey and Alcantara (1994) it is possible to categorize them into four general categories, based on the fundamental strategy stressed in therapy.

ANALYTIC APPROACH: This approach attempts to break speech into smaller components like phoneme, syllable and word and incorporates these separately into auditory training exercises.

1. SYNTHETIC APPROACH: It emphasizes a more global approach to speech perception, stressing the use of clues derived from the syntax and context of a spoken message to derive understanding. Training synthetically involves the use of meaningful stimuli (words, phrases and sentences).

2. PRAGMATIC APPROACH: It involves training the listeners to control communication variables such as the level of speech, the signal to noise ratio and the context or complexity of the message in order to obtain the necessary information via audition for understanding to occur.

3. ECLECTIC APPROACH: It includes training that combines most or all of the strategies previously described.

Any auditory training programme must have analytic, Synthetic or pragmatic tendency which can be learnt described as electic since more than one general strategy for the training of the hearing channel typically is used with a given child or adult.

Individual and Group Auditory Training

Auditory training conducted with a single person with hearing impairment is called as Individual auditory training and the training session conducted with more than one person or in a group with common problems is termed as Group Auditory training. There is some advantages and disadvantages of both individual and group auditory training.

Oyer (1966) has cited many advantages and disadvantages of individual therapy

Advantages of Individual Auditory Training :

1. Audiologists have more time with the client for repeated trials.
2. They have better situations in which to discuss adjustment problems.
3. Here a close personal contact between the hearing therapist and the hearing impaired child exist.
4. The therapist can give the child personal attention for long period of time.
5. It is easier to plan auditory training session's materials and activities.
6. Surrounding environment will be quiet and relatively free of distractions.
7. Easy to attract and maintain one child's attention as he is within arm's length.
8. Signal to noise ratio is improved.
9. It allows the teacher to maintain objects.
10. It may possible to solve perplexing auditory problems that otherwise might take weeks to diagnose and or resolve.

Disadvantages of Individual Auditory Training: as Oyer cited as:

1. Lack of peer evaluation.
2. No psychological support from peers.
3. No opportunities to compare and contrast individual efforts with others.

4. No opportunity to perform socially in a practice environment.
5. Expensive way to teach for long periods of time to an individual.
6. It is exhaustive for both teacher and the child.
7. In this set up fearful children have problems.

Advantages of Group Training;

1. In a Group Auditory training sessions child with hearing impairment learns-

i) Sense of cooperation.

ii) The importance of keeping quiet while someone else is listening,

iii) How to behave socially during an interactive group conversation.

2. Here children with impairment can help one another, by offering suggestions, prompts, strategies or encouragement that might not be as motivating if providing by the teacher also.
3. It can simply an interactive teaching in some situations, during a breakdown in communication, the teacher may have more options, such as requesting a responsive from another child if persistent difficulty occurs.
4. Shy persons improve their personality in this system.

Disadvantages of Group Auditory Training:

i) In a group auditory training the homogeneity of the group is questionable. The children with hearing impairment differ in their degree of impairment, type of hearing loss, Age of onset, presence of other disorders , parental cooperation etc. Therefore, if a group is not homogeneous, a child's performance can be influenced by another child's activity.

ii) Individual attention cannot be given in this type of training session.

2.4.3 Stages of Auditory Training

Hirsch (1966), Ling (1976) and Erber (1982) promoted step by step Traditional approach. The stages of the auditory training is described below

1. Awareness or Detection of Sound :

It is the basic process of determining whether the sound is present or absent. Child can be taught to associate the sound and its source. It helps to remain in contact with the surrounding acoustic world.

Administration Procedure:

- The child should be instructed to raise the hand when a sound is heard or keep a peg on the ear and put it in a box.
- The child can be given practice for doing this with the teacher sitting in front of the child at a distance of 3feet.
- Each sound should be given at conversational level and with mouth covering position. Visual clue may be provided.
- If the child is unable to hear the sound from 3 feet distance, present the sound from near the child's ear.
- If the child hears all the 6 sound from 3 feet go to a distance of 5feet and administrate the sound.
- Note the result of each case.

2. Discrimination of Sound:

In the second stage of auditory training the children with hearing impairment have to perceive the difference between sounds in terms of acoustic qualities, intensities and duration.

Administration procedure:

- By presenting two or three sounds one after another and the child has to say whether they are 'same' or 'different'.
- Begin with the sounds that are very different from each other and then go step by step to sounds which differ more finely from each other.

3. **Identification of Sound:**

This stage involves labeling or naming of what has been heard. Identifying a sound by pointing to the sound, pointing to a picture associated to the sound, pointing to a written word or sentence or repeating whatever is heard. Identification of speech stimuli is related to the child's developing awareness that objects have names and these names have acoustic representations.

Administration Procedure:

Child has to indicate which sound he/she heard. This could be done by getting the child to point out to the sound written on paper or by repeating it if the child can say all sounds.

If the child has not yet learned to read, toys or pictures depicting the sounds can be used as:

- A train sound for the sound / u/.
- A baby doll crying for / a /.
- A car for the sound / i /.
- An aeroplane for / m /.
- A snake for / s / sound.
- A pressure cooker sound for / S / sound.

4. Comprehension of Sound:

It is the final stage of auditory training which involves understanding the 'meaning'. It depends on language skills. It implies that the child can acquire new information through hearing and can act appropriately on that basis. This programme incorporates 'speech' as a stimulus. All the children may not reach the 'comprehension 'level but the teacher should train their residual hearing allows.

Administration procedure: Activities can be

- Picture description.
- Following directions: use any activity where the child must follow instructions. E.g. Drawing two cows sitting under tree.
- Conversation: Engage the child with conversation relevant to the topic.
- Story with comprehension questions: Tell the child a story and then ask questions about the story.

2.5 Auditory Verbal Therapy

Auditory verbal therapy is the application of techniques, strategies, conditions and procedures which help in the acquisition of spoken language through major focus on listening to the children with hearing impairment. It is a way of guiding parents to teach their children with hearing impairment to develop spoken language by stimulating their residual hearing.

The Auditory verbal approach helps children with hearing impairment learn to listen. Their speech and language skills are allowed to develop in a natural way following normal developmental stages. "The goal of auditory-verbal practice is that children

who are deaf or hard of hearing can grow up in regular learning and living environments enabling them to become independent, participating, and contributing citizens in mainstream society." (from Auditory Verbal International, Inc, 1987 : position statement)

2.5.1 Principles:

The main principles of the Auditory verbal therapy is as follows

- Use of one sensory channel i.e. Auditory ONLY (No lip reading).
- Detection of hearing impairment as early as possible.
- To ensure that medical and audiological management is thoroughly completed, including selection, modification and use and maintenance of appropriate hearing aid / Cochlear implant.
- To support children's auditory verbal development through One to One therapy.
- Family involvement must be present as they are the primary models for spoken language.
- To wear the aid ALL DAY EVERY DAY.
- Using natural sequential patterns of listening, speaking, spoken language and cognition to stimulate natural communication.
- To help children integrate listening into their development of communication and social skills. The ultimate goal is a well adjusted person who uses listening and speaking to successfully interact with other at home and school in the community and in the world.
- Ongoing evaluation of progress to ensure that the Auditory Verbal Approach is appropriate and through diagnostic intervention, modify the programme when needed.
- To help those children monitor their own voices and the voices of others in order to enhance the intelligibility of their spoken language.
- To provide support services to facilitate the children's Inclusion or integration into regular education classes.

2.5.2 Importance of Auditory Verbal Therapy

Auditory Verbal Therapy encourages the maximum use of hearing in order to learn language and stresses listening rather than matching. Young children with hearing

impairment even with minimal amounts of amplified residual hearing can be taught to use. In this kind of therapy, children with hearing impairment can grow up in regular and learning environment.

Stages of Auditory development :

- Sound Awareness
- Association of Meaning to Sound
- Imitation and Expansion.
- Comprehension: Effective Responses to Language.

2.5.3 Role of a Teacher

A teacher of a child with hearing impairment is also a team member of the intervention process with Auditory verbal therapy method. Next to the parents a child with hearing impairment spends most of the time with his / her teacher. The special teacher may guide his/her student at the classroom, in their home or in different extracurricular activities.

In Auditory Verbal therapy method the child has to listen with his amplification device and speak what he learns. Therefore, the teacher should follow the aural oral method of communication in the classroom and follows the principles of oralism during his / her class.

In the beginning of the classes the teacher should check the individual or the group hearing aid or the implant as the aid functions properly for the child. If there is problem in the aid he/ she should immediately refer them to the audiologist. The teacher should follow the recommendation of the audiologist or Speech Language pathologist for communication i.e. the teacher's advice will be always verbal. Not a single nonverbal cue will be given to child for their understanding. As such they should also counsel the parents as to communicate with the child verbally only. The teacher also guides the student's friends and peer group to talk orally among themselves.

The teacher may follow the following activities of the auditory verbal therapy in the classroom:

- At first presentation of auditory stimulus.
- Auditory attention: signal "listen"
- Provide uncluttered listening space

- Acoustic highlighting
- Use visual clarifiers
- Speak slowly
- Allow processing time

Those children with hearing impairment follow the instruction of the teacher, they can learn verbal language and can include in the mainstream society.

2.6 Auditory Training and Auditory Verbal Therapy

The basic principle of the Auditory Training and the Auditory Verbal therapy is same. As the child with hearing impairment must have to learn to listen auditorily and to speak orally only. In both training sessions the use of amplification devise is must.

2.6.1 Prerequisites

For success in Auditory training and Auditory verbal therapy the child with hearing impairment must have the following prerequisites.

1. Early Identification: Early detection of hearing loss and early intervention of the disorder is must for Auditory training and auditory verbal therapy for the use of critical age period.
2. Proper Amplification Device: The child should use the proper hearing aid and or any other amplification device like cochlear Implant.
3. Adequate residual hearing: The child will learn to listen and speak through maximizing their residual hearing with amplification technology.
4. Parental cooperation: Parent participation is vital to the success of Auditory-Verbal Therapy for two reasons: parents are the natural teachers of their child's language and the parents are always with their child so can be constantly encouraging language development.
5. Proper Audiological management- There should be good coordination among professionals of the Rehabilitation team with skilful therapist and parents.
6. Child's Intelligence and learning style.
7. Listening to speak: The child learns to speak through listening to natural sounding speech. Correct spoken models of language are crucial to teaching the child to monitor his/her vocalizations. Visual cues are not encouraged.

8. Assessment: Monitoring and evaluating the development of listening skills as an integral part of the development process.
9. Integration result: Appropriate amplification and Auditory-Verbal Therapy enables children with a hearing loss to develop auditory receptive skills (understanding language) in the short term that will translate via medium outcomes, such as attending mainstream school, into greater social independence and quality of life.
10. Presence of other prerequisites of normal speech and language development like i) Neuromotor Maturation, ii) Sensory Perceptual ability, iii) Physical and Emotional development, iv) Cognitive development and v) Communicative environment.

2.6.2 Challenges

It is a huge challenge for the Rehabilitation professionals to have success in auditory training and Auditory verbal Therapy for the children with hearing impairment. There are many factors or challenges which play role in its success.

i. Aspects related to Early Identification and Intervention: Those children with hearing impairment identified and fitted with hearing aid before the age of 6th month perform better in auditory training and Auditory verbal therapeutic task than those who are intervened after their 6th month of age. If intervened early they can utilise almost full critical age period like normal hearing children and can achieve the normal speech and language if the other factors play positive role to them.
ii. Factors related to Degree of hearing loss: The amount of residual hearing is a factor for achievement in auditory training and auditory verbal therapy. The more the hearing loss, the more the problem to have normal speech through auditory training and auditory verbal therapy.
iii. Use of Amplification device: The better use of amplification device, the better will be the prognosis of verbal development of the children with hearing impairment. Using binaural digitally programmable hearing aid is abetter option than the analog hearing aid. Hearing impaired child with cochlear implant also has better performance than the children fitted with hearing aid.
iv. Motivation: It includes motivation of teachers, parents and the child too. As without motivation the teacher could not be able train the child with hearing impairment for auditory training and auditory verbal therapy. Teacher should motivate parents to play active part in the training process.

v. Cooperation between the teacher and the Parents or the caregiver: parents must follow the advice of the teacher for the training or therapy and practice the skill at home with the child. There should be a healthy cooperation between the child and the parent for positive development of speech and language.

vi. Opportunity to practice and use learned skills: When a new skill is taught, it should be practiced before the skill can become generalised. In order to do this, the teacher and parents should create situations in which a newly learned skill can be practiced. Practice sessions should be distributed throughout the day so that the child does not get fatigued.

vii. Establishment of Proper habit: The child must be taught to pay careful attention to sound. It is great challenge for the audiologist to establish proper habit to attend to all sounds of the environment and act accordingly.

viii. Methods used by the teacher: Approach of training and the therapy should be appropriate for the level and expectation of the child. Within therapy session use of games and activities may interest the child.

ix. Health and emotional state of the child: Before fitting of the aid or cochlear implant the health and emotional state of the child should be checked and then the prosthesis can be fitted and auditory verbal therapy can begin.

2.6.3 Similarities and Differences

Auditory training as a set of procedures aimed at helping the aurally handicapped become more proficient in attending to the sounds of speech, discriminating one from the another and effecting on increase in retention of sounds (Kelly 1953).

According to Alpiner 1978, Auditory training consists of three facets:

i) Discrimination of individual speech sounds

ii) Hearing aid Orientation.

iii) Improvement of tolerance levels.

Whereas Auditory-verbal therapy is a method for teaching deaf children to listen and speak using their residual hearing in addition to the constant use of amplification devices such as hearing aids, FM devices, and cochlear implants. Auditory-verbal therapy emphasizes speech and listening. Auditory verbal therapy enables deaf and hard of hearing children to participate fully in mainstream school and hearing society.

It is apparent that there are no differences between Auditory Verbal Therapy and Auditory training, however if we really understand the principles of both training there is a considerable differences between the two.

Similarities

Both of these approaches have the following factors in common:

i) They aim to assist the hearing impaired child to communicate with their peers using spoken language.

ii) For either of these approaches to be successful, early identification of the hearing problem is essential.

iii) Once the problem is identified, therapy should begin as soon as possible.

iv) Hearing aids or cochlear implants are used to enhance residual hearing ability.

v) Both aim to develop spoken language as the most desirable means of living and learning in society at large.

vi) Both of the approaches exclude sign language.

vii) Both employ current technology and follow a number of similar clinical and educational programme.

Differences

There are, however significant differences in those approaches.

i) In the auditory-verbal approach, much of the focus is on speaking and sound production. The teacher uses different types of 'modeling' to show the child how to speak correctly. For example, a teacher may use the highlighting model to correct partially incorrect words or an Expansion model that fits in the gaps when a child skips a word or phrase.. But in the auditory-Training programme, the focus on listening is much more important.

ii) In the auditory verbal therapy, the family is intimately involved in the learning process, and at least one parent must attend therapy sessions so that they can learn how to continue the learning process at home. In this approach, the parent becomes the teacher. In the auditory training programme Audiologist guide the child and the parent how to listen, discriminate, identified and comprehend all the sounds of the environment.

iii) Acoustic conditions of the home are very favorable to Auditory verbal therapy. In auditory training ambient noise level should be less than speech signals because ambient noise degrades speech signal. .A clear speech is essential to learning.

iv) Auditory verbal therapy involves children in abundant intervention with normal hearing peers, but in auditory training it is not essentials.

v) Auditory verbal practice is to seek admission to regular school from the earliest possible stage. In auditory training child is trained to comprehend speech and other signals from the environment not only for trying to include or integrate in normal school but also to receive the alarming noise from the environment.

2.7 Speech Reading

2.7.1 Concept

Jacob's (1982) defines Speech Reading as 'a visual oral-language communication skills that enables a person to obtain linguistic information by watching the sequential, articulatory movements of a speaker's lips, jaws, adjacent facial musculature and facial expressions. According to Nitchie Speech reading is the act of understanding a speaker's thought by watching the movements of his mouth. There is a difference of speech reading from lip reading. Lip reading refers to the more analytical visual distinctive feature recognition process i.e. perception of visemes. While speech reading encompasses all of the other processes necessary to comprehend the spoken language.

2.7.2 Importance

Speech reading or Lip reading can be called as a silent mode of verbal communication. The purpose of Lip reading is to provide visual cues to aid in the perception of speech. Not only have the deaf persons, person with normal hearing also communicated with lip reading. Sometimes we try to take some verbal information from a distant person through speech reading and sometimes we hide the oral movements of speech for not to give secrete information to unwanted persons.

For the persons with hearing impairment Speech reading can be included in their total communication approach. As the deaf person get some verbal information through speech and some through speech reading. The degree to which persons with hearing impairment depend on vision for information is related to the extent of their hearing loss. According to Ross (1982), there is a world of difference between the persons who are deaf, who

must communicate through visual mode i.e. speech reading and persons who are hard of hearing , who communicate 'primarily' through an auditory mode.

There is some evidence to suggest the visual recognition of consonants can be improved with a concentrated programme of lip reading instruction (Walden, Prosek, Montegomary, Scherrr, and Jones, 1977). The development of these skills, however, can often be discouraging for the hearing impaired adult. The expectations of a client are usually unrealistically high when they first attend aural rehabilitation sessions. Discovering that the majority of English sounds are not visible is often enough to discourage or dishearten even the most enthusiastic client. This emphasizes the need for educating individuals regarding the limitations of using lip reading as a substitute for auditory information from the onset of the rehabilitative sessions.

Even though persons with cochlear implant recognize some speech auditorily, the cochlear implant's most important role remains that of speech reading enhancement. Most cochlear implant persons recognize significantly more speech in a vision plus audition condition than an audition only condition. Speech reading training helps the patient relate the electrical signal to the corresponding visible articulatory behaviour.

2.7.3 Prerequisites

The Prerequisites that affect Speech reading process usually fall into five general areas as related to the Speaker, Speech reader, Environment, the Signal or Code, and other factors.

a. SPEAKER

1. Familiarity of the Speaker: A positive correlation was shown to exist between speaker - listener familiarity over 80 years ago (Day et .al1928). Speech reading performance will be good when the speaker is familiar to the speech reader.
2. Facial expression, Gestures and Physical position: Facial expression gives the cues about the context and situations. Speakers who used appropriate facial expression, common gesture and who positioned themselves face to face or within a 45 degree angle of the listener facilitated communication for speech reading (Stone, Berger 1972, 1957).
3. Articulation or Lip movement: Speakers who were precise and not exaggerated articulation are the easiest for the speech reader to understand the message (Davis et. Al. 1972).

4. Rate of Speech: If the speaker's normal speaking rate exceed or reduced, the listener's visual reception capabilities or exaggerate speech production then it hampers comprehension.
5. Distraction: The speaker should avoid simultaneous oral activities such as chewing, smiling, yawning, sneezing etc. while convening with a hearing impaired person. The 'making effect' of these coincidental activities may complicate the speech reading task.
6. Gender: Berger (1977) suggested that male speech readers sometimes find difficulty with female speaker and vice versa. Gender related variables such as moustaches or the use of lipstick may influence speech reading process.
7. Extent of Image: Impression or the image of the speaker on the speech reader also plays an important role in speech reading.
8. Associated Body movements: Nitchie (1972) suggested that speech reading will be more productive where the speech reader can observe appropriate nonverbal communication modes like head and body movements of the speaker.
9. Language spoken: Familiarity of language is an independent variable that influences the interpretation of visual cues. Language spoken by the speaker should be common or familiar to the speech reader.
10. Others like suprasegmental aspects of speech, speakers presentation and style etc. may influence speech reading.

B. SPEECH READER

1. Hearing capacity: Persons with significant amount of residual hearing have the potential to speech more successfully than those with very limited hearing due to availability of auditory cues contained in speech. Other factors like auditory perception abilities, age of onset of hearing loss, progressively, site of lesion etc. may influence speech reading.
2. Age and Language skills: Speech reading proficiency tends to develop and improve throughout childhood and early adulthood and appears to be closely associated with the emergence of language skills (Berger et. Al.1978). Even though the speech reading abilities are not fully developed in younger children, they may use speech reading to some extent even infants also. Other individuals do less speech reading than their counterparts who are between the age ranges of 21 to 30, may be due to decreased visual acuity with aging.

3. Intelligence: Much reduced intelligence level may result in poor speech reading performance (Smith et. al.1964)
4. Personality traits: Highly motivated clients tend to speech read more effectively than to unmotivated clients.
5. Visual performance proficiency:

a) Visual acuity: Even slight visual acuity problem had an appreciable negative effect on speech reading scores. Visual acuity must be at least 20 / 30 to enable the speech reader to see the five sequential articulatory movements of speech.

b) Visual problem: Like color blindness may affect speech reading through "Eye glass speech reading aid'.

c) Visual Memory: The speech reader must follow the following sequential pattern for visual memory.

i) Perception of the articulatory patterns from the speaker's mouth and jaw movements,

ii) Retention of the patterns sequentially in short term memory.

iii) Coding into linguistic units by using inner language coding system.

iv) Synthesize the information in permanent memory for final message identification.

v) Match with information in permanent memory for final message identification.

d. Visual perception of consonant and vowels: The visual perception of place of articulation of consonants, vowels and diphthongs is very important to speech reading.

6. Synthetic ability of the Speech Reader: Perceptual closure i.e the ability to identifying the patterns of speech and the conceptual closure i.e the ability to identify the message are the two synthetic abilities which requires speech reading.
7. Flexibility and Emotional attitude: It includes cooperation of parents, educational and therapeutic management etc.
8. Type of Intervention: Speech reading performance improves with cochlear implant / tactile devices as compared to conventional hearing aid or without hearing aid.
9. Motivation: Better speech reading skill was found among children who reported a positive attitude towards speech and speech reading by their parents and deaf peers. Interest and motivation should strengthen speech reading and overall communication skills.

