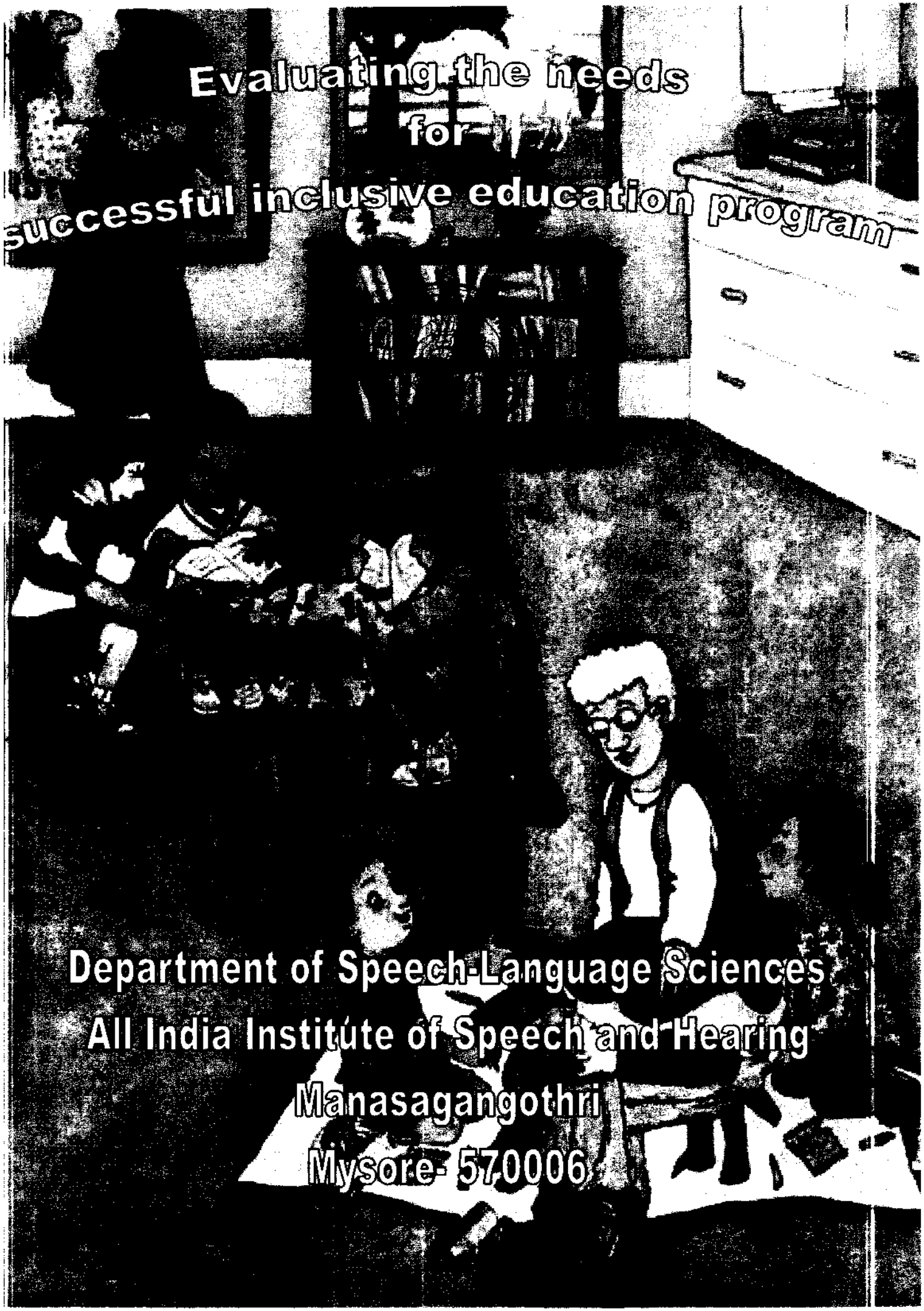
Evaluating the needs
for
successful inclusive education program
Department of Speech-Language Sciences
All India Institute of Speech and Hearing
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EVALUATING THE NEEDS FOR SUCCESSFUL INCLUSIVE EDUCATION PROGRAM

AIISH Research Fund Project

Sanction No. SH/ coordn/ARF/3.26/2006-07 (dated: 12-7-06)

19-7-2006 to 18-1-2008

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AIISH Research Fund Project

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INTRODUCTION

Human history is replete with examples that during the early days of development of human civilization, persons with disabilities were tortured and even eliminated. Then came a phase when they were given charity, care and protection in various parts of the globe. Later came the age of initiating them into the world of education and vocational training. This phase was succeeded by ideas of social absorption and integration of the disabled with further advancement of the societies, path breaking developments in modern medicine as well as technology and also because of sustained moments by groups of persons with disabilities. Allover the world, the idea of securing social justice, equal rights and opportunities for them has finally come to occupy the central stage in many modern nations.

India has more or less, witnessed all the phases described above during its struggle to modernize itself as just, equitable and democratic society. Although the current stage of affairs is still miles away from the most ideal situation, the country has nevertheless taken giant leaps forward in its quest to secure social justice and equal opportunities for persons with disabilities in the country. Government of India has put forth several legal provisions and enactments through the constitution to protect the rights" of the persons with disabilities, policy formulations and follow up steps. Although many steps have been taken for providing assistance to this section of persons, the efforts were mainly welfare oriented. A strong philosophical and attitudinal background for promoting their rights as equals in the society was lacking in the government and outside. This was the main reason behind the programs not taking off early in our country. But gradually, things took a better shape with the emergence of a global movement for giving equal rights to the disabled persons in every field of human activities. The observations of the 'International year of the disabled, 1981' set the stage for radical developments in many countries including India. For the very first time in independent India, National sample survey (NSSO) took up the responsibilities identifying the disabled persons in the

country, which was a very important step for moving towards a state of progressive action. The establishment of specialized institution and funding of NGO's in the large scale for taking up various measures for the benefit of persons with disabilities, various enactments, launching of schemes etc., took a quantum leap after the early 1980's. The NSSO carried on its job of identifying the disabled persons in every 10 years, So far two survey rounds have been accomplished, the latest one being in 2OO2.The census 2001 also had the provision of identifying the disabled persons after a long national debate and a lot of efforts from disability activists from all over the country. The latest NSSO round (2002) has estimated that there are about 18 million persons (1.98% of the population) with certain disabilities. But the survey has not taken into account many other types of disabled persons like the cerebral palsied, the autistic, learning disabled etc, According to census 2001 figures, there are about 21 million disabled persons in the country, which represents 2.1% of the population. One can safely say that disabled **persons are people** with one or more physically, mentally and sensory impairments which limit one or more of the basic life activities such as seeing, hearing, talking, walking, using hands, understanding, learning, communicating etc. The Persons with Disabilities Act, 1995 as well as under the Rehabilitation Council of India Act, 1992 stated hearing impairment as follows. "Hearing impairment," means hearing loss in the better ear in the conventional range of frequencies.

International Classification of Impairments, Disabilities and Handicaps (ICIDH)

A global common language in the field of disability has long been wanted. For this purpose the International Classification of Impairments, Disabilities and Handicaps (ICIDH), was first published in 1980 by World Health Organization (WHO), as a manual of classification relating to the consequences of diseases. While the International Classification of Diseases (ICD) deals with diseases, the ICIDH deals with the consequences of diseases, i.e., impairment, disability and handicap. "Disablement" is sometimes used as an umbrella term covering all three dimensions. ICIDH consists of two parts: a conceptual model and three classifications. The first part is the theoretical explanation of the consequences of diseases. It proposes the concepts and definitions of impairment, disability and handicap and discusses the relation between these dimensions

showing the conceptual model illustrated in Figure 1. This is based on a linear model implying progression from disease, impairment, and disability to handicap.