C. ENVIRONMENT:

1. Distance and viewing angle: Speech reading ability is optional when the speaker is about 5 feet distance from the speech reader with face to face conversational situation. For most speech readers, watching the speaker at horizontal viewing angle of 0-45 degree is preferable.
2. **Competition:** simultaneous auditory and visual competition can have an adverse effect on speech reading under certain condition.
3. **Light and Illumination:** For most optimal speech reading, light and illumination should provide a contrast between the background and the speaker's face.
4. **Cues:** Speech reading ability increases when the speech is accompanied by pictorial, auditory, contextual, situational and environmental clues.
5. **Coping up with the situation:** The speech reader's ability to visually scan and cope up the situation and understand the speaker's role will provide an attention which is set for social or formal communication.
6. **Auditory distractions:** The effect of noise on speech perception by the hearing and hearing impaired participants and the person with hearing impairment ability to monitor his or her vocal modules in noise are also factors to be considered.
7. **Visual Distraction:** It also affects speech reading by drawing the speech reader's attention away from the force especially if the distraction is more interesting that the speaker.

2.7.4 Challenges

There are many variables which may influence or challenge the Speech reading. These are:

1. Amount of Self teaching: speech reading does not always have to be taught, though the individual's skill can be improved through instructions. Numerous hearing impaired individuals have developed a fair degree of proficiency without formal instructions.
2. The adequacy of the hearing aid or aids: Hard of hearing adult need to speech reading because all hearing aids have certain physical limitations, by this he will not perceive accurately all of the consonant sounds.

3. Extent of Hearing loss: Severe sensorineural hearing impairment (70 dB or more) patient will confuse many speech sounds or miss them altogether even with hearing aid. He must look as well as listen.
4. Pattern of Loss: The high frequency loss cases (sharp fall off at or beyond 1 KHz) need to combine speech reading with hearing in order to understand voiceless consonants.
5. Nature of Loss: In retro cochlear hearing loss cases the confusion of perceiving speech can only be straightened out through speech reading.
6. Individual differences in ability in mastering skills: Those people are not eye minded or will not automatically look as well as listen, they have not acquired any degree of speech reading skills though sufficient training are provided to them.
7. Knowledge of Language: To develop speech reading, he must have mastered the verb-tense system and syntax of his language which are redundant, patterned and rhythmical.
8. Nature of instruction: The teacher has to ascertain the child's true needs to teach the beginning skills of recognizing visible sound movements and known vocabulary and ideas to children.

Beside there are some limitations of Speech Reading such as Low visibility of speech sounds, Homophonous sounds, Rapidity of normal speech, Transition effect, inter subject variability with sound formation and environmental limitation

Therefore, it is apparent that numerous factors have an impact on speech reading success. The clinician should be familiar with these and take each into account when planning auditory training with respect to speech reading. However few factors are yet to be understood with its impact which requires further research development.

2.7.5 Role of Teacher

As the 'Speech Reading' is an inherent linguistic activity (Boothroyd, 1988), the deaf students must learn the rules of language by which they are exposed to speech reading. Therefore it is the duty of the teacher of the deaf to develop language in deaf students. Without this he / she is unable to fill in the gaps providing information not obtained through speech reading or hearing (Bevan, 1988).

Teacher should speak clearly with normal prosodical features as such most of the speech parameter can be intelligible to the students. As speech reading skills is a visual

communication process, the classroom of the deaf student should be properly illuminated so that the speaker's face can be properly visible during communication.

A student with hearing impairment depends on his / her teacher for learning Speech Reading. Originally there were four methods of teaching speech reading in United States (O'Neill & Oyer. 1981). These are Bruhn Method 91929), Kinzie method (1931), Nitchie Method (1912) and Jena Method (Bunger 1944). First three methods were nurtured by normal persons and later these were used for persons hearing impairment. These original methods are now seldom used. Currently two general approaches of speech Reading is instructed by the teacher, i.e i) Analytic Approach : Where each of the basic parts of speech be perceived before an entire words, sentence or phrase (the whole) can be identified or ii)Synthetic approach: It emphasizes that the perception of the whole is paramount regardless of which of its parts is perceived visually. Here the sentence / phrase to be the basic unit and these are the backbone of visual speech perception.

Recent trends in teaching speech Reading:

Recently apart from Acoupedic approach which emphasizes auditory channel only, speech reading appears to develop synergistically with the acquisition of auditory and Language skills (Pollack, 1964). Teacher may use holistic approach (Yoshinaga - Itano, 1988) to teach children with hard of hearing to Speech read. It focuses on each individual child's motivation, tolerance and sense of responsibilities for communication.

Alpiner and Mccarthy (1993) and Rodel (1981) recently introduces Bisensory stimulation where both auditory and visual input are favoured. Therefore, teachers mainly allow speech reading to develop naturally in conjunction with the acquisition of auditory, speech and linguistic skills.

2.8 Let’s Sum Up

The major goal of aural rehabilitation is the improvement of communicative abilities of the persons with hearing impairment. Early identification, proper audiologic evaluation and good medical care are essential to the remediation of hearing impairment. Generally sensorineural hearing losses are primarily aided through audiologic rehabilitation only where auditory speech recognition or hearing clarity is usually affected. The structure of language is unique to the human beings only. We have developed the auditory system and vocal mechanism through which language is customarily learned and communicated. Oral communication involves a number of key components that originate with a source or speaker who has both a purpose for communication and the ability to properly encode and articulate the thought to be conveyed.

The human baby appears to be born with "preexistent knowledge" of language - specialized neural structures in the brain that await auditory experience with language to trigger them into functioning. If a child is deprived of language stimulation in his critical age period they will never attain his or her best potential language function due to hearing impairment or lack of language experience. Auditory perception of speech and non speech signal involves only one sensory system i.e. hearing or auditory system. Therefore, it is called as unisensory approach of auditory perception. Speech perception implies understanding and comprehension and the reception of speech signals by the auditory mechanism is only the first step in its perception. Perception or comprehension of speech may be thought of as involving a number of components. Among these are: DETECTION, DISCRIMINATION, IDENTIFICATION, ATTENTION, MEMORY, & CLOSURE. The persons with hearing impairment cannot perceive the speech signal as they are not able to receive and process the coded acoustical information of the speech signal like the person with normal hearing.

The speaker's mouth movements, facial expressions and hand gestures as well as various aspects of the physical environment in which the communication takes place, are potential sources of useful information for communication. The person with hearing impairment is much more dependent on these visual cues for communication than the person with normal hearing. The degree to which persons with hearing impairment need visual information when conversing is proportional to the amount of information that is lost due to hearing impairment. Visual information may be transmitted by means of a manual or an oral communication system. The approach which includes more than one sense organ for perception of speech is termed as Multisensory approach. For perception of speech children with hearing impairment depends on vision and tactual sense along with their residual hearing ability.

Auditory training is a systematic training of the residual hearing for the improvement of auditory abilities. Primary goal of auditory training is usually to maximize receptive communication ability by using audition. When it is conducted with a single person with hearing impairment it is called as Individual auditory training and the training session conducted with more than one person or in a group with common problems it is termed as Group Auditory training. The stages of the auditory training as per Traditional approach (Hirsch (1966), Ling (1976) and Erber (1982)) are:

- Awareness or Detection of Sound,
- Discrimination of Sound,
- Identification of Sound,

- Comprehension of Sound.

Auditory verbal therapy is the application of techniques, strategies, conditions and procedures which help in the acquisition of spoken language through major focus on listening. The goal of auditory-verbal practice is that children who are deaf or hard of hearing can grow up in regular learning and living environments enabling them to become independent, participating, and contributing citizens in mainstream society. The primary stages of auditory development are:

- Sound Awareness
- Association of Meaning to Sound
- Imitation and Expansion.
- Comprehension: Effective Responses to Language.
- Sound Awareness
- Association of Meaning to Sound
- Imitation and Expansion.
- Comprehension: Effective Responses to Language.

A teacher of a child with hearing impairment is also a team member of the intervention process with auditory verbal therapy method. The teacher may follow the auditory activities of the auditory verbal therapy in the classroom with different acoustic and visual clues.

The basic principle of the Auditory Training and the Auditory Verbal therapy is same. As the child with hearing impairment must have to learn to listen auditorily and to speak orally only. It is a huge challenge for the Rehabilitation professionals to have success in auditory training and Auditory verbal Therapy for the children with hearing impairment. There are many factors which play role in its success.

As per Jacob(1982), Speech Reading is a visual oral-language communication skills that enables a person to obtain linguistic information by watching the sequential, articulatory movements of a speaker's lips, jaws, adjacent facial musculature and facial expressions. Lip reading refers to the more analytical visual distinctive feature recognition process i.e. perception of visemes. While speech reading encompasses all of the other processes necessary to comprehend the spoken language. The purpose of Lip reading is to provide visual cues to aid in the perception of speech. Not only have the deaf persons, person with normal hearing also communicated with lip reading. The Prerequisites that

affect Speech reading process usually fall into five general areas as related to the Speaker, Speech reader, Environment, the Signal or Code, and other factors. It is the duty of the teacher of the deaf to develop language in deaf students. Without this he / she is unable to fill in the gaps providing information not obtained through speech reading or hearing (Bevan, 1988).Teacher should speak clearly with normal prosodical features as such most of the speech parameter can be intelligible to the students.

2.9 Check Your Progress

A. Answer the following questions.

1. What do you know about Audiologic rehabilitation?
2. Describe human communication model.
3. What are different approaches of auditory perception? Discuss any one.
4. Describe the process of perception of speech stimulus.
5. What are the different approaches of auditory training? Describe Carhart Auditory training approach.
6. Define Auditory training. Mention importance of auditory training.
7. Differentiate between Individual and group auditory training.
8. Describe the stages of Traditional auditory Training approach.
9. Mention the factors affecting Auditory training.
10. What do you mean by Auditory Verbal Therapy? Describe the principles and importance of Auditory verbal therapy.
11. Discuss the role of a teacher in Auditory verbal therapy.
12. Mention the similarities and differences between auditory training and auditory verbal therapy.
13. Define Speech Reading. Mention importance and prerequisites of speech reading.
14. How does a teacher of children with hearing impairment teach speech reading to his student?
15. Describe the factors affecting teaching speech reading skills.

B. Write short notes on the followings:

1. Classification of hearing impairment.

2. Auditory Listening.
3. Adult auditory training.
4. Group auditory training.
5. Prerequisites of auditory training and auditory verbal therapy.
6. Factors influencing auditory training and auditory verbal therapy.

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Unit - 3 ❐ Speech Intervention Strategies

Structure

3.1 Introduction

All hearing impaired children experience speech and language problems owing to their reduced hearing capacity. The speech and language problems may range from no speech and language at all to some deficits in speech production and language ability of the child. As we have already learnt speech is oral medium of expressing language.

Speech problems may include incorrect production of speech sounds, inappropriate voice quality and resonance. These problems arise due to inappropriate auditory feedback. All these problems can be remediated with early assessment and intervention. The child needs to undergo a detailed hearing, speech and language evaluation followed by fitting of an appropriate amplification device. This is again followed by a well-planned speech and language therapy.

The mechanism of speech production is a very intricate process involving the vocal tract and respiratory system. To understand the mechanism of speech production mechanism appropriately, the basic characteristics of speech sounds have to be first understood. The acoustics of speech involve characteristics like frequency, intensity, duration and resonance.

Various speech intervention strategies are described in the literature. These can be carried out in various settings such as therapy center, school and also at home. Many strategies are designed for individual child, depending on specific needs of the child. Also there are strategies which can be carried out in group settings. Each strategy have its own advantages and disadvantages.

Speech training can be imparted by a single trainer/specialist or a group of trainers can be involved. The group can either consist professionals from same specialty or can be from varied specialties such as speech therapist, special educator, psychologist etc. The team teaching concept needs well skilled professionals and a very good planning. Moreover it yields a very satisfactory outcome.

3.2 Objectives

At the end of this unit, students will learn about:

1) Various speech intervention strategies.
2) Formulation of lesson plan.

3) Acoustics of speech - basic characteristics involved in the mechanism of speech production
4) Techniques to elicit production of vowels and other speech sounds
5) Importance of individual training and group training
6) Group teaching.

3.3 Approaches to Teaching Speech

Literature has description of many speech teaching approaches and activities. Before understanding each approach we should remember that speech therapy can be made successful when:

1) Done at an early age(starting within 3 years).
2) Done after complete assessment of speech problems and identification of child's current level.
3) Done after fitting of appropriate amplification device.
4) Done within a stimulating environment.
5) Done following a constructive lesson plan wherein targets are set and achieved.
6) Done with appropriate child specific selection of stimulus, reinforcers and speech therapy tools.

All the approaches are based on certain principles. Few are listed below briefly:

1) Speech learning is developmental and follows a sequence even in hearing impaired children. Certain sounds develop first and certain come later, e.g. children are able to say /b/ much before saying /t/ or /r/.
2) Speech is a learned behaviour which needs to be taught.
3) Better residual hearing gives best results.
4) Speech therapy sessions should be repetitive and fun filled for the child.

Let us learn the approaches now:

Hearing Impairment causes delay in acquisition of speech and language. The degree of hearing loss, age of child, onset of hearing loss have effect on the speech and language skills of the child. By large almost all children with hearing impairment need some amount of speech therapy. The early it is started more successful results are obtained.

3.3.1 Auditory global approach

For correct acquisition and production of speech the child must have an intact auditory channel. The child listens to adult speech, internalizes them and then starts producing them. The journey from starting to produce a speech sound to fully master its production needs lot of self- corrections by the child himlherself. He/she hears to adult speech, imitates and learn from it as a model then produces it correctly by self-corrections (with the help of auditory feedback).

However the child also uses other cues such as visual, kinesthetic along with auditory cues for speech acquisition. In case of children with hearing impairment mainly the auditory channel is used, along with the other sensory channels.

The selection of modality depends on the child's hearing level after amplification. For example incase of minimum benefit from amplification device, the visual, and tacti Ie modes are largely used to supplement the minimum residual hearing.

The term "auditory global" was given by Calvert and Silverman (1975). It mainly stresses the use of auditory method with minimum or no use of visual and tactile cues. The authors also emphasised early and continuous use of amplification device, comprehensive intervention at school as well as home, natural methods to model and teach speech and use of connected speech.

3.3.2 Auditory-Oral Approach

In this approach speech reading and contextual cues are used along with residual hearing for understanding speech. The child is taught to combine hearing cues (with amplification device) with speech reading (lip reading cues) and understanding the context in which the conversation is carries out. This is a very useful approach for children with restricted residual hearing. However this approach needs lot of practice by the child. Moreover in absence of contextual cues, understanding becomes difficult. It can be easily incorporated by teachers in classroom during teaching sessions. The teacher can model the child how to speak, utter certain sounds/words etc. When used with young children after early identification and intervention, they can be easily mainstreamed.

3.3.3 Aural-Oral Approach

The focus is on speaking and sound production. The therapist uses different types of 'modelling' to show the child how to speak correctly.

The child's aural skills(auditory) are developed for attaining oral (verbal) skills.In this approach the following is advocated and used by therapist/teacher:

1) Directly talking with the child
2) Use of simple speech
3) Use of facial expressions and body language
4) Repeat the key words
5) Speak things from the child's context

3.3.4 Auditory verbal approach

It is a parent oriented approach, where the child's residual hearing is maximally used to understand speech of others and to learn to use spoken language for communication. In this approach the audition is taught in four classical levels: detection, discrimination and identification. VT is based on some fundamental principles like early detection, fitting of appropriate amplification device, regular assessment and therapeutic management, direct parent involvement, mainstreaming the child into regular educational system. With improved technology in amplification devices, it is very much possible to teach the child only through auditory channel.

3.3.5 Multi-sensory syllable unit approach

As the name suggests the auditory channel is accompanied by other sensory channels. It is useful for children with limited residual hearing. Visual and tactile stimulation is used with auditory stimulation. Written forms /orthographic representation of sounds, words are used along with oral speech. Labelling is used for all the vocabulary in the child's environment.

3.3.6 Ling's approach

Developed in 1976 by Ling. In this approach maximum use of residual hearing is advocated. In this approach the child is taught to understand speech of others as well as correct own speech production by using residual hearing. Two principals of Ling's approach are: 1: The hearing impaired child should be taught to develop speech in the same order as a normal hearing child will follow.

2) The speech organs move rapidly and precisely during speech production, which should be taught to hearing impaired children so that they can produce correct speech.

Speech is taught at phonetic and phonological level.e.g. In phonetic level - nonsense syllables, repeated syllables are used. Then this skills learned are adapted to the phonological level. Initially vowels are taught in isolation, then consonants are taught in different contrasts of place and manner.

3.4 Formulation of Lesson Plan

Lesson plan is a brief rehabilitation plan for the hearing impaired child with some ***short term goals*** and ***one long term goal***. The lesson plan is a road map for the teacher and therapist which guides them to carry out the therapy. It also contains information regarding the procedure which will be used to attain the goals, activities under these procedures are to be planned beforehand.

The formulation of lesson plan is kept as realistic as possible. Selection of goals depend on the child's current performance, age, associated disorders and parental support.

3.4.1 Short term goal- these are planned for short time period.e.g. 15 days /30 days. Usually easy and small targets yield better motivation to both the therapist and the child. At a time 3-4 short term goals can be achieved. These are expected to be achieved in the predefined time period. Once achieved, the task complexity is increased. In case of failure, the step may be repeated with an altered procedure and tools. The STM should be measurable, clear, realistic and verifiable.

3.4.2 Long Term Goal- It is a target or goal which is a final destination or level at which we want the child to reach over a longer period of time .e.g. six months. So that he matches his peers as closely as possible and can be gradually mainstreamed.

3.4.3 Activities for teaching various vowels and consonants

The teaching can generally be carried out using the following techniques:

1. Modelling the speech sound to the child. Initially only auditory mode can be used, if the child failed to do so, other modes can be introduced. e.g. for teaching the child to produce /i/, the sound can be shown in writing to the child and the therapist can keep on modelling its production, repetitively, till the child starts showing attempts to produce it.

   If the child has limited residual hearing that is has limited benefit from amplification device cues of visual and tactile cues can be introduced. The

therapist can show the production of the vowel to the child, can physically guide the child's articulators to help produce the sound. The child has to be reinforced upon correct production of the sound.

The sound is first taught in isolation then in combination with other vowels, other aspects like long vs short vowel are introduced later.

2. Imitation- Imitation of the therapist's vowellconsonant production is encouraged. The child is asked to listen and produce the target sound. In case of limited residual hearing, use ofvisualltactile cues along with auditory cues give opportunity for the child to imitate the sound.
3. Repetitive drills- CV combinations, CVC combinations are practiced through speech drills. The combination of CV is also altered to make all possible combinations of the target sound. /pa,pi,pu,po,pe/ and /pa,pa,pa,pa/. Though the sounds are meaningless, these ensure improvement in the precision of movements of articulators.
4. The teaching usually starts with vowels. Initially the child may be taught just to vocalise and extend it with all the vowels.e.g /aaaaaaaa ...../iiiii...../ etc. The therapist should always encourage a good quality of voice which sounds natural and pleasing. It should be loud enough, not nasalised, and should be produced with adequate mouth opening. Simultaneously the therapist has to encourage the child to monitor his/her own voice through auditory feedback.
5. In case of consonants, the easily visible consonants, voiced consonants are selected first.e.g. /b/ has to be taught earlier than /g/ or /p/. However in some children, there can be some amount of speech already present, which can be utilised to expand his/her utterances. The therapist can refer to the normal developmental sequence of consonants, and select the consonants serially. E.g. the production of consonants like /s/,/ch/ and /t/ develop after 4 years of chronological age, the same will apply to hearing impaired children, it's pointless to teach a 2 years old to produce the sound /s/!!
6. Once the child has learnt to produce consonants is isolation, gradually these can be taught into higher units, bisyllabic words, words, phrases etc. E.G. Once the child has learnt to say /ta/, he/she can be taught to say /tata/ meaningfully.
7. For carrying out above activities tools like mirror, tongue depressors, hand gloves, candle, paper bits, and graphical representation of the letters on flash cards are extremely useful. The use of toys and other rein forcers make the activities fulfilled and interesting.

8. Parents and caregivers should be actively involved in the training activities and should be counselled to practice the learnt sounds at home.
9. It's helpful to set targets and expected responses to achieve success. E.g. If our target consonant is /t/,the child should be able to utter it 3 times out of 5 trials, which ensures us to take the child to the next level.
10. All the learned vowels and consonants should be retrained at a regular interval to achieve stabilisation.

3.5 Orientation to Acoustics of Speech

3.5.1 Nature of sound

Sound is variations in air pressure detectable by the human ear. Pressure varies through time at a particular point, and over space at a particular time, as molecules of air collide (condensation) or move apart (rarefaction).