ICIDH MODEL (WHO 1980)

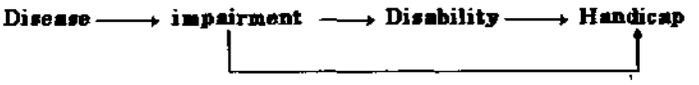


Figure 1

The impairment is characterized as an abnormality of structure or function of body or organ including mental function. The disability is characterized as a restriction of activities resulting from impairment. And the handicap is the social level of the consequences of diseases characterized as the individual's disadvantage resulting from impairment or disability.

The second part of the ICIDH is three independent classifications of impairments disabilities handicaps. Today ICIDH is available in 15 languages including Japanese and Chinese, and is used in a variety of fields such as medical, vocational, educational, and social rehabilitation, policy and administration, statistics, research, and education and training.

Education for the disabled in India

The knowledge and processes of educating the disabled children or "Special education" as it is known came to India in the last two decades of the 19th century through Christian missionaries. The first school for the disabled persons i.e. for the deaf was established in Mumbai in 1883 and the first school for the blind in Amritsar in 1887.

During that time, there seemed to have been a belief that children with disabilities could not be educated alongside normal children. Therefore, separate schools for them known as 'Special schools' were offered as the only option. But special schools are expensive propositions. They need a lot of investments in the form if infrastructure, equipments, manpower. In a resource- constrained country like India it is very difficult to afford such huge investments and the only way out is an alternative system that offers hope to provide education to the children with disabilities within a short period of time to realize the goal of education for all. Additionally, they can perform as resource and guidance centers for training the teachers of general school in the locality to provide appropriate education to children with disabilities. Once the general schoolteachers are equipped with the ability to teach and guide the special children the problem of'education of all' will be solved.

The trend of educating children with disabilities only in special schools continued until about early 60's in the last century when some international agencies helped in developing programs of integrated education particularly visually impaired. The effect of this movement was that only a small number of children drawn largely from urban communities were given access to education. Education of the children with speech and hearing impairment and mild/moderate mental retardation alongside other children also began soon after. Similar learning opportunities for the children with learning disabilities and autism are still in the initial phases of development. Integration adopts a process that is based on normalizing the life and education of a child with disability in the least restrictive environment.

Need and significance of the study

One of the important objectives of rehabilitation is to mainstream or integrate children with disabilities into normal schools. Teachers of regular or normal schools play a major role in educational rehabilitation of children with hearing impairment. It is necessary to know their knowledge and attitude towards hearing impaired children, also regarding the management of hearing impaired in the classroom. In this study, teacher's attitudes towards inclusive education of hearing-impaired students, administrative support

like classroom modification, curriculum adaptations, and guidance from special educators of hearing-impaired children are collected and examined. Concerns about current practices in teacher-training programs and existent approaches to mainstreaming hearing-impaired students are raised. Teachers of regular or normal schools play a major role as a member in the team of professionals involved in this. The academic progress of these children depends totally on how the regular class teachers train them. It is a fact that most of the school teachers are not aware of the various strategies they should employ in integrated set ups. If properly oriented, they can improve the academic skills of children with hearing loss using hearing aids. They would also provide a lot of psychological support required for the successful inclusive education along with effective involvement of peer groups in the classroom. Parents are also a major source of input for understanding the classroom needs of hearing-impaired children integrated into normal schools. It is generally observed that children with hearing impairment in an integrated set up are hesitant to spell out their needs and hence are more dependent on their parents even for classroom requirements. Classroom peers of such children can also provide valuable information regarding their special needs and their coping capacity in writing and social skills. All these make it absolutely essential to evaluate the teacher's attitude towards the education of hearing impaired children in an inclusive set up. Therefore, the present study focused on assessing the attitude of teachers towards hearing impaired children integrated in inclusive primary schools. This study is also important for several other significant reasons

- Such information guides the educationist on some of the variables to be attended in the management process of hearing impaired children in an inclusive set up.
- Such information will help the special preschool teacher to train the children who are hearing impaired and going to be integrated in inclusive set up.
- Such information help the policy makers to educate the teachers on hearing impairment and problems faced by those children in school situations

Objectives of the present study

The major objectives of the study are to

- Study the change in attitude of regular primary setup teachers towards integrated

hearing impaired children before and after an orientation program.

- Study the needs and problems of hearing impaired children for successful inclusive education.

- Facilitate inclusive education of hearing impaired children by sensitizing regular school teachers

The Specific Objectives of the Program are

- To identify a number schools where most of the hearing impaired children from AIISH Pre-school and therapy clinic have been integrated in and around Mysore

- To develop a questionnaire to assess teachers awareness and attitude towards communication disabilities and rehabilitation

- To administer the questionnaires to the teachers of schools where these children are integrated

- To orient the teachers regarding normal and abnormal aspects of speech-language behaviors

- To provide necessary, training and periodic assistance to class teachers and subject teachers in handling the hearing impaired children in the class rooms

- To provide necessary training to make class room adaptations and changes in teaching strategies to suit the needs of these children in the classroom

- To enable optimal support and co-operation from the peer groups through their orientation regarding disabilities and their management

- To bring about awareness among teachers and parents about various facilities available for hearing impaired children

- To administer the same questionnaire six months later to see. if there is significant change in the knowledge and attitudes of concerned teachers towards hearing impaired children in inclusive setup

Implications of the results of the study

The feed back of this program will help us to

- Understand the actuality of inclusive education in the Indian Scenario

- Equip regular teachers to manage the hearing impaired children in a more

appropriate way in an inclusive set up

- Make required modifications in the curriculum and teaching strategies in the pre-school training program at AIISH

Utilization of the study

- For suggesting client-based techniques for better adaptations of integrated children,
- Improves the awareness of teachers to various disabilities and their management and early identification of problems in school children
- Teachers can bring about an attitude change towards communication disability among peers and parents and thereby in the community

REVIEW OF LITERATURE

The literacy rate in India increased from 18.3% in 1951 to 62.2% in 199land 73.45% in 2002. The country has witnessed phenomenal expansion of educational opportunities in the post independent period. But disabled children however have not benefited substantially from the growth in education facilities. Kothari commission recommended in 1964, integration of the handicapped in the regular school programs and in 1986 NCERT formulated Project Integration Education for the disabled (PIED). PIED had been designed to strengthen implementation of centrally sponsored schemes of Integrated Education for the disabled children (IEDC). This was formulated in collaboration with LTNICEF. The major objective of the project is to achieve the goal of education for all. It aimed to reduce the isolation of handicapped children to promote the psychological acceptance of those children by the normal school going population and to equip them with the competencies to face life with courage and confidence.

NSSO estimated 6.5 million deaf Indian populations in 1991. Generally a loss of hearing at 70 dB or above at 500, 1000 and 2000 Hz will make residual hearing non-functional. In the survey conducted in 2001, a person who could not hear at all or could hear only loud sound was considered as having hearing disability. Also a person who could not hear through one ear but the other ear was functioning normally was considered as having hearing disability. Ministry of Welfare, Government of India defines hearing handicap as hearing loss of 70 dB or more in the better ear for vocational purpose and 55dB or more loss for educational purpose.

The NPE (National Policy on Education) has recommended education for children with disability as far as possible in common with other in general schools. The program of action has stated the placement principle. No disabled child who can be educated in general school should be placed in special school. Even if the child has severe disability he/she should be brought to a general school as soon as he/she acquires self-help, communication and basic academic skills. The implication is that more and more children with disability will join regular school.