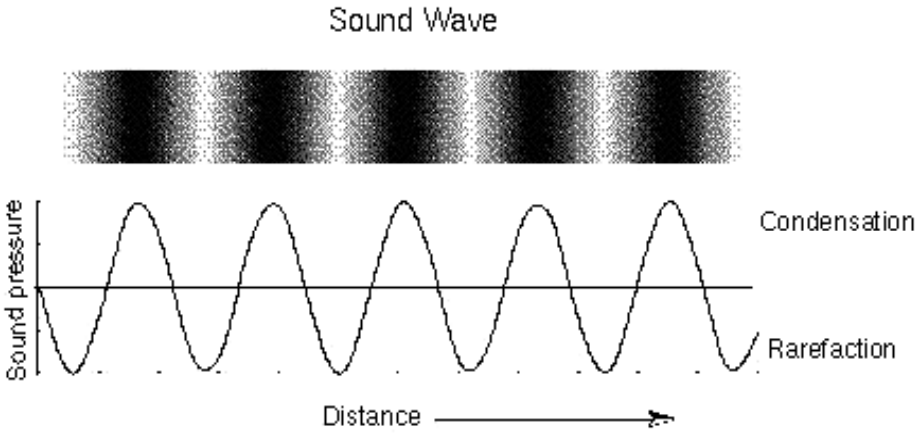


Fig. 1: Representation of fluctuations in air pressure such as those caused by a vibrating tuning fork.

Waves and energy movement, or variation at a particular point, can be plotted as a waveform on a graph, as in above figure Fig.l.The variation in pressure at a given point gives a sine wave for pure sounds involving simple harmonic motion (SHM).The amplitude (the amount of maximum displacement from zero) of the wave reflects the highest pressure involved, and therefore the acoustic energy.

Relations between frequency (F), period (P), wavelength (w) and speed of sound (c):

F = 1/P

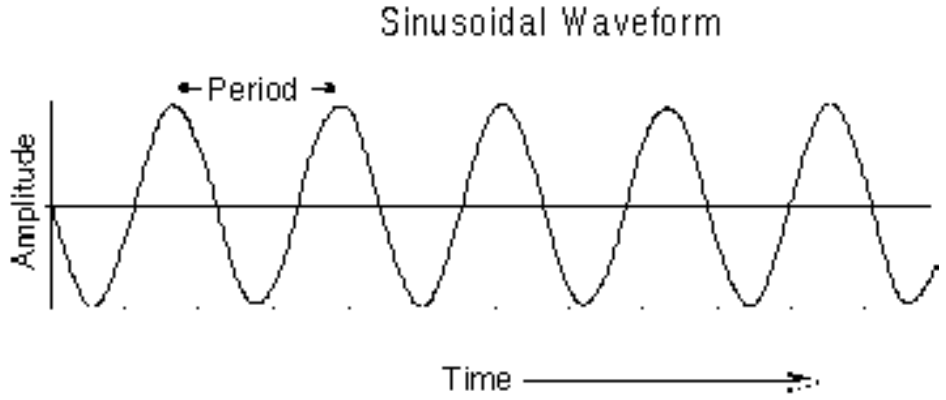
For example, a wave with a period of 1/100th of a second has a frequency of F = 1/0.01 = 100 Hz (Hertz = cycles per second)

w= c/F

The standard speed of sound is 330 m/s.

For example, a wave with a frequency of 100Hz has a wavelength of 330/100 = 3.3 m

Fig. 2. Representation of a sinusoidal Waveform



There are various types of sound sources

a. Tuning fork - periodic
b. Vowel sounds - quasi-periodic. Fig. 3:
c. Flow of water - continuous random noise
d. Fricative - random within certain constraints. Fig. 4:
e. Hammer hitting table - transient
f. Stop consonant - transient + noise. Fig. 5:

Resonators and Filters

Natural frequencies and resonance - different objects more or less tuned to specific frequencies - can act as filters. Filters have **centre frequency** and **bandwidth** - the range of frequencies passed by filter not more than 3dB down on its maximum amplitude. The bandwidth of a filter may be relatively narrow or broad.

Source + Filter theory: Vowel Sounds The vocal tract acts as a complex variable filter. Into this is input a signal from the glottal source (for voiced sounds). Fig 6 shows a glottal source wave for a vowel, i.e. a complex wave with numerous harmonics which rapidly decrease in amplitude as frequency increases (12 dB/octave).

(b) Vowel sounds seen as product of glottal source and variable filtering effect of supraglottal tract. So, the same vowels have the same gross spectral shape, irrespective of the fundamental frequency f_0 of the source.

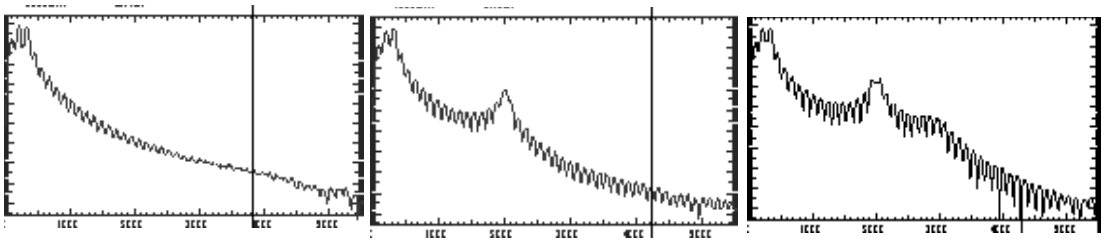


Fig. 6 filtered once ... filtered twice and filtered 3 times

Fig. 8: Spectrum of a vowel sound shown as the product of the glottal source and the filtering effect of the supraglottal vocal tract.

3.5.2. Speech sounds

Speech sounds, just like any other sound, are rapid fluctuations in air pressure, Speech sounds are generated when air is made to move by the vocal organs, While speaking, acoustic energy is radiated from the vocal tract. This acoustic disturbance, consisting of pressure fluctuations, causes the listener's eardrum to move rapidly in and out - in when the pressure is positive, out when negative.Thus acoustic energy is transformed into mechanical energy at the eardrum, This mechanical energy, and the information it contains, go through several more transformations before arriving as patterns of neural energy at the listener's brain, The processing of the information in the listener's brain results in the percept of sound.

Speech waves

The speech wave is distributed, at any given instant, as a sound pressure wave in the air around the speaker, and can be looked at as pressure varying as a function of distance from the speaker. In speech acoustics, however, it is more common to

consider the air pressure in a speech wave as varying not as a function of distance but as a function of time. This is equivalent to saying that at such-and-such point in space, the air pressure varies in such-and-such way over time.

Frequency

It can be seen that the magnified speech wave consists of rapid variations in air pressure as a function of time. Variations represent positive increases in pressure relative to atmospheric pressure and also negative.The variations are periodic - they repeat and are obviously complex, in that the air pressure can be seen to be varying simultaneously at several different frequencies. These frequencies can be roughly estimated visually as follows.

Fundamental frequency

The rate of repetition of the complex wave is called its fundamental frequency (abbreviated *F*0, which is pronounced "eff-oh" or "eff sub-zero") and this wave therefore has an *F*0 of 154 Hz. Fundamental frequency is an extremely important measure in acoustic phonetics in general. From the point of view of speech production, the *F*0 corresponds to the rate at which the vocal folds vibrate. From the point of view of speech perception, had been in the vicinity of the waveform, an eardrum would have been going in and out 154 times per second as a response to these pressure fluctuations.

Fourier analysis

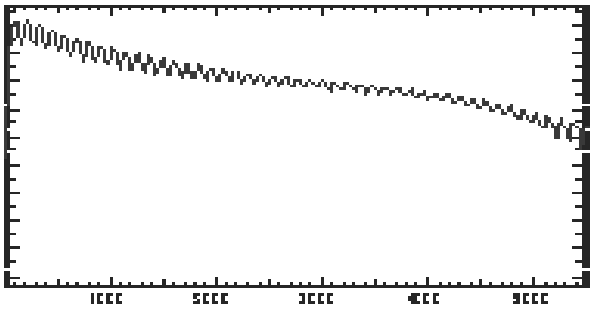
One way of looking at the speech wave is as complex fluctuations in air pressure as a function of time. Another is as a spectrum, which shows exactly what frequencies are present with what amplitudes. Fourier's theorem shows that any complex wave can be decomposed into, or represented as, a set of sine waves, also called sinusoids, each with its own frequency and amplitude.

The spectrum

Harmonics and Spectra

Complex waves can be mathematically analysed as being composed of different sine waves (Fourier analysis). Vibrating objects don't usually vibrate at a single frequency, they have harmonics. According to when each harmonic starts, the different elements of a complex wave can be in different phase relations.Any complex wave can be analysed into the periodic elements of different frequencies of which it is composed. Result: the spectrum of sound. For example, the following spectrum is ofthe waveform

produced at the glottis in a vowel. Note the series of peaks or **harmonics**, occurring at integer multiples of the **fundamental frequency** f_0.



(d) Non-periodic sounds are more adequately represented not by line spectra but by a continuous spectrum.

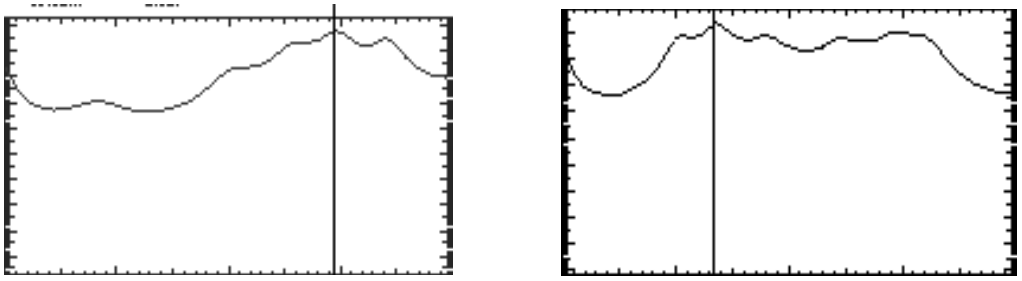
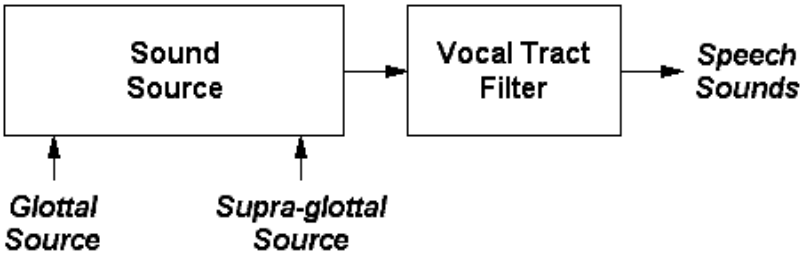


Fig. 7: Continuous spectra of non-periodic sounds: left [s] (peak at c. 5920 Hz); right [ʃ] (peak at c. 2700 Hz).

The acoustic theory of speech production



The theory that explains the radiated acoustics in terms of the vocal mechanism that produces them is called the acoustic theory of speech production, or source-filter theory. It was developed by the Swedish speech scientist Gunnar Fant. The source-filter theory describes speech production as a two stage process involving the generation of a sound source, with its own spectral shape and spectral fine structure, which is then shaped or filtered by the resonant properties of the vocal tract. Most of the filtering of a source spectrum is carried out by that part of the vocal tract anterior to the sound source. In the case of a glottal source, the filter is the entire supra-glottal vocal tract. The vocal tract filter always includes some part of the oral cavity and can also, optionally, include the nasal cavity (depending upon whether the velum is open or closed).

3.6 Strategies for Production of Speech : Modeling & Shaping through Auditory, Visual and Tactile Modalities

STRATEGIES FOR ELICITING SOUNDS

Strategies may have auditory, visual, and tactile components. However, some strategies may be exclusive to one modality. For example, manipulation is primarily a tactile strategy with a possible visual component.

Phonemes should be taught first through audition. When discussing auditory strategies, it is important to discuss the four levels of auditory skills: detection, discrimination, identification, and comprehension.

Detection is simply determining whether sound is present or absent. Through detection tasks, we can check whether hearing aids are working and set appropriately, alert students to the listening task, and determine which sounds are audible to the child. The response may be yes/no or a conditioned response (such as dropping a block in a bucket).

The second level of auditory skill, **discrimination**, is determining the similarity or difference between speech sounds. Instructors often use this level as remediation or a check when the student makes an identification error. It is important to realize that sameldifferent discrimination tasks are difficult or impossible for children who are unable to categorize or make generalizations.

The third level of auditory skill, **identification,** means providing a name or a label for what the student has heard. The student may respond by repeating the word. writing the word or sentence, or pointing to the stimulus being presented.

The highest level of the auditory skill hierarchy is **comprehension**. Comprehension tasks require that the student understand the meaning of auditory messages. It also requires the student to acquire new information through hearing, and then react appropriately. Unlike an identification task, the student must not only label the stimulus, but also must demonstrate understanding with a response that differs in content from the stimulus but is closely associated in some way (Erber 1982).

After using auditory strategies, visual strategies should be considered before moving to tactile strategies. Because the strategy employed is dependent upon the student's abilities, diagnostic results should be reviewed carefully. This will allow you to move quickly to strategies that will provide the student with success. Many times, strategies are used simultaneously.

The most widely used strategy is that of **imitation or demonstration**. Imitation requires the student to repeat a target sound after one or more examples have been provided. Imitation is easily and naturally combined with other strategies when evoking sounds. For example, a sound may be presented without allowing the student to see your face. The student is required to produce the sound after one or two presentations. If the student is unsuccessful, the phoneme may be presented again, this time allowing the student to See your face. If this strategy is unsuccessful, imitation through tactile stimulation may be the next modality attempted.

The tactile modality is usually the last teaching strategy used. Students can feel the tongue position for most vowels by placing a finger on the instructor's tongue, then placing a finger of the other hand on their own tongue.

Another widely used strategy is moving from a **known sound or U set" to an unknown**. This is accomplished through use of context, sound approximation, and analogy. Use of **context** means that facilitating contexts may be used as a beginning point for a lesson or in combination with other techniques to develop intelligibility. For example, if a student can produce *IJI* in a few contexts (such as *IJu* and *IJaI*) but cannot - imitate it in other contexts (*JiI* or *Ju*), the instructor should indicate the words where the sound is correctly produced, then provide practice on the available facilitating contexts.

Teaching through **sound approximation** is another technique of progreSSing from a known sound to an unknown sound. In this method, the instructor uses a phoneme the student can correctly produce as a point of departure for teaching the target sound. For example, say the target sound is *f* and the student can produce lsi. Have the student gradually move the tongue back until *f* is produced. The use of imitation

plays an important role during sound approximation strategies (Secord 1981).

For approximations to be successful, the strategy of **analogy** also must be applied. An analogy is a resemblance or comparison in some particulars between things otherwise unlike. Ling (1976) summarized analogies in this statement:

Analogies can be auditory, visual, or tactile, depending on the child's sensory capacities and on the natu re of the behavior to be taught. For example, an auditory analogy might be used to show the commonality of nasality in sounds such as *m* and *n,* or *b* and *d*; a visual analogy, using one hand to represent the palate and the other the tongue, might be used to demonstrate relative points of occlusion for *It!* and *Ik/;* or a tactile analogy, using the fingers on the chin to feel vibration, might be used to indicate that both *v* and *z* are voiced. The most effective use of analogy is to show that a sound or behavior that is known shares a particular characteristic with the sound or behavior that is being learned (p. 288).

Prompting is another effective strategy used to evoke sounds. Prompting activities involve the association of a particular manner of production with specific objects or actions (Ling 1976). For example, you might touch your chest to cue the student to lower pitch register. This technique should be used when an auditory presentation is unsuccessful and only after the phoneme can be consistently produced. The prompt should be discontinued as soon as possible, since its continued use may impede the development of coarticulation skills (Ling 1976).

Vocal play is a recommended strategy for eliciting sounds. Encouraging the child to generate sounds spontaneously in the course of play establishes the use and control of the speech organs (Ling 1976). Once the sound is produced during vocal play, the instructor is challenged to bring the child to a consistent imitation stage. It may be necessary to probe for imitation during vocal play for a substantial time before the child is able to imitate consistently. This strategy is one of the most effective for evoking sounds in young children.

Direct **verbal instruction** is another effective strategy. Instructions must be concise; for example, "Close your lips for *Im/*" or "I want to see your teeth." This ;strategy is more successful with older students and adults. Verbal instruction is most effective when combined with imitation and sound approximations.

Another strategy used to teach hearing impaired students is explanation of component skills. When using this strategy, first explain to the student what component parts are needed to produce the sound (for example, "I want you to say *au*. Say *a* and the *lui* together. Blend thern smoothly on one breath"). This strategy is less effective in the

early stages of speech acquisition because most hearing impaired children do not have the language to understand the explanation and apply it. However, thoughtful use of this strategy can produce positive results.

The final strategy is that of **manipulation**. This strategy is primarily a tactile strategy with a visual component. Manipulation may be defined as the shaping of a speech behavior through gentle force imposed on one or more of the speech articulators (Ling 1976). The most preferred type of manipulation is that in which the student adjusts the articulators by using a finger or tongue depressor. Manipulation is the last strategy used and is usually not necessary. The strategies of manipulation and tactile imitation are closely associated and are considered by some to be one and the same. Once the student can reliably imitate, manipulation is unnecessary, and some form of auditory or visual cues may be more appropriate.

3.7 Individual and Group teaching: Strengths and Challenges

Individualized Teaching Strategy

Individualized instruction is also known as differentiated instruction.

Individualized instruction strategy refers to those classroom practices of teaching which recognize the uniqueness of each student learner and thus provide for adequate tutorial guidance, and other support services suited to bring about a wholesome development in the person (mind, body, and spirit). Individualized instruction is about using teaching strategies that connect with individual student's learning strategies. The ultimate goal is to provide a learning environment that will maximize the potential for student success.In this strategy the teacher shouldn't always stick to the same pattern of teaching rather they should adapt new ways such as teaching through audio, video, field trip, etc. so that students have multiple options for taking in information and making sense of ideas. The intent of individualizing instruction is to maximize each student's growth and individual success by meeting each student where he or she is, and assisting in the learning process. It provides the opportunity for students to learn at their own pace, in their own way, and be successful.

Advantages and disadvantages of Individualized instruction strategy.

Advantages:

1. **Student-Centric**

- Differentiated instruction focuses on the academic needs and learning abilities of every individual student. By changing the methods of teaching to suit students,

teachers are able to adjust the content of the syllabus. This encourages critical thinking in students, and gives them a chance to come forward and demonstrate what they have learned. It also creates a sense of equality among students, including the ones with a learning disability. Differentiated learning provides ample opportunity for students to aim and attain academic success with aplomb.

2. **Raises The Bar**

- Advocates of this teaching approach believe differentiated learning raises the standards of learning in a big way. The true essence of this practice lies in the realization that learners and their abilities, readiness and interests vary. Educators have the liberty to set up classrooms and devise methods that would aid all students in thinking, analyzing and comprehending the teaching contents easily. Differentiation does not have hard and fast rules; it is all about options.

3. Meeting the needs and interests of diverse learners.
4. Provides the opportunity for students to learn at their own pace, in their own way, and be successful.
5. Recognizes students' varying background knowledge, readiness, language, preferences in learning, interests, and to react responsively.
6. Maximizes each student's growth and individual success by meeting each student where he or she is, and assisting in the learning process.
7. Helps in providing for the uniqueness of each child in terms of his/her particular learning style, talents and potential, handicaps and deficiencies, etc.

Disadvantages:

1. Time constraints and chopped-up schedules are an obstacle.

Teachers could work better if they had longer blocks of time with students. At the elementary level, kids have to go somewhere or someone comes in to do something every 15-30 minutes; at the secondary level, kids rotate in and out every 37 or 42 minutes. It makes teachers crazy.

2. Class size and teaching load are two of the biggest constraints.

   A teacher who works with150 kids a day gets glassy-eyed when told he needs to get to know those kids better. It's doable, but we would be far more efficient by arranging schedules so teachers had fewer students to get to know or kept them over longer periods of time.

3. **Teacher Preparedness.**

   Sometimes, the teacher's lack of adequate knowledge on individualizing instruction could also serve as a serious obstacle in individualizing instruction in the classroom. The teacher's lack of knowledge and ignorance could be further aggravated when the school does not have the essential resources to support individualized or differentiated instruction.

GROUP TEACHING

Using Group Work and teamwork. Co-operative learning involves having students work together to maximize their own and one another's learning(Johnson,Johnson & Smith,1991). Team teaching involves a group of instructors working purposefully, regularly, and cooperatively to help a group of students of any age learn. Teachers together set goals for a course, design a syllabus, prepare individual lesson plans, teach students, and evaluate the results. They share insights, argue with one another, and perhaps even challenge students to decide which approach is better. Teams can be single-discipline, interdisciplinary, or school-within-a-school teams that meet with a common set of students over an extended period of time. The team-teaching approach allows for more interaction between teachers and students. Faculty evaluate students on their achievement of the learning goals; students evaluate faculty members on their teaching proficiency. Emphasis is on student and faculty growth, balancing initiative and shared responsibility, specialization and broadening horizons, the clear and interesting presentation of content and student development, democratic participation and common expectations, and cognitive, affective, and behavioral outcomes. This combination of analysis, synthesis, critical thinking, and practical applications can be done on all levels of education, from kindergarten through graduate school.

Working as a team, teachers model respect for differences, interdependence, and conflict-resolution skills. Team members together set the course goals and content, select common materials such as texts and films, and develop tests and final examinations for all students. They set the sequence of topics and supplemental materials. They also give their own interpretations of the materials and use their own teaching styles. The greater the agreement on common objectives and interests, the more likely that teaching will be interdependent and coordinated.

Teaching periods can be scheduled side by side or consecutively. For example, teachers of two similar classes may team up during the same or adjacent periods so that each teacher may focus on that phase of the course that he or she can best

handle. Students can sometimes meet all together, sometimes in small groups supervised by individual teachers or teaching assistants, or they can work singly or together on projects in the library, laboratory, or fieldwork. Teachers can be at different sites, linked by video-conferencing, satellites, or the Internet.

Breaking out of the taken-for-granted single-subject, single-course, single-teacher pattern encourages other innovations and experiments. For example, students can be split along or across lines of sex, age, culture, or other interests, then recombined to stimulate reflection. Remedial programs and honors sections provide other attractive opportunities to make available appropriate and effective curricula for students with special needs or interests. They can address different study skills and learning techniques. Team teaching can also offset the danger of imposing ideas, values, and mindsets on minorities or less powerful ethnic groups. Teachers of different backgrounds can culturally enrich one another and students.

Advantages

Students do not all learn at the same rate. Periods of equal length are not appropriate for all learning situations. Educators are no longer dealing primarily with top-down transmission of the tried and true by the mature and experienced teacher to the young, immature, and inexperienced pupil in the single-subject classroom. Schools are moving toward the inclusion of another whole dimension of learning: the lateral transmission to every sentient member of society of what has just been discovered, invented, created, manufactured, or marketed. For this, team members with different areas of expertise are invaluable.

Of course, team teaching is not the only answer to all problems plaguing teachers, students, and administrators. It requires planning, skilled management, willingness to risk change and even failure, humility, open-mindedness, imagination, and creativity. But the results are worth it.

Teamwork improves the quality of teaching as various experts approach the same topic from different angles: theory and practice, past and present, different genders or ethnic backgrounds. Teacher strengths are combined and weaknesses are remedied. Poor teachers can be observed, critiqued, and improved by the other team members in a nonthreatening, supportive context. The evaluation done by a team of teachers will be more insightful and balanced than the introspection and self-evaluation of an individual teacher.

Working in teams spreads responsibility, encourages creativity, deepens friendships, and builds community among teachers. Teachers complement one another. They

share insights, propose new approaches, and challenge assumptions. They learn new perspectives and insights, techniques and values from watching one another. Students enter into conversations between them as they debate, disagree with premises or conclusions, raise new questions, and point out consequences. Contrasting viewpoints encourage more active class participation and independent thinking from students, especially if there is team balance for gender, race, culture, and age. Team teaching is particularly effective with older and underprepared students when it moves beyond communicating facts to tap into their life experience.

The team cuts teaching burdens and boosts morale. The presence of another teacher reduces student-teacher personality problems. In an emergency one team member can attend to the problem while the class goes on. Sharing in decision-making bolsters self-confidence. As teachers see the quality of teaching and learning improve, their self-esteem and happiness grow. This aids in recruiting and keeping faculty.

Disadvantages

Team teaching is not always successful. Some teachers are rigid personality types or may be wedded to a single method. Some simply dislike the other teachers on the team. Some do not want to risk humiliation and discouragement at possible failures. Some fear they will be expected to do more work for the same salary. Others are unwilling to share the spotlight or their pet ideas or to lose total control.

Team teaching makes more demands on time and energy. Members must arrange mutually agreeable times for planning and evaluation. Discussions can be draining and group decisions take longer. Rethinking the courses to accommodate the team-teaching method is often inconvenient.

Opposition may also come from students, parents, and administrators who may resist change of any sort. Some students flourish in a highly structured environment that favors repetition. Some are confused by conflicting opinions. Too much variety may hinder habit formation.

Salaries may have to reflect the additional responsibilities undertaken by team members. Team leaders may need some form of bonus. Such costs could be met by enlarging some class sizes. Nonprofessional staff members could take over some responsibilities.

All things being considered, team teaching so enhances the quality of learning that it is sure to spread widely in the future.

3.8 Let Us Sum Up:

1. It is important to work on speech production skills of a hearing impaired child right after the fitting of amplification device.
2. Various speech intervention strategies are auditory global approach, Auditory-Oral Approach, Aural-Oral Approach, auditory verbal approach, Multi-sensory syllable-unit approach, Ling's approach.
3. It is important to have a well-planned lesson plan before starting the training procedure. The lesson plan has certain short term goals, which are planned depending upon the child's current level. Usually one long-term goal is set, which can be achieved finally by obtaining success with each short term goal planned.
4. The various activities for speech teaching include modelling, imitation, repetitive drills. The speech sounds are first taught in isolation then in words, phrases, sentences and finally n conversation level. Each sound learnt has to be stabilized and generalized to all situations.
5. Parents and care givers have to be actively involved in the training process.
6. For understanding the process of speech production, acoustics of speech sounds playa vital role. Various properties like, frequency, fundamental frequency, harmonics, intensity, duration and their intricate interactions characterize the process of speech production. The shape and size of the vocal tract govern these properties, and affect the speech production process.
7. The acoustic theory of speech production or the source-filter theory explain the interaction of the various parts of the vocal tract and respiratory system. And how this interaction affects or modulates the various properties like frequency, fundamental frequency, spectrum and harmonics of speech sounds.
8. The various strategies to teach elicitation of speech sounds can be carried out in individual or group settings.
9. Individual teaching methods, can be planned in a specific manner keeping in mind the individual child's current skills and capacities. The whole training time can be utilized in a focused manner for each and every short term goal for a particular child.
10. However, in group teaching methods, there is a better scope of motivation and encouragement for all the children in the group. Group learning always make

the process interesting as each child's performance encourages the other peer in the group.

11. Team approach in speech intervention process is always very helpful. Though it needs a good coordination between the specialists, the results are always very rewarding.

3.9 Check Your Progress

1. List the various speech teaching strategies.
2. How will you formulate short term goals for a 2 year child with speech problems?
3. What is fundamental frequency?
4. What is acoustic theory of speech production?
5. What is the difference between individual and group teaching?
6. What are the advantages of group teaching?
7. What do you mean by team approach? What are its advantages?

3.10 References

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Unit - 4 ❑ Communication and Language Teaching Strategies

Structure :

4.1 Introduction:

What surgeons start, educators have to finish - Sue Archbold, The Ear Foundation, UK
This proverb aptly explains the role of special education in the cochlear implant rehabilitation program. But the same can also explain the role of special education in the rehabilitation of children with special needs and in particular hearing impairment. In the last decade the population of deaf children has changed dramatically in a lot of countries, especially in those where universal neonatal hearing screening, early multi-disciplinary support, digital hearing aids and cochlear implants are available. Most of these children acquire intelligible spoken language and choose spoken language as their main means of communication and for access to education, because they go to mainstream schools in larger proportions, and fewer to schools for the deaf.
Mainstream placement does not eliminate the need for services, which will vary depending upon the child's age, language modality, and other child specific factors. Communication mode or type of communication approach, in particular, is a variable that has received much attention from parents, educators, and researchersalike. Since the mid-eighteenth century, a number of communication approaches have been advocated

for helping children with hearing loss acquire language and communication skills. The most common approaches are: (a) auditory- oral (AO); (b) auditory-verbal therapy (A VT); (c) total communication; and (d) the bilingual-bicultural approach. AO and A VT approaches are similar in that both aim to assist children develop spoken language and enable full integration into mainstream society. Both promote early diagnosis of hearing loss, followed by immediate and optimal amplification. They place an emphasis on the consistent use of hearing technology. However, they differ in that the AO approach encourages the use of lip-reading, facial expression, and naturally occurring gestures. A VT, on the other hand, de-emphasizes the use of visual cues (Estabrooks, 2006). Total communication is a multisensory approach which is practiced widely around the world. It aims to offer the most appropriate oral and visual codes according to individual needs (Lynas, 1999). The signing in total communication is a contrived sign system (e.g, Signed English) that was designed to be used simultaneously with a spoken language. It is not a natural sign language (Lynas, 2(05). A natural sign language, such as the Indian Sign Language is one that has evolved within a Deaf community and has its own unique grammar and word order. In recent years, some early intervention centers have moved towards the use of natural sign languages as part of bilingual-bicultural education, which involves teaching a natural sign language as the child's first language and spoken/written English as their second language.

4.2. Objectives

The objectives are:

1. To familiarize the reader with the types of communication options available Cor teaching language to the hearing impaired child.
2. To justify the use of different communication options across di ffercnt educational setups.
3. To describe the strengths and weaknesses of each communication option.

4.3. Methods of Teaching Language: Natural, Structural and Combined

Communication is the process of exchanging information and ideas. An active process, it involves encoding, transmitting, and decoding the intended message. Each communication partner must be alert to the needs of the other, so that messages are

conveyed effectively and intended meanings preserved. Speech and language are only a portion of communication. Other aspects of communication may enhance or even eclipse the linguistic code. These aspects are paralinguistic, nonlinguistic, and metalinguistic. The child communicates from the time of birth. Early communication does not depend on the use of language or speech. In fact, communication provides the vehicle within which initial language develops. As language improves, there is also a corresponding improvement in overall communication abilities.

Education of Children with Hearing Impairment:

"Education is not an advantage, but a basic right of every individual's life". Educational aims are based on the life and needs of individuals. However, few percentage of children due to their disability have difficulty in meeting their needs through general education, these children have special educational needs apart from ordinary needs and require special attention and training in satisfying their needs.

Aims of Special Education:

- Primary aim of education is to provide opportunities for the individual to develop the innate capacities, learns to make adjustment, improve speech and language development.
- Maximize use of residual hearing
- Improve IQ
- Improve social adjustment and behavior
- Improve cognitive skill
- Stimulate thinking and memory

Teaching methods:

1) structured method 2) natural method 3) combined method

Structured method: -

- Structured method believes that language is teachable hence has to be taught.
- It advocates the use of symbol system to represent the structure.
- Students are made to work on grammar rules by analyzing, categorizing the grammatical aspects.
- It advocates the use of memorization and imitation work in developing patterns of language.

Natural method: -

- Believes that language is not teachable - it is learned. One has to ensure exposure and input and the children "learn" the language naturally.
- Child is expected to acquire language implicitly through interaction occurring within the environment.
- No symbol system is used.
- The main emphasis is on the development of language via oral conversation method based on the experience of the children as it happens naturally in the home environment and the instructions are all planned to parallel the sequence of language acquisition in hearing children.

Combined method: - Utilizes components of both structured and natural method.

4.4. Principles and Techniques of Developing Language:

Language development in hearing impaired children: -

The degree and type of hearing loss has distinct impact on development of speech and language in hearing impaired children. According to Sharma and Jangira (1987), language development and speech is mildly affected in moderate hearing-impaired children. Difficulty with rarely used words, minor differences in meaning of words and idioms, reading and writing are delayed. In the case of children with moderately severe hearing loss, grammar, vocabulary, articulation and voice are affected. Severe hearing impaired children's speech and language may not develop spontaneously. Their voice is usually high-pitched and articulation is distorted. Profound hearing impairment children's speech and language are severely affected.

Language for preschool hearing impaired child: -

The Oral method and Sign Language are the two most widely used and highly debated methods of communication for the deaf. Some believe the Oral communication method to be most beneficial for deaf individuals while some agree on Sign Language to be the most beneficial method. The root of the debate lies in the fact that the method of communication used can affect the social and educational aspects of a deaf individual's life. Further, the basis of this debate stems from differences in personal preferences which have been affected by historical influences. It is in this debate that parents, teachers, deaf students, deaf adults, and all involved can make a communication decision based on the values and benefits each method entails.

4.5. Communication Options: Compare and Contrast

ORALISM: -

The concept of Oral ism has existed since the time of the great philosopher Aristotle. However, Oralism only became widely used and accepted in the mid-1500's when a Spanish monk, Ponce de Leon, began to educate deaf students through Oral communication for religious purposes. From there, the development of Oral ism continued throughout the centuries, changing and advancing in instruction until it was commonplace for a deaf individual to solely listen and speak. Oralism won out as the top communication method used for deaf individuals in America until a decrease in use in the 1970's and 1980's.

Prerequisites for adopting Oralism

Provision of appropriate amplification

As soon as the infant or child is diagnosed as deaf, it is considered crucially important to fit appropriate hearing aids. Without hearing aids the child with a severe or profound hearing loss will have little or no access to the sounds of speech. The hearing aids must be carefully prescribed in order to take into account the nature of the child's hearing loss and amplification needs. Hearing aids must also be carefully maintained so that they perform as intended. Parents, in the first place, must take responsibility for keeping the hearing aids in good working order and for ensuring that they are correctly placed in the ears. Research has demonstrated that there is a significant correlation between speech achievements and good use of hearing aids (Ling and Ling, 1978). So despite the difficulties involved, oralists emphasize the need for good hearing aid use.

The current oralist emphasis on the exploitation of residual hearing through hearing aids does not imply that visual information plays no part in the perception of speech and the understanding of spoken communication. Where there is hearing impairment the auditory sense will, so most oralists believe, be supported by visual communication such as facial expression, lip movements, body language, and natural gestures.

Spoken language experience:-

Oralists have spent a considerable amount of time thinking about how to provide the right kind of language experience during the deaf child's developing years (Nolan and Tucker, 1988; Clark, 1989). Modern oralists take the view that it is very important that the spoken language surrounding the hearing impaired child is relevant to his or her needs and interests. The language offered should be related to the child's focus

of attention at any particular moment. Creating situations which require communicative exchange is part of the skill required by an adult in facilitating language acquisition. Once adults develop sensitivity to the deaf child's interests and communication needs, satisfying interaction can occur (Clark, 1989). The more the adult offers communication that is relevant to the deaf child's interests, the more the child will attend to speech and the more responsive and interactive he becomes. Communicating with the hearing impaired child gets progressively easier for the adult. And, as these children develop their capacity to listen, the more feedback they get from their own vocalizations and this in itself encourages further vocalization. As the auditory signals received by the child from the spoken language environment come to be perceived as linguistic symbols so the process of language acquisition gets under way.

Support for Oralism: -

- Those who believe in Oral ism as the most beneficial communication method do so because of the benefits it offers for deaf individuals for assimilation into a hearing society and in education.
- Oralists choose these benefits over those provided by ASL as they are based on personal fundamental values for what they see as most necessary in life.
- These values that Oralists embrace come from the historical influences of educational endeavors and conformity to social norms.
- The Oral communication method does indeed procure higher levels of educational success and assimilation into the hearing society for deaf individuals.
- Current research indicates that deaf individuals using Oralism, compared to their deaf non-oral peers, tend to have higher vocabulary, literacy rates, and opportunities.
- Deaf individuals who use Oral ism have proficiency with spoken language and have an average reading ability of thirteen to fourteen-year-old levels, which is approximately double the US national average for all children who are deaf.
- Furthermore, programs using Oralism generally have strong academic curricula resulting in high achievement levels and more students who go on to complete secondary or higher education programs
- This also results in more social, educational, and work opportunities and to a more fulfilling and independent adult lifestyle.
- These benefits of Oral ism allow deaf individuals to reap the educational benefits and equal opportunities that the Oralists, continue to cherish.

- Furthermore, the Oral communication method also has new strategies and technology to assist in successfully educating the deaf.
- According to ASL Access, which is a leading organization providing media to deaf individuals, those who use the Oral method have more qualified teachers.
- Deaf individuals using other communication methods often lack qualified and fluent teachers as most teachers of the deaf are hearing adults.
- On the other hand, deaf individuals using Oral ism have a consistent and a plentiful supply of role-models who understand their primary language and how to teach with it.
- Also, there are laws that ensure educational supplements or services are available to provide the proper aid and instruction necessary for the deaf individuals.
- This includes necessary services such as speech therapy, audiology services, and special education teachers to ensure educational success through Oralism. Also, the development of new technology has allowed for more deaf individuals to access oral communication, which in turn allows for easier access to educational information.
- The recent developments in technology include cochlear implants, hearing aids, FM Systems, and several other devices that enhance the ability of deaf individuals to use their residual hearing. All of these developments assist deaf individuals in using Oralism to facilitate easier education.
- Because of the benefits received from the use of Oral ism, increasing access to it, and the importance placed on education by Oralists, it is seen that the Oral communication method can indeed be beneficial to deaf individuals.
- Apart from education benefits, assimilation into the hearing community is another advantage of oralism.
- The benefits for the assimilation of deaf individuals are two-fold. First, deaf individuals benefit from it because they become included and accepted by the majority, the hearing population.
- Deaf individuals using a communication method other than Oralism have been less accepted in schools and in the workplace because it was evident that they were different from norm.
- Using Oral ism to assimilate deaf individuals into the majority allows them to feel accepted, which is a noted fundamental value of Oralists.

- The second benefit of assimilation of the deaf is the ease it provides to the hearing majority during communication.
- Deaf individuals using Oral ism can generally integrate into work and social areas because of their ability to "appear" assimilated into the social norms and therefore make communication for all less intimidating.
- Thus, it is clear that the Oral communication method provides benefits both in education and assimilation and, because of their fundamental values; Oralists declare it as the most beneficial communication method for deaf individuals.

Problems with Oralism

1. **Language Delay**

   Oralists acknowledge that with an auditory-oral approach profoundly deaf children typically do not learn to listen immediately they are fitted with hearing aids and that spoken language acquisition takes longer than when a child has normal hearing or a less severe hearing loss (Nolan and Tucker, 1988; Clark, 1989). Delay in language acquisition does mean that some deaf children cannot communicate through language during the early years in quite the same way as a hearing child. The frustration caused by this delay make deaf children suffer serious emotional problems which may persist into adulthood (Meadow, 1980). Also, there may be a problem when the language-delayed deaf child starts school.

2. **The Struggle to Communicate and Acquire Language**

The hearing impaired child is always at a disadvantage relative to hearing children in receiving information via the spoken word: the hearing impaired child must concentrate harder with both eyes and ears to keep abreast of lesson material. Furthermore, to be obliged to communicate throughout the day through spoken language increases the burden. This is particularly so for the mainstreamed hearing impaired child who is surrounded by competent hearer-speakers and who is likely to be reminded frequently of his hearing handicap by failures to grasp what is being said and by an inability to participate fully in the informal school life.

3. **Suppression of Deaf Identity**

   An oral education implies that the hearing impaired child should assimilate into the hearing world and become 'normalised'. The hearing impaired child is

required to conform as far as possible to the norms of hearing society and this is a violation of justice. An oral education in the mainstream denies deafness and implies an attempt to make a deaf child be what he or she can never be: a hearing person (Merrill, 1981).

4. Persistence of Oral 'Failure'

Some writers think that there are differences in children's psychoperceptual abilities and that when a child is very deaf this feature can have a crucial influence on ability of some children to make use of residual hearing (Bamford and Saunders, 1991). Tumin (1982), on the basis of her experience with her two hearing handicapped believes that the ability to perceive the prosodic features of the speech is a crucial factor. The daughter, who acquired spoken language easily, was having a more severe loss than her sister but could perceive the intonational patterns of speech, whereas her sister could not.

Oral 'failure' has considerably reduced over the last 10-15 years and oralists believe that some of the current 'failure' is a consequence not of the auditory-oral approach per se but of poor implementation of that approach. Most oralists would argue, anyway, that all children, however deaf, should be given the chance to develop oral language through a natural auditory approach since we do not know in the early stages how well a child can hear or perceive speech.

5. The Need for Perfect Conditions

There is a view which accepts that fluent spoken language is a desirable goal and that many hearing impaired children have the potential to achieve it but that in practice the goal is only achievable under certain conditions. These conditions, it is argued, are often too difficult to meet.

According to this view the demands of the auditory-oral approach, with the necessity for consistently good hearing aid maintenance and management and the need for a facilitating oral language environment both at home and at school, are beyond the capacity of parents and educators. However, researchers like Clark (1989) claimed that there have been good oral achievements for many deaf children and young people despite a combination of unfavourable factors. This is not to be said that the presence or otherwise of these features and circumstances have no significance but that they are not, as it is claimed, crucial factors.

SIGN LANGUAGE: -

In the late 1700's and 1800's, sign language emerged as a communication method for the deaf and was used extensively. In USA, it was not until the 1800's that ASL was introduced to deaf individuals as an official communication mode. Sign language was brought to America in 1817 by Thomas Hopkins Gallaudet, an American clergyman in search of a new method of deaf education, and Laurent Clerc, a deaf Frenchman who used signed communication. Together the two men configured the beginnings of a signed language and established the first deaf school in America that lead to the development of American Sign Language. Sign language is a visual language with its own grammar that uses manual movements to represent concepts (Schirmer.A. 1993). Some people consider sign language to be the natural language of deaf individuals because they use visual and tactile input to compensate for the loss of auditory input.

Sign language is an independent language and has complex structures like any other verbal language. The structure of any sign language like ISL, ASL, BSL etc. is not the same like any verbal language. Sign languages change country to country and are not universal. There exists many numbers of sign languages.

Sign languages are not man made. It has evolved on its own like any natural language. Like verbal languages, sign language too has regional variety, for example, Hindi of a Delhite and the Hindi of Mumbaian are very different. India too has assigned language with its regional varieties. Sign languages have its own dictionary and grammar. The characteristics of a language displacement, arbitrariness, cultural transmission, creativity, and duality are present in sign languages.

Sign languages do not only involve use of 'only hands'. Hands playa very significant role in sign language, whole body and facial expressions too have a part in sign language. The features of a sign language are:

Designator - the hand shape

Tabula - the location of the sign

Signation - hand movement of the sign

Orientation - the direction of the movement relative to the signer's body.

There are differences between sign language and sign system. They are:

Sign Language	Sign System
Each concepti word has a sign	Each morpheme has a manual sign
Naturally evolved	Artificially made
Has independent grammar	Uses grammar of the verbal language
Has to be used independently	Has to be used along with speech
Supposed to replace speech	Supposed to supplement speech
Used in bilingualism	Used in Total Communication

Indian Sign Language

Indian sign language is not well studied or adequately documented. Hence many of its aspects related to grammar and its use in the deaf society remain unknown. Sign language is an integral part of the deaf community in India. ISL is used by over 10, 00, 000 deaf adults and approximately 500,000 deaf children (Vasistha et aI., 1980) less than 5% of whom attend special schools for deaf students. While there are 15 official languages in India and over 200 different dialects, there is only one Indian sign language. There are four major regional dialects centered in the urban areas: Delhi (North), Kolkata (East), Bangalore-Chennai (East) and Mumbai (West). It is claimed that ISL is used not only on India but also in Pakistan (Zeshan, 2000). ISL has various regional varieties sharing the same grammar. Zeshan claims that common vocabulary among the regional varieties is from 60% - 85%.