The NCERT launched project integrated education for disabled (PIED) with assistance from the Ministry of Human Resource Development and the UNICEF. The project aims at developing context specific modalities for providing education to all children including those with physical and intellectual impairments utilizing the available infrastructure (NCERT 1987). The project is based on the premises that most of the children over 90% can be educated in general school.

Development of Integration Education Program for Children with Disabilities (CWDs)

India witnessed a phenomenal expansion of educational opportunities in the post independence period due to. efforts for universalisation of education. The disabled children however, have not benefited substantially from this growth in educational facilities. The Government of India therefore has brought the education of this group of children for special attention to achieve the goal of education for all.The ultimate objective of these efforts were to integrate the handicapped with general community at all level as equal partners to prepare them for normal and to enable them to face life with courage and confidence.

Recommendations of Committees and Commissions

"Kothari Commission and its recommendations on education is a landmark in the history of education in India. This third Indian Education Commission was conducted between 1964-66. It was popularly known as the Kothari commission named after its chairperson Prof. D.S.Kothari. Daulat Singh Kothari (1905-1993) as an eminent Indian scientist and was a great educationist. This was the first education commission to consider the term 'Special Education'. It was the first statutory body to suggest that the education of handicapped children has to be organized not merely on humanitarian grounds but on utility basis.

- The commission observed that although the Indian constitution had issued specific directives on compulsory education for all including children with disabilities, very little had been done in this regard.

- The commission also emphasized that the education of children with disabilities should be an inseparable part of the general education system. And that Union and State Governments should cater to the education of special needs children along with general education whenever designing and implementing new programs.

The commission specifically emphasized the importance of integrated education in achieving the goal of educating all children with disabilities. It considered integrated education to be

- Cost effective
- Useful in developing mutual understanding between children with and without disabilities

Individuals with Disabilities Education Act (IDEA)

Amendments to the 1975 Education for All Handicapped Children Act (EAHCA) changed the name of that Act to the Individuals with Disabilities Education Act (IDEA). The first official efforts towards integrating children with disabilities began way back in 1974. Special teachers would be appointed in each block depending on the number of disabled children in the area. The most current language of the federal mandate concerning inclusive education comes from the 1997 Amendments to the Individuals with Disabilities Education Act (IDEA). These federal regulations include rulings that guide the regulation. The IDEA requires that children with disabilities be educated in regular education classrooms unless "the nature and severity of the disability is such that education in the regular classes with the use of supplementary aids and services cannot be achieved satisfactorily." This means that schools have a duty to try to include students with disabilities in the regular general education classes.

The IDEA states that "Each State must establish procedures to assure that, to the maximum extent appropriate, children with disabilities are educated with children who are not disabled, and that special education, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily". Dr. Susan Etscheidt,

professor of special education at UNI and one of five Iowa administrative law judges, notes that in one of the first court cases to question the legal interpretation of the 1990 IDEA the Supreme Court said no one is excluded from this requirements; everyone is entitled to a free and appropriate public education (FAPE).

Integrated Education Program (IED, 1975-76)

In 1974, the Ministry of Welfare, the Government of India, initiated the integrated education program to promote the integration of students with disabilities. Under this program children with disabilities were to be provided financial support for books, transport, School Uniform, Stationary, special equipments and aids. The state Government provided 50% financial assistance to implement this program in the regular schools.

Project Integrated Education for Disabled (PIED, 1987)

In India, the Ministry of HRD undertook a project in 1987 in order to rectify and identify the problems of the integrated education program. Technical association with NCERT and with financial assistance carried out the project for UNICEF. The Project was based on the assumption that most of the children with disabilities (above 90%) can be educated in general schools. However general education system must be prepared for this task. Aim and objectives of PIED project is to strengthen the implementation of IEDE scheme in this direction, the project has a specific objective, which is to prepare general education system in demonstration sites (selected areas) to. achieve the goals of education of all children, including those with disabilities.

National Policy on Education (1986/1992)

The policy emphasized on equalizing educational opportunities removing disparities arising from gender, socioeconomic and regional differences. The policy also emphasized on equal educational opportunities for children with disabilities. In this direction the policy recommended.

- Integrating children with disabilities in mainstream education where ever possible
- Establishing special schools for children with severe disabilities.
- It is imperative to integrate all children with disabilities in regular schools.
- In unavoidable circumstances they should be provided with necessary training in communication to prepare them for integration

Along side there were other developments like National Commission of Teachers NCT 1986. This commission stressed the need for recognizing special education as in integral component of general education NPERC (1990). According to National Policy on Education Review Committees (NPERC-1990) no disabled child who can be educated in general schools should be placed in special schools. Even those who are placed in special schools should be transferred to general (integrated or inclusive) schools as soon as they can acquire self help, communication and basic academic skills.

Integrated Education for Disabled Children (IEDC) 1992

IEDC, the first Education Commission in India, is popularly known as revised Kothari education commission. The integrated education scheme for children with disabilities in India revised in 1992 following recommendation made in Project Integrated Education for Disabled. The revised scheme was built upon the systematic and scientific appraisal of previous endeavors, which established that children with disabilities make better progress

The Program of Action (POA, 1992)

When the Program Of Action, 1992 was formulated, it was estimated that about 12.59 million disabled children were to be provided education in the school system. The educational facilities for another 2 million children were to be improved through early intervention and ECCE centers. It reinforced the findings of the PIED study that a child with special need who can be educated in a general school needs to be placed in a general school only and those who are placed in a special school for acquiring daily living, communication and academic skills should be transferred to general schools once they are made ready. The POA made provisions for training of general teachers, preparation of

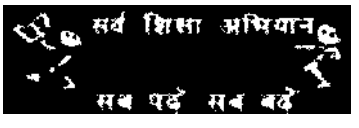
special teaching learning materials, flexibility in curricula, education device, support teachers and staff and setting of the resource centers.

District Primary Education Program (DPEP -1998)

One of the most significant features of DPEP was its emphasis on inclusion of children with disabilities in the education mainstream.

- From 1998 onwards the program specifically focused integrating the child with disability in the mainstream education.
- In this direction, the program organized in service training for primary school teachers in areas such as early detection of disabilities, use of assistive aids and devices.
- Provided for a resource room at the block or district level
- Provided for special educational aids and removal of architectural barriers in schools