Indian Sign System

In western developed countries one verbal language has several parallel sign systems created by different scholars. For example, English has many parallel sign systems like Seeing Essential English (SEE I), Signing Exact English (SEE II), Signed English (SE), Sign English (SE) etc. verbal languages in India do not have as many parallel sign systems as in English. However, due to a UNICEF funded project at A YJNIHH, Indian sign systems have been created. These are created keeping the vocabulary and grammar of the language in mind. ISS, like any other sign system, has to be used with speech.

Support for Sign Language: -

- There is still the side of the debate supported by sign language groups who do

not disvalue education and assimilation, but instead highly value social-emotional benefits and the privilege to exercise human rights.

- Developing social-emotional stability is one way to be at peace with oneself. Aspects such as an individual who can adequately function, hold positive self-esteem, and accept oneself are some examples of sound social-emotional development.
- These aspects are known to be procured through using sign language, which is why those who support strong social-emotional development also promote sign language.
- Current research suggests that, deaf individuals who use sign language as a communication method have indeed been found to have higher social-emotional development than those deaf individuals who do not.
- The deaf individuals who use srgn language have higher self-esteem, feel valued, feel complete and not "broken", and have a strong sense of identity so they can feel accepted for who they are and not for what others want them to be (Orsi I, Sign Media, Inc. 2).
- They also identify more readily with their deafness and are confident in themselves as a whole individual whereas those who use Oralism find themselves in denial of deafness, "fixed," forced to speak so they are more "normal," and devalued by society.
- Furthermore, deaf sign language users receive additional social-emotional development because they can identify with a community of people that shares sign language as a communication method, the Deaf Culture.
- Furthermore, deaf sign language users receive additional social-emotional development because they can identify with a community of people that shares sign language as a communication method, the Deaf Culture.
- The Deaf Community is a community that not only shares the communication method of sign language, but also shares a culture that gives acceptance to deaf individuals for who they are despite their "differences".
- Although this acceptance does come from a minority group, it comes whole-heartedly as conformity nor is educational status necessary.
- Belonging to the Deaf Culture allows deaf individuals to be proud of being deaf and form a stable and true sense of identity (Schirmer 1994). In the Deaf

Culture it is understood that deafness is not a disability but instead it is an accepted and respected characteristic.

- There is still the side of the debate supported by sign language groups who do not disvalue education and assimilation, but instead highly value social-emotional benefits and the privilege to exercise human rights.
- Developing social-emotional stability is one way to be at peace with oneself. Aspects such as an individual who can adequately function, hold positive self-esteem, and accept oneself are some examples of sound social-emotional development.
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heartedly as conformity nor is educational status necessary.

- Belonging to the Deaf Culture allows deaf individuals to be proud of being deaf and form a stable and true sense of identity (Schirmer 1994). In the Deaf Culture it is understood that deafness is not a disability but instead it is an accepted and respected characteristic.
- In addition, using sign language as a communication method allows for equal interactions among deaf individuals within the Deaf Community.
- Conversing with other deaf individuals who share the same concerns, language, deaf pride, confidence, and self-esteem is invigorating and encouraging. Thus, using sign language and belonging to the Deaf Culture has proven to be beneficial for deaf individuals' social-emotional development.
- In addition to social-emotional development to promote inner peace, using sign language as a communication method also allows deaf individuals to exercise human rights.
- Thus, it is reasonable to understand how the social-emotional benefits and use of sign language as a communication method fulfill these fundamental values of sign language groups who then label Sign Language as the most beneficial communication method for deaf individuals.

Problems with Sign Language

1. Sign language and parents of the deaf:

Parents feel a time pressure to learn and be proficient in sign language. The communication, many times, is restricted to the parent's skill in sign language usage.

2. Access to the Curriculum through Sign Language

The majorities of teachers of the deaf currently working are 'hearing' and have not received training in sign language. Moreover, the sign language does not incorporate the conventions of everyday colloquial language. There is also problem in semantic distortion in the use of Idiom through sign language.

THE BILINGUAL APPROACH

Bilingualism is a relatively new idea and one which has attracted a lot of recent attention and interest. Bilingualism can be seen as a reaction against both oral-only and TC approaches.

Bilingualists share with advocates of Total Communication (TC) the view that an

auditory-oral approach fails to meet the communication and linguistic needs of children with substantial hearing losses. But bilingualists are equally critical of TC and agree with the view that combining speech with a contrived system of signs does not bring verbal language to deaf children. Furthermore, they believe that TC does not directly offer a language in sign. TC is perceived to be speech centred and speech does not serve the developing deaf child's communication and language needs. The introduction of TC has been successful in persuading many former oralists to become more 'flexible' in their attitude towards sign and prepared to acknowledge that an oral-only approach does not meet the needs of at least some deaf children.

It is suggested that sign is the natural language of the deaf: their 'biologically preferred' mode (Charrow, 1975). Young deaf children, left to communicate among themselves, have been observed 'naturally' to develop a gestural code of communication (Heider and Heider, 1941). Thus, fundamental to the bilingual approach is that the first language of all deaf children should be the sign language which belongs to the Deaf community of the country concerned.

Bilingualists consider access to sign language, as a first language, is the birthright of all deaf children. However, there is support for bilingualism and acknowledgement of the deaf child's need for verbal language. Literacy is an important goal for bilingualists because they accept that without the ability to read and write an individual is handicapped in a society. However, for bilingualists the route to verbal language is different from that advocated by supporters of oral ism or TC. There appears to be universal advocacy of learning verbal language as a second language. A verbal language, such as English, should be taught only when the first language, sign language, has become established in the developing deaf child. With both oral ism and TC the aim is that the verbal language (e.g. English) should be acquired as a first language.

Components of Bilingual Approach?

Strategies for the Acquisition of Sign Language: the Preschool Years

1. In the first few months of the deaf infant's life the baby is much preoccupied with the touch, smell and sight of the care-giver and at this stage deaf mothers tend to vocalise more than they sign (Woll and Kyle, 1989).
2. It is when the infant sits up independently and pays attention to aspects of the wider environment that the signing parent starts to communicate in sign. The signing care-giver must gain the deaf infant's visual attention to give information through sign yet at the same time relate the information to the object, or focus

of attention in the environment.

3. Signing care-givers adopt a variety of strategies to overcome the problem of divided attention. Care-givers manoeuvre themselves into the visual field of the infant and produce a high proportion of signs within the child's focus (Harris et aI., 1989). Care- givers wait for the deaf child to look at them and then produce signs appropriate to the situation (Mills and Coerts, 1990). It is possible to get the child first to attend to the care- giver's face by gently tapping the child, or moving his or her face, and then sign what is to be referred to while pointing the (care-giver's) arm in the direction of the object (Woll and Kyle, 1989). A care-giver can point to an object, or picture of an object, checking that the child's gaze is directed towards the object or picture and then redirect the child to the adult and provide a sign for that object (Woll and Kyle, 1989). Another strategy observed is to sign on the deaf infant's body (Maestas and Moores, 1980) and to manipulate the child's hands into the shape of signs and guide its movements (Bouvet, 1990). Ensuring that the deaf child is seated comfortably and is supported means that the adult can face the child and at the same time look at pictures or play with toys. In this situation an adult can offer signs without being physically separated from the child (Mills and Coerts, 1990).

Learning through Sign: The School Years

1. It is assumed that by the time the deaf child reaches school age he or she has achieved the linguistic competence necessary to have access to the normal school curriculum (Johnson, Liddell and Erting, 1989). Following the bilingual principle of using the child's first language for educational purposes the curriculum should be offered in sign language. Those who offer curricular content to the children must be fluent signers. For this to be achieved it is extremely important, to make considerably more use of deaf signing adults in formal education than is currently the case (Pickersgill, 1990).

2. It is Sign Language, as the L 1 of deaf children, which should be used to enable the child to acquire L2, such as English. According to Johnson, Liddell and Erting (1989), verbal language will be taught as a second language and methods of verbal language instruction will take advantage of the first language competence the children already have. Amongst bilingualists there now seems to be almost universal approval of approaching verbal language via the written rather than the spoken form (Johnson, Liddell and Erting, 1989). The reason

for not approaching verbal language through speech is the belief that essentially deaf people perceive language in a visual and not in an auditory way. It is important, therefore, that as part of this process deaf children are enabled to come to an understanding of the linguistic principles of sign language, of the way it is structured and formed.

Bilingual Approach: Pros and Cons

One problem with attempting to evaluate the efficacy of a bilingual approach is that we do not have sufficient experience of use of the approach to know whether or not deaf young people emerge from it as fluent signers and as literate, knowledgeable and well informed people.

The main elements of the argument seem to be these:

1. Deaf people should be recognised not as handicapped individuals but as a cultural and linguistic minority group with rights of access to education, employment, etc. equal to those of other members of society.
2. Natural sign languages have the same linguistic status as verbal languages.
3. Deaf children have the right to acquire their own 'indigenous' language, sign language, as a first language.
4. Given appropriate experience, deaf children acquire sign language at the same rate and in a manner that is very similar to the way hearing children acquire spoken language.
5. Hearing parents, if offered appropriate support, can communicate comfortably through sign with their young deaf child.
6. Deaf signing adults have an important role to play in helping hearing parents acquire sign communication and in developing sign language in deaf children.
7. Deaf children should be educated through the medium of sign language as only then will they have full access to the normal school curriculum.
8. Deaf children can become literate, that is, acquire verbal language in the written form through the language base of natural sign language.
9. It is morally wrong to impose on deaf children a language they cannot apprehend, that is, spoken language.
10. The linguistic potential of the deaf child can be realised only through being enabled to acquire sign language as a first language.

Communication Strategy for High School going Hearing impaired

Communication training is instruction provided to a person with hearing loss to maximize his or her communication potential. A communication strategy is a course of action taken to facilitate a conversational interaction or to rectify a problem that arises during conversation. It include any verbal or non verbal behaviors that can be used to improve the effectiveness of communication (Gagne et al 1991).

Tye murray (1994) grouped communication strategies under two general categories.

a) Facilitation strategies

b) Repair strategies.

(a) Facilitative strategies

This includes instructing the talker and structuring g the listening environment to enhance the listener performance.

There are four Facilitative strategies, which may be used to influence:

i) Communication environment:-

Constructive strategies are managing the physical environment In which conversation takes place. (eg noise poor lighting). A person structures the environment to optimize communication by minimizing background noise and ensuring a favorable view of the talker. e.g, move close to talker, reduce background noise, adequate lighting, no reverberation in room etc.

ii) Patients speech recognition skills:

Adaptive strategies:- The individual with hearing loss implements relaxation techniques.

Attending strategies:- the individual pays attention to situational, linguistic and facial cues for the purpose of inferring partially recognized messages (e.g. anxious / happy)

Both adaptive and attending strategies are methods of counteracting maladaptive behaviors that stem from hearing loss.

Anticipatory strategies:- The individual prepares for conversation interaction In advance by anticipating conversational content and potential listening difficulties.

iii) Communication partner Instructional strategies: A person influences the

communication partners speaking behaviors by asking the partner to speak clearly, facing forward.

iv) Message:-

Message tailoring strategies: Individuals encourage communication partners to use short sentences or they control the topic of conversation. Erber (1988) had shown that persons with HL have less difficulty answering questions that require a closed set response than general open ended question.

(b) Repair strategies

Repair strategies are behaviors used to overcome a communication breakdown between communication partners. A communication breakdown occurs when one of the communication partners fails to understand-a message that was intended for that person (Gagne et al 1991)

Repair strategies can be used by the person who is providing the information (expressive strategies) or by the person for whom the message is intended (receptive strategies)

Receptive strategies:

- Could you say that again (Repeat repair strategy).
- Who is going to give you ride (Request for information repair strategy).
- I missed that completely that (key word repair strategy) are you talking about?
- Asking for more information (elaborate repair strategy).
- Expressive repair strategy:- are used to rectify the communication breakdown that occurs because the HI person produces an unintelligible speech utterance, and conversational partner cannot recognize it)

Specific repair strategies:

- Repeat all or part of message
- Rephrases message
- Elaborate message
- Simplify the message
- Indicate the topic of conversation
- Confirm the message

- Write Finger spell.

Non specific repair strategies:

- What
- Huh
- Pardon

Model for communication training:

The model provides a frame work for stages of communication strategies training (Tye Murray 1992)

1. Formal Instruction
2. Guided learning
3. Real world practice.

Formal instruction:- Provides individuals with information about vanous types of communication strategies and appropriate listening and speaking behaviors.

Guided learning:- Train the patients to use a communication strategies in a structured setting.

Activities include role playing, analysis of video taped scenarios ,continuous discourse tracking and drill activities.

- Video taped scenarios provide examples of communication interaction that can be used to discuss communication strategies. Individuals view videotaped scenarios that contrast inappropriate with appropriate use of communication strategies.
- Continuous discourse tracking is another means to provide guided learning. It is an aural rehabilitation technique in which the listener attempts to repeat verbation text presented by a reader. If, the receiver cannot recognize then he/ she should use a repair strategy.
- Exercise drills can provide guided learning. An example of a drill activity is a sentence identification task (Tye Murray 1997).

Real world practice" practice a new skill or behavior in an everyday environment.

Short term training:

WATCH (formal instruction) is an acronym that Montgomery (1994) coined to describe

short communication strategies training program.

W - Watch the talkers mouth not his eye

A - Ask specific questions

T - Talk about your hearing loss

C - Change the situation

H - acquire health care knowledge

SPEECH (Formal Instruction)

- S = spotlight your face
- Keep face visible, distance, same room
- P = pause slightly while speaking
- Moderate rate
- E = empathize and be patient
- Be patient, utilize facilitative and repair strategies.
- E = ease their listening
- Gain listener attention, ask for communication solutions
- C = control the circumstances
- Manage environment
- H = have a plan
- Use appropriate communication strategies for situations

Assertiveness training

Most of the time assertive behavior is appropriate for good communication assertive people respect their communication partners, but they also meet their own needs they admit their problems and ask for assistance. The assertive person indicates for e.g. The need to speech read because of poor hearing The difficulty created by the poor lighting.

One area that is often addressed in aural rehabilitation is development of assertiveness

Behaviors stressed in Assertive training

According to Spitzor, Loder asnd Giolas (1987) some of the behaviors given emphasis

In assertive training are

1) Asking for assistance when something is missed e.g. I missed the date of meeting when will the meeting the place?
2) Getting feedback regarding a portion of the utterance (e.g. 1 know that you were discussing the movie you saw was the movie Raiders of the Lost Heart?)
3) Information others of hearing impairment
4) Moving seat to advantageous location.
5) Continuing to try to understand (eye contact using communicative repair strategies etc)
6) Attempting to anticipate to flow of conversation
7) Modifying strategy when initial approach is unsuccessful ego (I am sorry but I still don't understand that name would you mind telling a word it rhymes with?)
8) Negative behaviors should be reduced or extinguished. The hearing impaired person should not demonstrate impatience, tension or hostility when there is a communicative failure.

Once the behaviors stressed in assertive training are acquired by a hearing impaired person.

He/she is ready to select the appropriate strategy depending on the situation and use them effectively.

Role playing

Discussions are not sufficient in assertiveness training. Clients need an opportunity to practice new skills in a safe structured environmental if they are to change a life long history of passive communication behaviors.Role playing in a group can provide practice of new assertiveness skills.

4.6 Communication Option: Justification and Challenges

Communication options for cochlear implanted children:

In addition to educational setting, the other major educational decision made relates to communication mode. Oral communication has often been linked with improved outcomes from implantation and that spoken language at an elementary level evidenced

higher levels of language and literacy at high school. Studies comparing outcomes from implantation in children using oral communication and those using signed communication often suggest that communication choice is a 'once and for all' decision, that communication does not change over time, or that differing communication modes may be used in differing situations. However, children with cochlear implants do change communication mode after implantation, particularly if implanted early (Watson et aI., 2006). Most parents have changed communication mode following implantation. The trend is markedly towards an increase in oral communication, even for children who had initially used signed communication. Parents' views are that this shift was largely driven by the change in access to audition provided by the implant and was led by the child's changing needs and own choice. Those implanted younger were more likely to change communication mode from sign to oral and did so more quickly than those implanted later, with 83 per cent of those implanted below the age of three using oral communication exclusively 5 years after implantation. As per researchers, majority of cochlear implanted children have moved from signed communication to oral within 6 months of implantation. Parents and young people have showed interest in the use of some signed support or Sign Language (e.g. BSLlISLlASL), once spoken language had been established. Thus, while cochlear implantation offers increased opportunity for the development of oral communication, parents have recognized that differing approaches may be appropriate at differing times, and this might include the use of signed communication. The concept that parents have to make a 'once and for all' decision about communication mode, shortly after diagnosis has been changed by cochlear implantation.

Challenges:

For educators, cochlear implantation has provided new opportunities, but also new challenges to address:

- Providing flexibility in educational provision over time.
- Providing effective support in mainstream, inclusive educational settings.
- Supporting a more diverse population with more subtle communication needs.
- Monitoring subtle changes in progress over time, and identifying difficulties which may impede progress, whether these originate in the child, the environment, or in the technology.

- Providing appropriate education for those who have an additional learning disability.
- Providing appropriate support for the increasing demands in the secondary, school setting.
- Managing complex, changing technology in a busy educational environment.
- Collaborating effectively with a greater number of professionals.
- Providing peer-group support for the psycho-social needs of the increasing numbers of those in mainstream settings (Archbold, 2010).

There remains the challenge of long-term management In education for this new group of children, who are deaf but functioning with levels of hearing provided by implantation not previously possible for profoundly or severely deaf children, and who are increasingly using two implants. They are not functioning as profoundly deaf children of the past, but neither do they function as hearing children.

Communication options for early identified children having access to good amplification:

Children who have been screened early and fitted with hearing aids before the age of six months reach a higher expressive and receptive language level, their speech is more intelligible, they have higher auditory capacities, fewer social-emotional problems, their parents have better attachment, they become better readers and more and more of these children are going to a mainstreamed educational setting. The Simcomm (Simultaneous communication) approach has evolved to be a better approach for early identified children fitted with good quality hearing aids or cochlear implants.

Challenges:

Transition from sign to spoken communication is dependent upon the age of hearing aid fitting. Children fitted before eighteen months of age are able to make the transition well. However, if hearing aid fitting occurs after thirty months of age, the probability of transition from sign to speech is significant reduced. Several factors have been identified which affect the communication option opted by the family and the child fitted with hearing aids. These factors include:

- Continuing debate concerning the appropriate language(s) of instruction in deaf education (e.g. speech alone, cued speech, speech+sign).
- Still-evolving approaches for developing speech and auditory capacities in hearing aid users.

- Individuals' receiving their hearing aids relatively late (3-12 yrs of age)
- Pre-fitting language and cognitive abilities
- Concomitant neurological or psychological conditions
- Post-fitting educational methodologies
- Greater complexity and abstractness of reading materials for older students
- Degraded signals provided by hearing aids which restrict full access to spoken language.

Communication options for late identified children having access to good amplification:

The single most important factor in determining successful development of spoken language after successful identification of hearing loss is the age of hearing aid fitting and commencement of speech, language therapy and remedial education. The younger a child is intervened, the more likely they are to be able to understand spoken language and to use intelligible spoken language for everyday communication. Universally for late intervened children, Sign is used In conjunction with speech (total or simultaneous communication) or a sign language such as British Sign Language (BSL), Indian Sign Language (ISL) or American Sign Language (ASL) is used as the child's first or primary language, with spoken or written English being introduced as a second language. The following pattern proposed by Archbold et al. (2000) has been advocated. This includes:

- Oral communication approach: the child was communicating at home and school and being educated by means of spoken language.
- Sign communication approach: the child was communicating and being educated using sign for all or part of the day and to whatever degree; this included use of spoken English with sign support (total or simultaneous communication) and the use of sign language (Archbold et al. 2000).

Challenges:

- The sensitivity of the central nervous system and neural plasticity is an important concern. While the effects that deafness may have on neuronal connectivity within the auditory pathway have yet to be defined, neural plasticity of the brain in infants has been discussed when considering early intervention. It seems that those intervened over the age of 3 may need more time to adjust

to the new signal being received through hearing aids, and are less likely to change from a signed approach to an oral approach, and some who do change are likely to take longer in comparison with those intervened at an earlier age.

- Adaptability to change is another issue. Those children who do not change from sign to oral ism or take longer time to change are because their communication pattern would have been more firmly established. Globally, despite growing consensus for early identification of hearing loss congenitally deaf children generally spend at least 3 years with only very limited access to sound and even if any still learn to use vision as their primary or sole route to communication. In order to change from the use of a visual system, which utilizes a sense that for the majority is unimpaired, the auditory signal will need to become the more salient route for communication and this process takes years not months to be developed.

4.7 Tuning the environment (Home & school) for facilitating Language and Communication

The child's communication approach would be considered as one factor in the decision regarding school placement. For children who were intervened between the ages of 3 and 5 and those who used sign when they started school, their placement will differ significantly. Once a child starts school, there is a pressure on educationalists to ensure that the child accesses the curriculum. The emphasis is on teaching and ensuring that the child has grasped significant concepts and accessed information. If the child's language development is delayed compared to their hearing peers, then the pressure to ensure that the child can access the curriculum will be increased. Staff may have less time available to spend in promoting the child's listening skills, either in a global way by encouraging the child to listen and presenting auditory cues first, followed by visual cues as necessary, or by engaging the child in discrete listening activities. It is also possible that the expectations of staff, maybe born out of experience of signing deaf children with hearing aids, are that children who start to use sign do not change, whereas in reality children intervened early and fitted with good quality hearing aids have better spoken language, and over time this may change the child's communication use.

Classroom adaptations for children with hearing impairment:

IN LOWER GRADES:

- Preferential sitting

Use ofFM system/traditional amplification along with hearing aid.

- Selection of classroom with good acoustics and low noise level
- Regular monitoring of hearing and gain levels.
- Regular assessment of speech perception

IN HIGHER GRADES:

- Curriculum based assessment
- Use of assistive devices
- Identifying strengths and weaknesses
- Capitulating on the individuals strength
- Enhancing written more than oral usage of language
- Using sign language/ SimCom if the individual is adapted with its use.
- Identifying courses which the individual will have ease of study.

4.8 Let Us Sum Up

- Structured method believes that language is teachable hence has to be taught. It advocates the use of symbol system to represent the structure. The students are made to work on grammar rules by analyzing, categorizing the grammatical aspects. It advocates the use of memorization and imitation work in developing patterns of language.
- The natural method believes that language is not teachable but rather learned. One has to ensure exposure and input and the children "learn" the language naturally. The child is expected to acquire language implicitly through interaction occurring within the environment. No symbol system is used. The main emphasis is on the development of language via oral conversation method based on the experience of the children as it happens naturally in the home environment and the instructions are all planned to parallel the sequence of language acquisition in hearing children.
- The combined method utilizes components of both structured and natural method.

SimmComm, Total Communication and Bilingualism are some of the combined methods.

- The Oral method and Sign Language are the two most widely used and highly debated methods of communication for the deaf. Some believe the Oral communication method to be most beneficial for deaf individuals while some agree on Sign Language to be the most beneficial method.
- Children with cochlear implants change their communication mode after implantation, particularly if implanted early. Most parents have changed communication mode following implantation. The trend is markedly towards an increase in oral communication, even for children who had initially used signed communication.
- Children who have been screened early and fitted with hearing aids before the age of six months reach a higher expressive and receptive language level, their speech is more intelligible, they have higher auditory capacities, fewer social-emotional problems, their parents have better attachment, they become better readers and more and more of these children are going to a mainstreamed educational setting.

4.9 Check Your Progress

2. What are the factors that affect integration of a child with hearing impairment in normal school?
3. What is structured method of language teaching for children with hearing impairment?
4. What are the educational problems faced by children with hearing impairment in the Indian context at various levels.
4. What are the differences between American sign language and Indian sign language
5. What is natural approach? Why is natural approach superior over structured method
6. What are the classroom adaptations for children with hearing impairment?

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Unit-5 ❑ Educational Interventional Strategies

Structure :

5.1 Introduction

In the earlier times children with hearing impairment were generally segregated due to their special needs. In this way the intervention is shelter, food and minimal vocational of the children with hearing impairment. The world is constantly changing and development has touched in every human life. So in this way rehabilitative process are not only shelter, food and minimal vocational training but also new philosophy, approaches, methods, practice, educational aids and appliances for the student with hearing impairment have come up. Education is a single potent tool to address present challenges if results in Learning to know, learning to do, learning to be and Learning to live together & learning to transform oneself & Society. In this sense, children with hearing impairment promote to learning performance in education system. That why educational intervention is the most important part for hearing impaired children.

5.2 Objectives

- ***The student-teacher will be able to understand***

❖ The meaning at itucation Intervention and & types of Educational Intervention.

❖ Principlesand practices in early education intervention

❖ Methods of teaching & lesson planning

❖ Various professional & agencies in educational intervention

5.3 Education Intervention: Concept, Need & area (curricular & co-curricular) & Types of Educational Intervention (group, individual, developmental, remedial)

Concept Educational Intervention

If your child is receiving help in school you will have no hesitation to hear the term *intervention*. A set of people apply this decla ation loosely, to express any kind of assistance once a child gets. But *interventionhas* a very particular definition. Knowing what the term means puts you in an improved position to understand the help your child is getting in school. That is why Educational Intervention is a most important part of an education system. An Educational intervention is a specific program or set of steps to help a child improve in an area of educational need. Like reading or math, there are instructional interventions and also sometimes called academic interventions. In this regard education intervention has various education programmes like pre-school, primary, secondary and high secondary in inclusive setup. The education also underwent changes in the philosophy, mode of communication, teaching methods, curriculum, evaluation etc. In the light of this there are **two types** of key elements of Educational Intervention concept. These are:

Educational intervention—

I. Aimed at a particular weakness.

II. Specific and formal.

- **Aimed at a particular weakness :** That means the educational programmes have become need based of the child and search the particular weakness where the children are not capable of the subject orientation programme. Example: In academic progress hearing impaired children particularly in deaf, he/she can

use in picture where the comprehend language is used which relies heavily upon the language skill.

- **Specific and formal.** That means the educational programmes in hearing impairment have become mainly fostering the academic achievement in specific formal way towards the mainstream atmosphere.

5.3.1. Needs and Areas of Educational Intervention in H.I.

To understand the difficulty that students with hearing impairments may have in presenting oral reports are the potential language development problems linked to hearing impairments and they cannot articulate words clearly. So these educational obstacles related to hearing impairments stem around communication. A student with a hearing impairment may experience difficulty in:

- the subjects of grammar, spelling and vocabulary
- taking notes while listening to lectures
- participating in classroom discussions
- watching educational videos
- presenting oral reports

So from the above Points, Educational Intervention take a major role in a hearing impaired child. That is why Educational Intervention can playa great role to monitor a child's hearing, speech, and language development. The different varieties of needs used for documenting children's development are beyond the scope of this module. The needs are:

5.3.2. A-Speech and Language development

The ability to learn language and speech is the most severely affected area of development of the hearing impaired child. That is, without extensive training the hearing impaired child will not develop normal language and it is a great barrier to normal language development. So Speech and Language development is the most important part of a hearing impaired child.

B-Intellectual Ability Development

Thinking process of normal and deaf children are found to be similar. Cognitive abilities of deaf children are same as normal without language and it is called non-

verbal intelligence. Hence, a hearing impaired children get a higher score in non-verbal intelligence.

C-Academic Achievement Performance

Hearing impaired children are frequently handicapped in varying degree of educational achievement and they are particularly handicapped in reading which relies heavily upon language skills. Only small percentage of deaf or hearing impairment individual comprehend language well enough to read text book. So in this regard, academic achievement of deaf children is mainly due to the fact that academic atmosphere in school and colleges is predominantly verbal in nature and that the deaf children have deficiency in verbal skills.

D-Social and Occupational Adjustment

Social and personality characteristics of hearing impaired children are markedly different from the normal children because social interaction depends upon communication with the speech. A hearing impaired child particularly deaf focus trouble in communicating with speech. This agreement the problem of social adjustment. Due to this such children live in a world of isolation. Due to such isolation hearing impaired children develops a sense of inferiority and frustration in the hearing impaired children.

Areas of Educational Intervention

There are mainly two important aspect of Educational Intervention. These are Curricular and co-curricular part.

A-Curricular

You all are skilled teachers of the students with hearing impairment and not required to explain what curriculum is; nor do you need to be told what adaptations are? However, it is always better to start from the beginning ensuring that one is absolutely clear about the basic concepts involved. Hence let us just quickly brush up what we know about 'curriculum' and 'adaptations'. Curriculum, in general is a detailed blueprint of 'what to teach' and 'how to teach' which includes the following aspects :

(1) Objectives of Teaching Learning Process (TLP)

(2) Content (subject matter) of the TLP

(3) Speed and duration of TLP

(4) Classroom curricular transaction strategies.

(5) Calendar and schedule of activities and experiences required for facilitating TLP.

(6) Teaching Learning Material (TLM) required for TLP.

(7) Assessment strategies- formative as well as summative.

The curriculum must:

- Include child centred pedagogy keeping in mind the child's psychological development, interests and specific learning needs
- Ensure equal access in every possible manner like physical, attitudinal, academic and social.
- Facilitate learning in an inclusive learning environment with accessible material, positive attitude and relevant/adaptive teaching strategies.
- Prescribe for use of all available educational / assistive technologies to ensure equal participation of and effective learning in all children specifically for children with hearing impairments.
- Include all children with and without hearing impairment needs by providing differential opportunities to demonstrate learnt skills according to their learning abilities.

Adaptation: Adaptation is an ongoing dynamic process that modify and adapts the IEP/ prescribe programme to meet the learning requirements of a student with hearing impairment and ensure that every student is challenged to learn.

Adaptation must :

- Include components of life skills through transitional stages working towards independent living.
- Include locally available conditions/ opportunities/ situations to develop pre-vocational and vocational competencies.
- Integrate work pedagogy in education and include broad-based work experiences taking care of the needs of hearing impaired children.

- Ensure participation of hearing impaired children in play, games, social and cultural activities to improve the physical and mental health by developing appropriate adaptations.
- Provide flexibility in school and class time tables to address individual needs of children
- Create opportunities for facilitated social interaction.
- Construct knowledge by connecting new ideas to existing ideas on the basis of materials/ activities.
- Incorporate required adaptation in curriculum (learning content, learning approach, learning aids and evaluation) to address and accommodate individualised learning styles.

B-Co-curricular

A Child's holistic development is measured not only by his academic achievements. Sports & Games, Arts & Fine Arts and social skills combined together with intellectual excellence makes a student what he or she will be when he blossoms into an adult. In view of this opens an avenue of Co-curricular activities to prepare children with hearing impairment for his greater journey of life's-curricularactivities are not just 'nice to have' or 'desirable to have', but 'must have' qualities and this activity are like Yoga, Music, Dance, Sports and other activities moulds the wholesome personality in students and implementedfor character development in students.

Types of Educational Intervention

Education completes man. Students need quality education suitable for life. Perceiving the needs of the learners, appropriate changes are made in the curriculum, syllabus and textbook on a need basis. Currently changes have taken place in the evaluation system. The long-practiced marking scheme has been done away with and grading system has been brought in its place. The students are assessed not only during examinations but all through the term. Education intervention is conducted through activities in two broad senses. These are curricular and co-curricular activities. In this regard, there is no single type of Educational Intervention. So the prevalent types of Educational Interventions are group, individual, developmental and remedial.

A-Group:

There is a range of inclusive teaching strategies that can assist all students to learn but there are some specific strategies that are useful in teaching a group which includes students with hearing impairments. The solution to all the problem arising out of formation of various levels within a group hence is known as grouping for instruction.

The highlights of the grouping system are:

- There is no rigid class.
- All children of a same class do not remain within the same group or all subject.
- Children are grouped according to their abilities, strengths or weakness and are taught accordingly by separate teachers in separate class room.
- Type of flexibility within the group for instruction exists for most of the curricular and co- curricular lessons in the schools where grouping are practiced.
- It is an ideal way which could give an opportunity to each and every child to learn appropriately at his/her pace and as per the ability.

B- Individual:

Man is a social animal and cannot live without society. Individuals are part of the society and the society in turns has many expectations from every individual. So both should contribute each other and individuals must acquire social efficiency. But society believes that education is necessary only for able children. Due to this hearing impaired children are often unnoticed resulting in ignorance of the society towards educational needs and social participation of the children with hearing impairment. A special education program should be customized to address each individual student's unique needs. A special educator provides a continuum of services, in which students with hearing impairment receives varying degrees of support based on their individual needs. Special education programs need to be individualized so that they address the unique combination of needs in a given student. In special education educational professionals use a student's Individualized Education Programmed "The IEP is meant to address each child's unique learning issues and include specific educational goals. It is a legally binding document. The school must provide everything it promises in the IEP. So with the help of IEP students with hearing impairment are assessed to determine their specific strengths and weaknesses and teacher produce the children's

placement, resources and goals. These are determined on the basis of the student's needs. Accommodations and Modifications to the regular program may include changes in the curriculum, supplementary aids or equipment, and the provision of specialized physical adaptations that allow students to participate in the educational environment as much as possible. Parent of students with hearing impairment must know what type of disability their child has, so they can get accommodations like speech therapy, auditory training etc. For example, if a student takes an academic test and it indicates that the student struggles with reading comprehension; parents can request speech and language support or classroom accommodations, such as extra time to complete reading and writing tasks.

C-Developmental:

Developmental Education intervention must involve ongoing teamwork and discussion with parents and other service providers (therapists or special education teachers, assistants and one-to-one aids) involved in delivering in developmental education intervention services to each eligible child participating in the group and the child's family. Families must collect steady response on the child's progress, based on the needs of the child and family. In addition, families should receive feedback on how they can help their child learn and work on skills to support learning and development in the home environment. Developmental education intervention services should include the supports and resources (e.g., assistive technology, curriculum adaptations and equipment) necessary to maximize the child's opportunities to participate and learn in the group setting and services should use developmentally appropriate practices that are also responsive to cultural and language needs of the children in the group.

Guidelines for Selecting Developmental Education Intervention

- What are the child's unique strengths, developmental needs and skills, interests, health status and history that contribute to the consideration of a group setting?
- If services are recommended for a child with health issues, what precautions and supports are necessary to ensure the child's health status wi\l not be compromised in a group setting?
- Considering the child's chronological age and developmental status, in what ways might he or she benefit from participating in group services?
- What are the planned approaches and activities in a group setting necessary to

support the transition of the child to a typical preschool or preschool special education program?

- What types of adaptations, modifications, supports, and equipment might be needed to enhance the child's participation in the group setting?
- What characteristics of the group setting are important to achieve the goals and measurable outcomes in the child's and family's and to help the child benefit from the group experience. e.g., type of intervention model, need for staff fluent in the child's language, cultural considerations etc.

D-Remedial: Remedial Education Intervention is also known as developmental education, basic skills education, compensatory education, preparatory education, and academic upgrading. It is signed to assist students in order to achieve expected competencies in core academic skills such as literacy and numeracy. Whereas special education in children with hearing impairment is designed specifically for students with hearing impairment. remedial education intervention can be designed for any students, with or without special needs; the defining trait is simply that they have reached a point of under preparedness, regardless of why.

5.4 Principles and Practicles in Early Educational Interventions Family Centered, Contextualised (natural and inclusive environment) and Integreted (Collaborative) Support and Services

5.4.1 Introduction:

Now our formal education is started from very early childhood. A child can go to school from 2 years^{+}. There are many play schools for children. According to rule of our Govt. formal education is started from 5 years^{+} in primary school. The children who belong to the age group of 5 years^{+} to 6 years get education in pre-primary classes. There after they start their primary education from Class I. The children get support in the corner of nutrition, health and non-formal education also. The children of 0-5 years can go to the Anganwadi Centres. But the informal education is started from birth by the pleasant touch of mother. A child grows gradually in nature and he/she becomes a member of his/her family. So, then he/she starts to learn anymore from his/her family and surrounding also. We can say that a family has the important

role to develop the child. Every child is quite individually different from each other. So every child has different capability also. We should prepare various types of curriculum according to ability to fulfil their needs.

5.4.2 Principles:

Early childhood education is the most important part in the life. Before 5 years a child can get education through informal and non-formal ways. But many play schools introduce formal education by playway techniques. So they follow some basic principles.

These are :

- **The educational goal must be child centrie**. A child is a main component of education. So the main objective of education is to fulfil the needs of a child.
- **The age limit of the education must be below 5 years**. The education of below 5 years is called early childhood education.
- **The education must be activity based**. A Child likes to do activities. They can learn easily through more and more activities.
- **The curriculum must be friendly**. A child always wants to meet with his/her friends. They like to play with themselves. So, if the curriculum is filled up with joy a child can accept it spontaneously.
- **The curriculum must be flexible**. The curriculum can be charged on the basis of needs, time and environment also.
- **The curriculum must be developed from simple to complex**. The teaching or learning should be started from simple to complex. As a result the child acquires the concept easily.
- **The curriculum must have the indication from known to unknown.** If the learning activities are started from familiar situation to unfamiliar situation or known experience to unknown experience the child can learn anything properly.
- **The curriculum must be prepared on the basis of interests and tendencies of the children.**
- **The Curriculum must be made from concreate to abstract.**

In early childhood a child wants to observe all by touch, So, the curriculum should be prepared such a may that are fulfilled with many activities of concrete materials.

5.4.3 Family Oriented Programmed in Early Childhood Education :

A child groups gradullay in his/her own family. Every child becomes mature by the warm and nice touch of his/her family members. During the period of 0-5 years nature and family atmosphere both play the vital role. The family members continuously assist the child to adapt with nature and surroundings. The growth and developments of the children both are running on at the high rate before 5 years. So, the parents and other family members should keep it up in the mind that a child wants more support at that age particularly.

Many research have already shown that if any child becomes story physically and mentally at that age he/she can spend a healthy life for ever. The parents should spend the quality time with their basis. In early childhood the every child wants to imitate someone who is the ideal to that particular child. The child often likes somebody and so he/she follows each activity of that person. Actually that person is the role model to the child. So, the family members or adult should very much careful to nurtike their little one. The child tries to accept all the behaviour of their guardians by imitation. We can say that early childhood is the crucial age of every life.

Now our children with special needs start their journey as same as normal children. But the children with special needs demand extra support. Often many techniques and different methods are used to facilitate them. Suppose we have a learner who is a child with hearing impairment. Now there is a question how will we give fruitful instructions which are more beneficial for him to communicate with others.

5.4.3.1. Steps to follow :

- First of all we should remember that a HI child wants to show some gestures to interact with other. He point outs some objects by the use of fingers. But we know very well that it is not enough. So, we can follow some procedural steps.
- Early detection is the most effective task to us. If this type of disability is detected after birth (0-6 months) by the parents the next attempt may be easy. After detection the parents should go for disability certification to measure the level of disability.
- According to level the parents should give him hearing aid. It is their duty to

make him habituated for the use of hearing aid. At the begining the child does not want to use hearing aid. He often puts off hearing aid. The parents should careful about it that he does n't put off his aid.

- After habituation of use of hearing aid the family members should arrange different types of instruments (rattle, bell etc) or objects with various lones and tunes. The members will create the sound in front of him and utter clearly the names of those instruments or objects. This practice will continue on regular basis. The number of the instruments or objects are increased day by day. After identification of a sound we can proceed for another sound. The he will be able to discriminate each sound among others. There after he can comprehend many sounds. It is an ordinary task of auditory training at home. Simultaneously we can show him many objects in have or outside and properly pronounce the word repeatedly. It must be the face to face interaction. The parents must encourage their child to utter those words. At that time the child can try only not perfectly.
- After that the child needs more picture clues. The picture must be clear and colourful. It is quite natural that at thin age the little one will become curious and investigative. Then be enquises very much. The family members should give him reply clearly to fulfil his requirement. The child needs love and care. The family members should not avoid or joke with him. They should keep up patience while they talks with their child. If the child feels that he is a victim he will stop the commiunication. The parents should send him for play with peer groups. The communication should be increased gradually.
- Here the parents can follow a technique which is called lip reading. When an adult talks with the child he/she should care it that the child can observe his/her lips clearly or not. The sentences must be simple and short.
- Dramatization is another effective technique. The family members can play the short roles to establish different characters or to make him realize many abstract thoughts. The child will also involve in it. But the adults will not express to the child that it is not true. They should present whole as same as real life.

Thus the child can develop his speech and interaction with others. The 'parents should create the environment as if the child wants to interact with another member of the family spontaneously.

5.4.4 Inclusive Support

According to RTE Act (2009) every child has a right to get formal education under the same roof. Sarva Siksha Mission (SSM) has already said that no child will be isolated due to his/her disability. On the other hand SSM has a slogan—'no discrimination'. So, every year SSM provides many grants to prepare TLM for the children with special needs. Now every school (directly Govt. & Govt. undertaken) has been transformed into inclusive school. In our West Bengal Govt. aided many schools are under the same circle. Every circle has a resource room where the special education are appointed through needs go to the resource room twice in a week. They get proper assistance on the basis of their requirement. The special educators are expert in different field of disability. Every special educator is responsible for many special need children of different schools within the circle. They visit regularly in every school and submit their report to the circle office (Circle Level Resource Centre—CLRC) as well as SSM. First of all they take report from the Head of the Institution of every school at the beginning of the session if any child with special need is admitted or any type of disability has been detected by the responsible teachers. There after he/she gives suggestions to the responsible teachers how the child will overcome the difficulties. If the teacher wants he/she can prepare different types of TLM for the child with special needs with the help of special educators. The teacher can enquire how he/she will use that activity of the learners. The special educator helps the responsible teacher to make up the teaching of children with special needs. Often SSM provides orientation programme for the teachers. The teacher should follow the teachniques and methods which are demonstrated in orientation programme.

Every child wants empathy not sympathy from us. So, it is high time to take necessary steps for the children.

5.4.5 Integrated Supports & Servicces

If the child has high degree of hearing loss he needs support of some special techniques which are executed in special schools where special teacher facilitation the child how to apply some techniques in home. So, we can say that home and special school are not fully different unit but both are dependent to each other. The child can tearm

the techniques and methods properly by the assistance of special teachers and then he may practice those techniques in home with his family members. The family members can also learn the techniques from the teachers. As a result they can rectify the child when he practices. According to RTE Act (2009) the child starts to go to normal school from 5 years^{+}. There he meets with many friends and teachers. If the teachers of normal school have been known with such methods of communication with HI children they can develop his communication skill. The special school is not an isolated body but it can work with other associated bodies such as normal school, parents, family members and peers group etc. Thus the HI child can progress his speech. Below 5 years a child goes to Anganwadi centre. He gets chance to make friendship among the children there. The centre-in-charge should follow the techniques to interact with her learner. If she thinks that she needs adequate support of guardians she may call them and may take the help.

A word must be kept in mind that integration is possible when all of us want to provide effective assistance to the child.

5.5. Maxim, Methods of teaching & Lesson planning (group, individual and developmental, remedial)

5.3.1. Maxim, Methods of Teaching

Every teacher or special educator wants to make maximum involvement and participation of the learners in the learning process. He sets the classroom in such a way so that it becomes attractive for them. He uses different methods, rules, principles etc. in order to make his lesson effective and purposeful. He uses general rule or formula and applies it to particular example in order to make teaching -learning process easy and up to the understandable level of students. These settled principles, tenets, working rules or general truths through which teaching becomes interesting, easy and effective are called the maxims of teaching. They have universal significance. Every person who is expected to enter into the teaching profession has to familiarize himself with the maxims of teaching. Their knowledge helps him to proceed systematically.

In this context of Hearing Impaired Learners it is very much important to say that expression through language is the main barrier of learning. So all the times it is keep in mind that all words are new to them.

The different maxims of teaching are briefly explained below. The teacher or special educator should always proceed keeping them in view.

1. From known to unknown: -

When a child enters into school, he possesses some knowledge and it is the duty of teacher to expand his previous knowledge. In case of Hearing Impairment (HI) students the teacher to expand his I her language also. Whatever he possesses should be linked with the new knowledge and language. If we link new knowledge with the old knowledge our teaching becomes clearer and more definite.

This maxim facilitates the learning process and economses the efforts of the teacher and the taught. For example, is teaching English to the children and he is to teach the word 'water'. This way of teaching helps the learners to understand things fully. This way the teaching becomes definite, clearer and more fruitful.

Example: - Water (Know) Stream (Unknown).

2. From simple to complex: -

The main objective of teaching is to teacher and the leamer's objective is to learn something. In this process of teaching and learning, simple or easy things should be first presented to the students and gradually he should proceed towards complex or difficult things. The presentation of simple material makes the learners interested, confident and feel encouraged. As they will show interest towards the simple material, they become receptive to the complex matter. On the other hand, if complex matter is presented first, the learner becomes upset, feel bored and finds himself in a challenging situation.

For example, in mathematics we first present the idea of addition (+), subtraction (-), multiplication(x) and then division.

When the hearing impaired students gets admitted to 9th and 10th class we introduce algebra, square, trigonometry, geometry etc. As he proceeds further he becomes familiar with the complex material like matrices, integration, differentiation etc. In this way a learner shows interest by proceeding from simple mathematics to complex one. But if we reverse the situation, he will find himself in a challenging situation and will left his studies due to complexity of matter. Simplicity or complexity of the subject matter

should be determined according to the view point ofthe learners. It makes learning convenient and interesting for the students.

3. From concrete to abstract: -

Concrete things are solid things and they can be visualized but abstract things are only imaginative things. The child understands more easily when taught through their senses and never forget that material. On the other hand, if abstract things or ideas are presented, they forget it soon. As Froebel said, "Our lessons ought to start in the concrete and end in the abstract". For example, when we teach the solar system, we first visualize the sun through our senses and gives the concept of eight planets, galaxies, meteorites etc. Through this process, the learners understand the materials more easily. Some power of imagination also develops in them. But if we reverse the situation, it will become difficult for learners to understand anything. Another example, when we teach counting to the students we should first take the help of concrete objects like beads, stones etc. and then proceed to digits and numbers.

4. From analysis to synthesis: -

When we divide a thing into easy parts or separate elements in order to understand it easily is called analysis. It is the process which helps in understanding the hidden elements of a thing or the cause of some incident or behaviour. For instance, in order to tell about the structure or functions of heart, the parts of the heart are shown separately and knowledge of every part is given. After it the students are made to understand the structure or system of working of the heart. In this way, even a very difficult thing can be easily understood. Synthesis is just opposite of analysis. All parts are shown as a whole. The process of analysis is easier than synthesis for understanding a thing. This process develops the analytical power of the students. It is the best method of starting the teaching process. For example, while teaching digestive system, we should first analyse the different parts of digestive system one by one and then gives the synthetic view of it. Hence a good teacher always proceeds from analysis to synthesis.

5. From particular to general: -

A teacher should always proceed from particular to general statements. General facts, principles and ideas are difficult to understand and hence the teacher should always first present particular things and then lead to general things. Suppose the teacher is

teaching continuous tense while teaching English, he should first of all give few examples and then on the basis of those make them generalize that this tense is used to denote an action that is going on at the time of speaking. Hence a teacher should proceed from particular to general.

6. From empirical to rational: -

Empirical knowledge is that which is based on observation and first and experience about which no reasoning is needed at all. It is concrete, particular and simple. We can feel and experience it. On the other hand, rational knowledge is based upon arguments and explanations. For example, suppose the students are to be taught that water boils on heating. They should first be made to heat the water and see it boiling. Then the teacher should explain that when water is heated, the molecules gain kinetic energy and there is thermal agitation of the molecules which make the water boil. This maxim is an extension of some of the previous maxims, namely proceed from simple to complex proceed from concrete to abstract and from particular to general.

7. From induction to deduction: -

The process of deriving general laws, rules or formulae from particular examples is called induction. In it if a statement is true in a special situation, it will also be true in other similar situations. It means drawing a conclusion from set of examples. For example, when hydrogen reacts with boron, it gives Boron hydride, potassium reacts hydrogen, it gives potassium hydride, we come to the conclusion that all elements when reacts with hydrogen they from hydrides. While using this process in teaching, a teacher has to present particular examples or experiences and tell about similarity oftheir attributes. Deduction is just opposite of induction. In it, we derive a certain particular conclusion from general laws, rules or principles. For example, in language teaching, before giving the definition of noun, the students are acquainted with the example of noun like man, chair, Delhi etc. and then they are led to general definition of noun. So a good teacher always proceeds from induction and finishes at deduction.

8. From psychological to logical: -

Modem education gives more emphases on psychology of the child. The child's psychological development is of utmost important than any other thing. A teacher while teaching should follow this maxim viz from psychological to logical. Psychological

approach takes into consideration the pupil his interests, abilities, aptitudes, development level, needs and reactions. The teacher should keep in mind the psychological selection of the subject matter to be presented before the pupils. Logical approach considers the arrangement of the chosen content into logical order and steps. It is child cantered maximum. For example, a teacher tells the story of a poem to students when they are not interested in reading, with this a teacher proceeds from psychological to logical sequence.

9. From Actual to Representative:

First hand experiences make learning more vivid and efficient than to give them representative ones. A teacher while selecting the content for presentation should make all efforts possible to present it through actual, natural or real objects than from their improvised representative one's like pictures, models etc. For example, to teach about 'Golden Temple Amritsar', a teacher should try his best to visit the actual place and that learning will be more vivid and the pupils will retain it for a long time in spite of teaching through sketches, model or a picture. Representative forms should be used at the higher classes than in lower classes.

10. From Whole to Parts:

This maxim is the offshoot of gestalt theory of learning whose main emphasis was to perceive things or objects as whole and not in the form of parts. Whole is more understandable, motivating and effective than the parts. In teaching, the teacher should first give a synoptic view of lesson and then analyse it into different parts. For example, the teacher while teaching the pollination in plants, he should first take the flower then analyse it into different parts and give detailed information about each and every part like the sepals, petals, androecium, gynoecium etc. In this way, maximum learning is possible. It is actually the reverse of the maxim "analyses to synthesis".

11. From definite to indefinite:

A teacher should always start from definite because definiteness has its limited boundaries and jurisdiction than indefinite things. We always have confidence on definite and tested things. We learn easily indefinite things on the basis of definite things. Hence a teacher while teaching any content should first present definite things, ideas and then he can learn indefinite things easily. Definite things, definite rules of grammar help the

learner to have good knowledge. Gradually he can be taught about indefinite things.

The above method also applicable for hearing impaired students, not only the specific students any students can learn from the above method.

This is a very important for the student to be trained for five senses (eye, ear, nose, test, & touch) in the teaching field. It all these organs are always active, students learnt every things very quickly. With the help of sense organs students are able to from concept in their mind about size in this universe, types, colours, weight, quantity ,density and temperature etc. If the sense organ work properly the concept of each object also develop correctly in students.

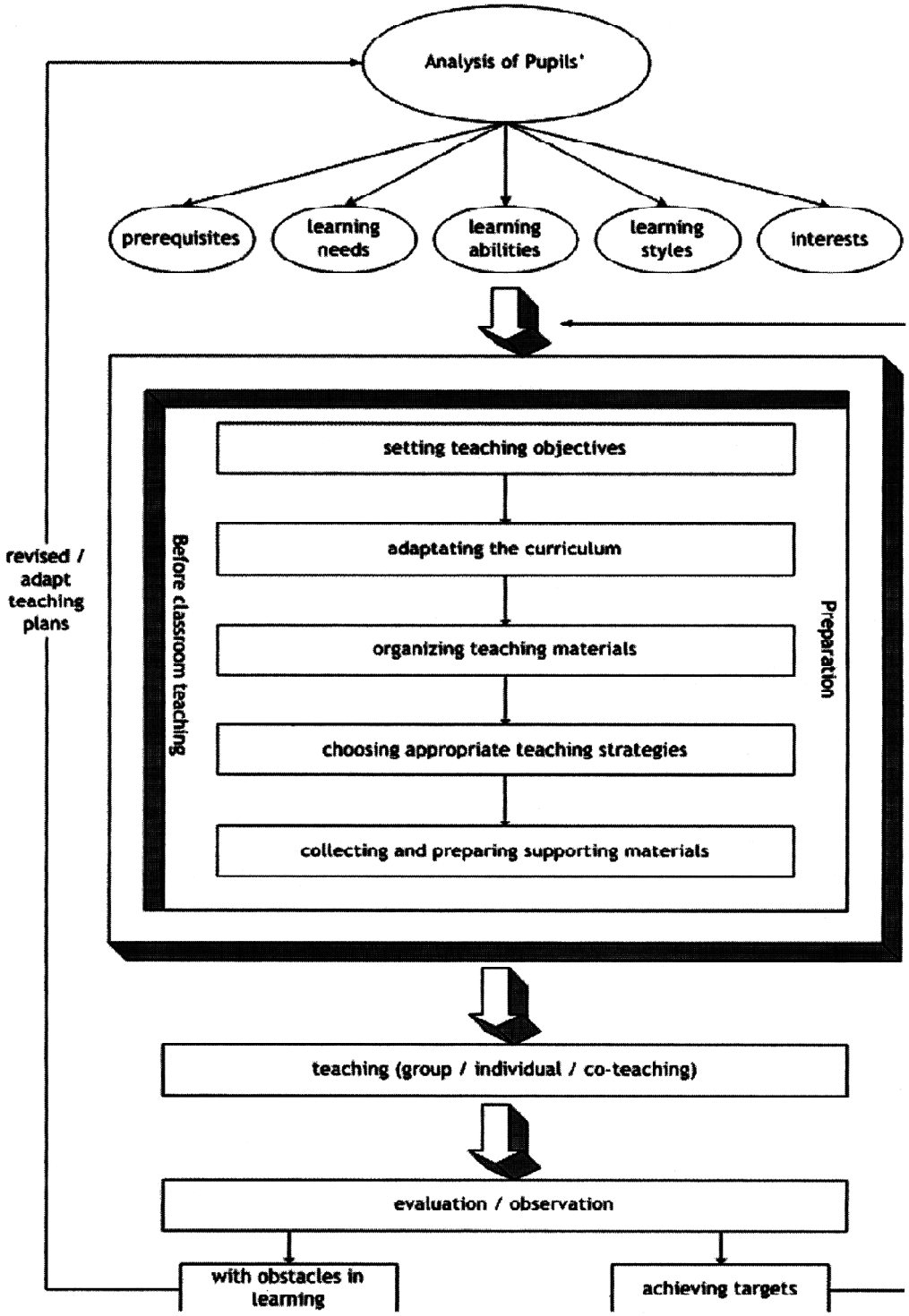
LESSON PLANNING

A lesson plan is a teacher's detailed description of the course of instruction, or 'learning trajectory' for a lesson. A daily lesson plan is developed by a teacher to guide class learning. Details will vary depending on the preference of the teacher, subject being covered, and the needs of the students There may be requirements mandated bypassed the school system regarding the plan. A lesson plan is the teacher's guide for running a particular lesson, and it includes the goal (what the students are supposed to learn), how the goal will be reached (the method, procedure) and a way of measuring how well the goal was reached (test, worksheet, homework etc.).

Characteristics of Good Lesson Plans

A lesson plan helps us to teach better. A big part of having lesson plans is being able to track your teaching activities throughout the term. For example, start with the objective, or what you want students to learn from the lesson, and link it to the overall course objectives and state standards. This not only keeps you accountable but also helps you keep track of how you are meeting course objectives. Your lesson objectives should be viewed as, 'what will the students learn today?' or 'what can they do with this information, afterwards?'

The Flowchart below may serve as a reference for teachers in the delivery of collective or group or individual teaching.


Analysis of Pupils'
prerequisites
learning needs
learning abilities
learning styles
interests
Before classroom teaching
setting teaching objectives
adaptating the curriculum
organizing teaching materials
choosing appropriate teaching strategies
collecting and preparing supporting materials
Preparation
revised / adapt teaching plans
teaching (group / individual / co-teaching)
evaluation / observation
with obstacles in learning
achieving targets

Steps for Preparing a Lesson Plan

A lesson plan is the instructor's road map of what students need to learn and how it will be done effectively during the time. Before you plan your lesson, you will first need to identify the learning objectives for the class meeting. Then, design appropriate learning activities and develop strategies to obtain feedback on student learning. A successful lesson plan addresses and integrates these three key components:

Objectives for student learning

Teaching/learning activities

Strategies to check student understanding

Specifying concrete objectives for student learning will help you determine the kinds of teaching and learning activities will use in class, while those activities will define how you will check whether the learning objectives have been accomplished.

(1) Outline learning objectives

The first step is to determine what you want students to learn and be able to do at the end of class. To help you specify objectives for student learning, answer the following questions:

What is the topic of the lesson?

What do I want students to learn?

What do I want them to understand and be able to do at the end of class?

What do I want them to take away from this particular lesson?

Once you outline the learning objectives for the class meeting, rank them in terms of their importance. This step will you for managing class time and accomplishing the more important learning objectives in case you are pressed for time.

Consider the following questions:

What are the most important concepts, ideas, or skills I want students to be able to grasp and apply?

Why are they important?

If ran out of time, which ones could not be omitted?

And conversely, which ones could I skip if pressed for time?

(2) Develop the introduction

Now that you have your learning objectives in order of their importance, design the specific activities you will use to Search students to understand and apply what they have learned. Because you will have a diverse body of students with different academic and personal experiences, they may already be familiar with the topic. That is why you might start with a question or activity to gauge students' knowledge ofthe subject or possibly, their preconceived notions about it. For example, take a simple poll: "How many of you have heard of X? Raise your hand if you have." You can also gather background information from your students prior to class by sending students an electronic surveyor asking them to write comments index cards. This additional information can help shape your introduction, learning activities, etc. When you have the students' familiarity with the topic, you will also have a sense of what to focus on. Develop a creative introduction to the topic to stimulate interest and encourage thinking. You can use a variety of approaches to engage students (e.g., personal anecdote, historical event, thought-provoking dilemma, real-world example, short video clip, practical application, probing question, etc.). Consider the following questions when planning your introduction: How will I check whether students know anything about the topic or have any preconceived notions about it?

What are some commonly held ideas (or possibly misconceptions) about this topic that students might be familiar might espouse?

What will I do to introduce the topic?

(3) Plan the specific learning activities (the main body of lesson)

Prepare several different ways of explaining the material (real-life examples, analogies, visuals, etc.) to catch the attention more students and appeal to different learning styles. As you plan your examples and activities, estimate how much you will spend on each. Build in time for extended explanation or discussion, but also be prepared to move on quickly different applications or problems, and to identify strategies that check for understanding. These questions would help design the learning activities you will use:

What will I do to explain the topic?

What will I do to illustrate the topic in a different way?

How can I engage students in the topic?

What are some relevant real-life examples, analogies, or situations that can help students understand the topic?

What will students need to do to help them understand the topic better?

(4) Plan to check for understanding

Now that you have explained the topic and illustrated it with different examples, you need to check for student understanding - how will you know that students are learning? Think about specific questions you can ask students in order to check understanding, write them down, and then paraphrase them so that you are prepared to ask the questions in different Try to predict the answers your questions will generate. Decide on whether you want students to respond orally or in You can look at to help you generate ideas and you can also ask yourself these questions:

What questions will I ask students to check for understanding?

What will I have students do to demonstrate that they are following?

Going back to my list of learning objectives, what activity can I have students do to check whether each of those been accomplished?

An important strategy that will also help you with time management is to anticipate students' questions. When planning lesson, decide what kinds of questions will be productive for discussion and what questions might sidetrack the class. about and decide on the balance between covering content (accomplishing your learning objectives) and ensuring that students understand.

(5) Develop a conclusion and a preview

Go over the material covered in class by summarizing the main points of the lesson. You can do this in a number of you can state the main points yourself ("Today we talked about..."), you can ask a student to help you summarize them, you can even ask all students to write down on a piece of paper what they think were the main points of the lesson. review the students' answers to gauge their understanding of the topic and then explain anything unclear the following Conclude the lesson not only by summarizing the main points, but also by previewing the next lesson. How does the relate to the one that's coming? This preview will spur students' interest and help them connect the different ideas within larger context.

(6) Create a realistic timeline

GSIs know how easy it is to run out of time and not cover all of the many points they had planned to cover. A list often learning objectives is not realistic, so narrow down your list to the two or three key concepts, ideas, or skills you want students to learn. Instructors also agree that they often need to adjust their lesson plan during class

depending on what students need. Your list of prioritized learning objectives will help you make decisions on the spot and adjust your lesson plan as needed. Having additional examples or alternative activities will also allow you to be flexible. A realistic timeline reflects your flexibility and readiness to adapt to the specific classroom environment. Here are some strategies for creating realistic timeline:

Estimate how much time each of the activities will take, then plan some extra time for each When you prepare your lesson plan, next to each activity indicate how much time you expect it will take Plan a few minutes at the end of class to answer any remaining questions and to sum up key points Plan an extra activity or discussion question in case you have time left Be flexible - be ready to adjust your lesson plan to students' needs and focus on what seems to be more productive rather than sticking to your original plan

Presenting the Lesson Plan

Letting your students know what they will be learning and doing in class will help keep them more engaged and on track. You can share your lesson plan by writing a brief agenda on the board or telling students explicitly what they will be and doing in class. You can outline on the board or on a handout the learning objectives for the class. Providing a meaningful organization of the class time can help students not only remember better, but also follow your presentation understand the rationale behind in-class activities. Having a clearly visible agenda (e.g., on the board) will also help students stay on track.

Reflecting on Your Lesson Plan

A lesson plan may not work as well as you had expected due to a number of extraneous circumstances. You should have discouraged - it happens to even the most experienced

teachers! Take a few minutes after each class to reflect on what worked well and why, and what you could have done differently. Identifying successful and less successful organization class time and activities would make it easier to adjust to the contingencies of the classroom. For additional feedback planning and managing class time, you can use the following resources: student feedback, peer observation, viewing videotape of your teaching, and consultation with a staff member.

Conclusion

To be effective, the lesson plan does not have to be an exhaustive document that describes each and every possible classroom scenario. Nor does it have to anticipate each and every student's response or question. Instead, it should you with a general outline of

your teaching goals, learning objectives, and means to accomplish them. It is a reminder what you want to do and how you want to do it. A productive lesson is not one in which everything goes exactly as planned, but one in which both students and instructor learn from each other.

This plan is very much effective for the general students but if the students with hearing impairment you must stress knowledge and language.

Developing a lesson plan

While there are many formats for a lesson plan, most lesson plans contain some or all of these elements, typically in this order:

- *Title* ofthe lesson
- *Time* required to complete the lesson
- List of required *materials*
- List of *objectives*, which may be *behavioural* objectives (what the student can do at lesson completion) or knowledge objectives (what the student *knows* at lesson completion)
- Information of Language.
- The *set* (or lead-in, or bridge-in) that focuses students on the lesson's skills or concepts-these include showing pictures or models, asking leading questions, or reviewing previous lessons
- An *instructional component* that describes the sequence of events that make up the lesson, including the teacher's instructional input and, where appropriate, guided practice by students to consolidate new skills and ideas
- *Independent practice* that allows students to extend skills or knowledge on their own
- A *summary*, where the teacher wraps up the discussion and answers questions
- An *evaluation* component, a test for mastery of the instructed skills or concepts-such as a set of questions to answer or a set of instructions to follow
- A risk assessment where the lesson's risks and the steps taken to minimize them are documented.
- *Analysis* component the teacher uses to reflect on the lesson itself -such as what worked, what needs improving.

Individual Lesson Plan:

When we are modifying the teaching plan for an individual, the teacher should prepare for individual lesson plan. Now question is what is individualized education programme (IEP)?

An IEP defines the individualized objectives of a child who has been determined to have a disability, as defined by federal regulations. The IEP is intended to help children reach educational goals more easily than they otherwise would. In all cases the IEP must be tailored to the individual student's needs as identified by the IEP evaluation process, and must especially help teachers and related service providers (such as paraprofessional educators) understand the student's disability and how the disability affects the learning process.

The IEP describes how the student learns, how the student best demonstrates that learning and what teachers and service providers will do to help the student learn more effectively. Developing an IEP requires assessing students in all areas related to the known disabilities, simultaneously considering ability to access the general curriculum, considering how the disability affects the student's learning, forming goals and objectives that correspond to the needs of the student, and choosing a placement in the least restrictive environment possible for the student.

Special education allows a child to have an individual education plan (IEP) when the child's disability interferes with the student's education and performance. Special Education is available for all children that qualify from age 3 through age 21 or upon graduation from high school, whichever comes first. If a parent feels their child requires special education, the first step is to contact the school the child is attending and explain what how you feel your child's disability will affect education. The next step is the evaluation, which will include:

- a letter or form from the physician explaining the child's specific medical concern
- interview with parents
- interview with teachers
- information from parents
- specific testing, including all areas related to suspected disability.

After that the teacher should plan for the child according to their need. It is absolutely need based programme. Through task analysis teacher will prepper a plan. IEP plan and related matter you have already done. So here is no need to further discussion.

Remedial Lesson Plan

Each pupil is different in terms of learning ability. academic standards. classroom learning and academic performance, and each has his own in learning. By adapting school curricula and teaching strategies. teachers can provide learning activities and practical experiences to students according to their abilities and needs. They can also design individualized educational programmes with intensive remedial support to help pupils consolidate their basic knowledge in different subjects, master the learning methods, strengthen their confidence and enhance the effectiveness of learning.

A sample plan of work for the remedial class

Mode of operation: additional lessons / withdrawal (setting) / withdrawal (partial withdrawal)

Year Level: Remedial Group: Teacher-:

Date/ Period	Key Stage Targets/ Language Forms, Functions/ Language Skills	Reference/Resources/ Learning Activities	Assessment	Actual Progress	Remarks

Here are 10 strategies teachers can use to help hearing-impaired children.

1. Make sure hearing-impaired students wear amplification devices, such as a frequency modulated (FM) unit that will connect to a microphone for you to wear.
2. Use the child's residual hearing, as total hearing loss is rare.
3. Allow hearing-impaired students to sit where they think best, as sitting close to the teacher will help the child to better understand the context of your words by observing your facial expressions.
4. Don't shout. If the child is already wearing an FM device, your voice will be amplified, as it is.
5. Give interpreters copies of lessons in advice. This will help the interpreter prep

the student for the vocabulary used in the lesson.

6. Focus on the child, not the interpreter. Teachers do not need to give interpreters directions to give to the child. The interpreter will relay your words without being asked.
7. Only speak while facing forward. Do not speak with your back to hearing impaired children.

   They need to see your face for context and visual cues.
8. Enhance lessons with visuals, as hearing impaired children tend to be visual learners.
9. Repeat words, directions and activities.
10. Make every lesson language-oriented. Have a print-rich classroom with labels on the objects inside.

Let us sum-up:

Maxims of Teaching are the universally facts found out by the teacher on the basis of experience. They are of universal significance and are trustworthy. The knowledge of different maxims helps the teacher to proceed systematically. It also helps to find out his way of teaching, especially at the early stages of teaching.

Making an effective lesson plans takes time, dil igence, and an understand ing of your students' goals and abilities. The goal, as with all teaching, is to motivate the students to take in what you are teaching and to retain as much as possible.

Check Your Progress

1. Discuss about the maxim of teaching.
2. What is lesson plan?
3. How can make a plan for hearing impaired students.
4. What is Remedial teaching?
5. How can make a plan as remedial teaching for hearing impaired children?

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5.6 Partnership of Various Professional & Agencies in Educational Intervention.

In order to achieve the best outcomes for all children and young people, schools must work in partnership with students, parents, other professionals and the wider community. In this changing landscape of education, the notion of the traditional school no longer exists. **Partnership Working to Support Special Educational Needs & Disabilities** looks at what is possible in this exciting new world, and how some teachers are putting

into practice the best principles of multi-agency working.

Supporting children and young people with special educational needs and disabilities (SEND) in this context is more vital than ever, as more children are being diagnosed with additional needs, and those working with children are aware of the need to ensure every individual is given the maximum opportunity to develop to their full potential.

In this connection various partnership and agencies is there for their better life:

1. **Family**

   As an educator, you may find that it is not as important to classify families by stages of adjustment to the child's disability as it is to understand that families have varied reactions and may work through their feelings in a different way and pace. It is helpful to realize that you and the family may not be operating at the same level or stage of understanding about the child rather than to make comments like "That family is so demanding" or "If the dad would get over his anger, we would be able to work together better" (Ulrich & Bauer 2003, 20). Listening to families is key in working with them as partners in supporting the learning and development of their child with special needs. Unless you have a child with a disability, you cannot fully understand the experience. As you get to know the child and family, it is also important to learn about and participate in the development of the child's Individualized Family Service Plan (IFSP) or Individualized Education Program (IEP).

2. **Partnership with the Various Therapist**

   (a) Audiologist

   An audiologist can help figure out what the problem is with a kid's hearing. He or she might send a report to the kid's doctor, so they can work together on solving the problem. Kids with hearing problems may visit an audiologist regularly to see how the treatments are working and to make sure their hearing hasn't changed.

   (b) Speech and Language therapist

   For deaf children, speech and language therapy is most effectively provided with the child's therapist to help their communication skills during everyday life. Speech and language therapist will also work closely with other professionals who may be involved with the child. Whatever communication choices you make for your child, speech and language therapy may be able

to help your child to further develop their communication skills. Speech and language therapists provide a service that takes into account the needs and wishes of your child. Speech and language therapy may be specified in a child's statement.

(c) Auditory-Verbal Therapy

Thanks to the improved technology in hearing aids and the availability of the cochlear implant, 95% of deaf and hearing impaired children can have access to sound. And with the right therapy, these children can learn to listen and to speak clearly and naturally like their hearing peers. This therapy is Auditory-Verbal Therapy.

LSLS Certified Auditory-Verbal Therapists originally known as Auditory-Verbal Therapy was developed by Helen Hulick Beebe, an internationally-known speech-language pathologist and an educator of deaf people. It is used to enable deaf and hearing impaired children with a cochlear implant or hearing aid to listen and speak to enable them to fully participate in mainstream society. Auditory-Verbal Therapy is the therapy that is used when parents want their deaf or hearing impaired child to communicate with spoken language.

LSLS professionals focus on education, guidance, advocacy, family support and the rigorous .. application of techniques, strategies and procedures that promote optimal acquisition of spoken language through listening by newborns, infants, toddlers and children who are deaf or hard of hearing.

LSLS professionals guide and coach families to help their children develop spoken language through listening, and help them advocate for their children's inclusion in mainstream schools. Ultimately, parents gain confidence that their children will have access to a full range of educational, social and vocational choices in life.

The principals of Auditory-Verbal Therapy include:

- Early detection: Early detection programmes and initiation of Auditory-Verbal instruction upon diagnosis of the hearing loss.
- Appropriate amplification: The child will learn to listen and speak through maximising their residual hearing with amplification technology.
- Parental participation: Parent participation is vital to the success of Auditory-Verbal Therapy for two reasons: parents are the natural teachers of their child's language and the parents are always with their child so can be constantly encouraging language development.
- Listening to speak: The child learns to speak through listening to natural sounding

speech. Correct spoken models of language are crucial to teaching the child to monitor his/her vocalisations. Visual cues are not encouraged.

- Assessment: Monitoring and evaluating the development of listening skills as an integral part of the development process.
- Integration result: Appropriate amplification and Auditory-Verbal Therapy enables children with a hearing loss to develop auditory receptive skills (understanding language) in the short term that will translate via medium outcomes, such as attending mainstream school, into greater social independence and quality of life.

(d) Art Therapist

An art therapist is a mental health professional who uses an individual's innate creativity, usually in the visual arts, to develop social skills and self-awareness and to manage behavior and emotional conflicts. This Therapy much more effective for Hearing Impaired Chi ldren for modification of behaviour.

The American Art Therapy Association explains, "A goal in art therapy is to improve or restore a client's functioning and his or her sense of personal well-being. During individual and/or group sessions art therapists elicit their clients' inherent capacity for art making to enhance their physical, mental, and emotional well-being."

(e) Vision therapy

Vision is a complex process that coordinates muscles, cognition and perception. Difficulty with visual motor control can lead to problems with reading, learning and executive function skills. Vision therapy, under the guidance of a developmental optometrist, can help remediate visual motor skills.

Vision therapy exercises include mazes, red/green glasses, prism glasses, logic games, reading comprehension exercises, optical illusions and brain teaser games and other activities that challenge a person to understand and follow what they are seeing.

(f) Special Education Services

The hearing support program has a child centered philosophy for educating deaf and hard of hearing students. A variety of educational approaches and strategies are utilized and individualized according to each student's needs. This philosophy promotes effective and independent communication.

The Individuals with Disabilities Education Act (IDEA '04) defines two terms related to hearing acuity: Deafness and Hearing Impairment. According to IDEA 2004,

Deafness means a hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, that it adversely affects a child's educational performance. Hearing impairment means impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness. So in this connection special educator is needed for special educational services.

In the inclusive set up children with hearing impairment various agencies is needed for success of the inclusion. How partnership& Agencies working affects those children with hearing impaired.

- the diversity of additional needs;
- specialist schools;
- partnership working with special schools;
- partnership working with groups of schools;
- schools and other services working together;
- children's centers;

In order to achieve the best outcomes for all children and young people, schools must work in partnership with students, parents, other professionals and the wider community. The teachers and other professionals are putting into practice the best principles of multi-agency working.

Let us sum up

A child with hearing impairment is identified when he /she has problem paying attention in the school, find it difficult to understand speech ,answers irrelevantly, requires repetitions of speech for following instruction, display poor vocabulary and grammar, voice problem and mispronunciation etc. Using various Audiological test for specific identification loos of hearing. In the various problems the teachers can solve easily. So that teachers should arrange the partnership of various professional & agencies.

Check your progress

1. Discuss about various professionals and agencies in educational intervention.

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5.7- Child & Family Outcomes of Educational Intervention

5.7.1- Education Intervention

Education intervention is a support and educational system for very young children (aged birth to six years) who have been victims of or who are at high risk for child abuse and/or neglected as well as children who have developmental delays or disabilities. Some states and regions have chosen to focus these services on children with developmental disabilities or delays but Education Intervention is not limited to children with these disabilities. The mission of Childhood Education Interventionespecially in education is to assure that families who have at-risk children in this age range receive resources and supports that assist them in maximizing their child's physical, cognitive, and social/emotional development while respecting the diversity of families and communities. Education Intervention services for children with hearing impairment yields to a better quality of life in the family. This is due to the reason that Education Intervention services to Children with hearing impairment shows a positive impact across developmental domains, including language communication, cognitive development and social/emotional development. The first few years of a child's life are a particularly sensitive period in the process of development, laying a foundation in childhood and beyond for cognitive functioningbehavioural, social, and self-regulatory capacities and physical health. Yet many children face various stressors during these years that can impair their healthy development. That is why childhood education intervention programs provide supports for the parents, the children, or the family as a whole. These supports may

be in the form of learning activities or other structured experiences that affect a child directly or that have indirect effects through training parents or otherwise enhancing the care giving environment.

5.7.2- Types of Educational Intervention programs in hearing impaired child.

The three major types of Education Intervention programs are:

- **Auditory-verbal:** Focuses on the use of even minimal amounts of amplified hearing to develop spontaneous speech and to process language in a natural way through auditory pathways. These programs aim to enable children with hearing impairment to learn to listen, understand spoken language and communicate through speech using their residual hearing, and in the oral-aural approach, using lip-reading as well. These programs usually place the parent in the role of primary educator.
- **Total Communication:** Focuses on the use of a wide range of methods of communication including speech, lip-reading, listening, signing and finger spelling. These various methods of communication may be used alone or in combination with each other. When speech and signing are used together this is known as simultaneous communication. Simultaneous communication is used to manually represent English using a sign system known as signed English.
- **Bilingual/Bicultural:** Focuses on education through two languages. Mother tongue and second language. English is taught as a second language via reading and writing or through sign systems representing English, and speech. In many educational programs and school settings, children who are deaf or hearing-impaired may learn about the deaf community and its history, language and culture, as well as learning about the hearing community.

5.7.3-Child Outcomes of Educational Intervention:

When a child's hearing loss is identified soon after birth, families and professionals can make sure the child gets intervention services at an early age. Here, the term intervention services include any programme, service, help or information given to families whose children have a hearing loss. Such intervention services will help children with hearing loss to develop communication and language skills. There are many types of intervention services to consider. We will talk about early Education intervention. So early education intervention services choices mean about education

and including learning to communicate with each other. Early education intervention programme will be assigned by a service coordinator to help you understand the intervention system and make sure that your child gets the services to which he or she is entitled. If proper Early Education Intervention is done, child should develop many of the factor the factors mention below:

- **Language and speech-** With the help of Early Education Intervention child can ability to learn language and speech is the highest development of children with hearing impaired.
- **Intellectual ability-** Process of thinking of deaf children and normal peers are found to be similar in cognitive abilities and develop verbal intelligence. So Early Education Intervention service is the most important factor of children with hearing impairment.
- **Academic Performance-** Hearing impaired children are frequently handicapped in various degree of hearing loss and it affects educational performance and particularly reading which relies heavily upon language skill. So Early Education Intervention service is the most important factor of children with hearing impairment.
- **Social Adjustment-** Our social inter action depends upon communications. So deaf children have communication problems. That is why they should have a problem of social inter action. Such children live in a world of isolation and form a group of their own, an association of the deaf for their common interest and interaction. So Early Education Intervention service is most important factor of children with hearing impairment that should help scholastic achievement of the children with hearing loss and that can help to develop on adjustment of their social inter-action.
- Behavioural problem- Deaf learners feel invariably inferior and helpless in adapting to circumstances that require verbal communication. So non-verbal communication is regarded absence of verbal. They have poor self-concept which damages the development of personality but with the help of Early Education Intervention service children with hearing impairment studying in mainstream education develop personality and the problem behavior is reduced regarding various social academic aspect.
- **Socially handicapped -** Learners with hearing loss cannot adjust with society because they suffer from communication difficulty and fail to understand what

others hearing people say. But with the help of Early Education Intervention service they develop communication skill and mixing the oral social. Thereby reducing social handicapped ness.

- Problem in personal and social development- Language becomes a barrier for deaf learner for the purpose of communication with others. So this affects the socialization process and plays a vital role in the personal and social development of hearing loss learner. So with the help of Early Education Intervention they can be mainstreamed in regular class room it develops the normal peer acceptance and reduces the problem in personal aspect.
- **Personality problem-** Hearing difficulty may create personality problem. A deaf learner becomes more frustrated as he/she tries to reach the level of the normal and a totally deaf child seems reconciled to his fate. But given well provided adequate facility of language and communication with regard to literacy development in regular school they develop personal adjustment and well developed scholastic achievement in hearing impaired students. This happens only in Early Education Intervention services.

5.7.4-Family Outcomes of Education Intervention

Children develop through the complex interlink of nature and nurture and the family plays a very important role in the development. In other words, children are born with some innate abilities. They have different levels of intelligence and they have different kinds of attitudes. The way they are brought up decides many of their achievement levels. The family can help in bringing up the children with the right attitude and develop their full potential. Every child needs to be nurtured with love and affection and guided by adults who have knowledge about the child. Deprivation and Rejection by the family can adversely affect any child, more so a child with disability. Deprivation of any kind due to poverty, wrong attitudes or ignorance will affect the nutrition, health and psychosocial development of the child. Rejection of any kind, for reasons of gender, unwanted, unplanned conception, poverty and disability in the child affect the growth and development of the child.

Meaning of family

Family does not mean just the mother and father of the child. The family includes the siblings, grandparents, uncles, aunts, caregivers, neighbours, doctors and any adult who comes into contact with the child.

5.7.5-Need and Importance

Usually the family members do not have any information on the effect on hearing impairment on the child's progress. They either do not realize the importance of schooling or they tend to believe that schooling is not likely to improve the child. In most cases, the family members would rather transfer the responsibility of their child onto someone else. The participation of the family members in the education of the child with hearing impairment is very important. The family needs re-assurance that the child is going to learn and will benefit if the home is going to co-operate with the school and works.

5.7.6- Common Misconceptions of Family towards Hearing Impairment children

Usually the family members do not have an exposure to the problems posed by the disabilities in children. In case of hearing impairment, the ignorance of the family is the highest. Hearing impairment is a hidden disability. The family members are not able to identify the disability as they would identify the visual impairment, mental retardation or cerebral palsy. The hearing impairment in the infant goes unnoticed for an unreasonably long time. When the mother is alert, she is able to identify that the baby is not responding to sound stimuli. Even then, the child is not taken for diagnosis due to 2 reasons:

(a) The mother does not realize that the hearing impairment in the baby will stop the baby from acquiring speech skills.

(b) The mother is not able to share her worry and concern with her husband and the in-laws as there is a possibility of them not taking it in the right spirit.

It is only when the child is old enough to be talking in simple sentences and the child is not able to converse even in words, the family members realize that the child has a disability.

At this stagealso the child does not get help immediately due to several reasons like:

- poverty,
- the diagnostic facilities are not available,
- the family gets misguided by relative or friend or sometimes even the doctor that child is too young and that they can wait for the child to grow older,
- visiting some holy places or performing certain religious rites could restore the hearing for the child,

- it is the result of some 'karma' of previous births and they have to bear it and there is no alternative, etc.

The wrong attitude ofthe family results in the delay in looking for Early Diagnosis and Early Intervention and the children lose the most important years in their lives, without any useful inputs.

5.7.7- Family Intervention Process

The professionals have a very important role in educating the family. The family members need to feel confident that they are doing the right thing for their child. Family members need guidance to recognize their strengths and skills in parenting. They need help to be able to handle the problems with maturity. The knowledge of the disability in the child changes the roles and dynamics of the entire family, including the siblings. The family members need counseling and guidance to realize the importance of their contribution to the welfare of the child with hearing impairment. The professionals need to include all the family members directly or indirectly into the intervention programme. The process of family intervention has two categories. These are Rehabilitation process and Educational Rehabilitation.

5.7.A - Role of Rehabilitation Process in Family

There are three types of **Rehabilitation Process in Family** intervention process that can conducted. These are Initial Feeling, Reaction and Adjustment of Family.

- **Initial Feeling**

  Family members always look forward to the arrival of a healthy child. When they come to know that the child may be suffering from hearing impairment, it is not easy for them to accept. Moreover, hearing impairment is a silent disability unlike visual impairment, mental retardation or cerebral palsy. The child with hearing impairment looks absolutely fine, he laughs and plays like any other child and yet the family members have to accept that the child suffers from hearing impairment. The initial feeling of disbelief and despair is difficult to overcome.

- **Reaction**

  The family members react differently. Some gets into a depression. Some go from doctor to doctor, expecting a better verdict. Some feel that it is their fate and nothing could be done about it. Some are able to take courage and seek help.

- **Adjustment of Family**

  The family needs to make a lot of adjustment. Once a child with hearing impairment is born in a family the psychology of the entire family gets affected. It reflects on the performance level of all the individuals. It also affects the interpersonal relationship with each other. Diagnosis, hearing aid fitment and intervention costs money. Many are not able to afford it. When help for diagnosis and intervention is not available in the hometown, the family members have to go to other places. This requires adjustments from all the members of the family.

5.7.8- Role of Family in the Educational Rehabilitation Process

- **In Special School**

  When a child is in a special school, the family can playa very active role in supplementing the efforts of the school. They can find out from the special school as to what kind of support they can provide so that the child will be able to make use of his potential to the maximum.

- **In Inclusive School**

  When the child is in an inclusive school, it is possible that the child may be missing out a lot. The caregiver from the family has to keep in close touch with the class teacher, Special teacher and as well as the other children in the class so that the child is able to progress at par with the others. The child requires a lot of emotional support and reassurance from the family members.

- **In Day School**

  The caregiver of the family can be of immense help to the child in a day school. He can keep close touch with the class teacher in class room activity.

- **In Residential School**

  When the child is in a residential school, the family is to bring home the child every weekend if possible or at least once a month. It is important that the child is in touch with the family members constantly.

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Notes

মানুষের জ্ঞান ও ভাবকে বইয়ের মধ্যে সঞ্চিত করিবার যে একটা প্রচুর সুবিধা আছে, সে কথা কেহই অস্বীকার করিতে পারে না। কিন্তু সেই সুবিধার দ্বারা মনের স্বাভাবিক শক্তিকে একেবারে আচ্ছন্ন করিয়া ফেলিলে বুদ্ধিকে বাবু করিয়া তোলা হয়।

— রবীন্দ্রনাথ ঠাকুর

ভারতের একটা mission আছে, একটা গৌরবময় ভবিষ্যৎ আছে, সেই ভবিষ্যৎ ভারতের উত্তরাধিকারী আমরাই। নূতন ভারতের মুক্তির ইতিহাস আমরাই রচনা করছি এবং করব। এই বিশ্বাস আছে বলেই আমরা সব দুঃখ কষ্ট সহ্য করতে পারি, অন্ধকারময় বর্তমানকে অগ্রাহ্য করতে পারি, বাস্তবের নিষ্ঠুর সত্যগুলি আদর্শের কঠিন আঘাতে ধূলিসাৎ করতে পারি।

— সুভাষচন্দ্র বসু

Any system of education which ignores Indian conditions, requirements, history and sociology is too unscientific to commend itself to any rational support.

— Subhas Chandra Bose

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