Sarva Shiksha Abhiyan (SSA) 2000



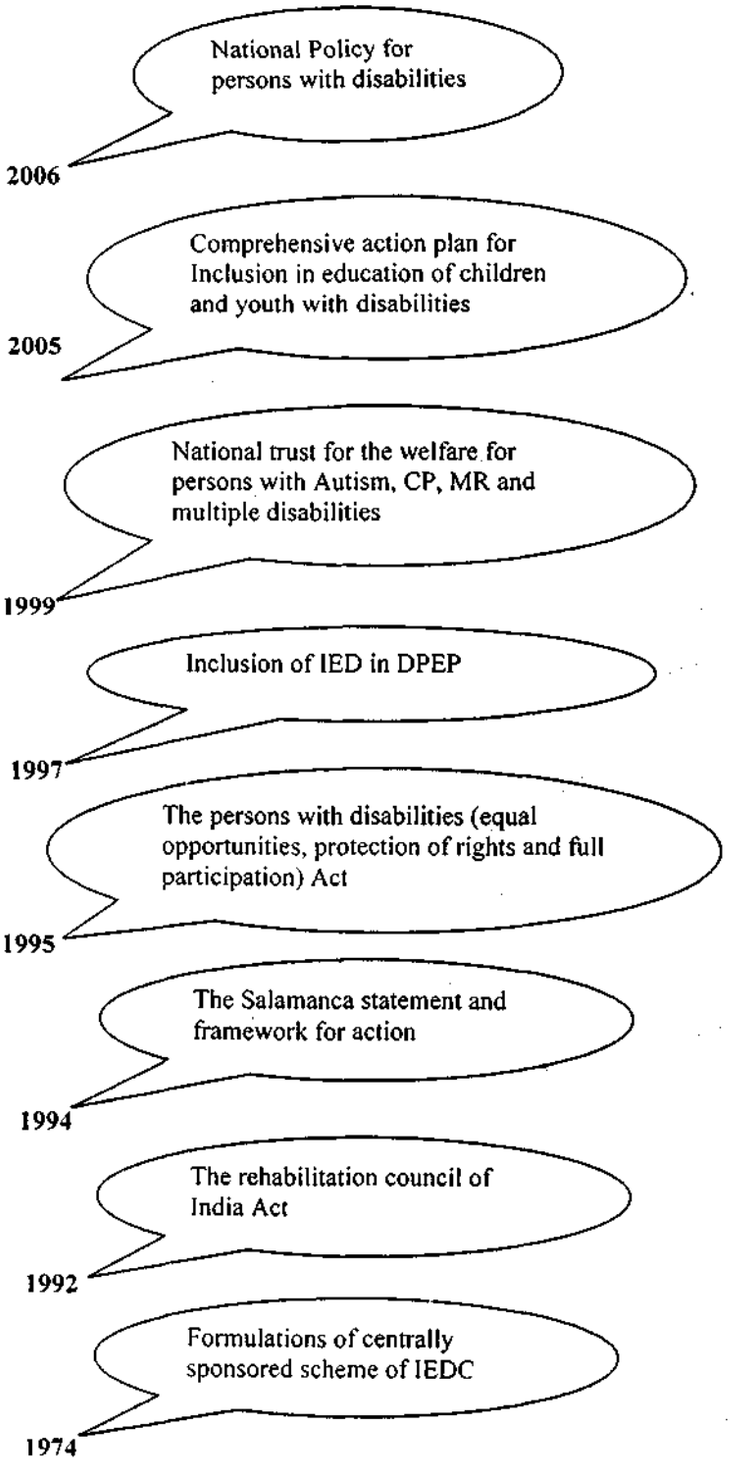
Sarva Shikha Abhiyan
A Program for
Universal Elementary Education

To uphold its commitments for achieving Education for All (EFA) by 2010, the Government of India has also launched DPEP, which was followed by the SSA. In 2000-01 Sarva Shiksha Abhiyan (SSA) was launched as an effort to universalize elementary education by community ownership of the school system. This adopts a zero rejection policy and uses an approach of converging various schemes and programs. It envisages achieving EFA through a bound integrated approach, in partnership with the states and the voluntary sector. The SSA also has provisions for capacity building programs for the teachers, provisions of teaching learning materials, etc, for children. At the block level also the SSA provides an excellent opportunity for educating all children with disabilities

by earmarking the funds allocated for the purpose by appointing some specialist teachers who can intervene meaningfully in the educational processes of disabled children admitted in local schools. It covers the following components under education for children with special needs.

- Early detection and identification
- Functional and formal assessment
- Educational placement, planning and management
- Aids and appliances and Removal of architectural barriers
- Support Services and Strengthening of special schools
- Teacher Training
- Resource support and Research
- Individualized education plan **(IEP) and Monitoring and evaluation**

Important milestones of Inclusive Education



Types of mainstreaming

There are two types of educational set ups under mainstreaming

- Integrated setup
- Inclusive setup

Integrated Setup: Here children with hearing impairment are placed in regular schools with necessary support. Integrated setup of children with special needs could be done at three levels

- **Vocational Integration:** Here disabled and non disabled children attend segregated class rooms in the same educational campus. Disabled children attend a self contained classroom within the regular school. Here the interaction among the disabled and the normal peers is minimal and only a chance factor.
- **Social Integration** : Here disabled children attain special or self contained classes with in the regular school environment, however purposeful social interaction between disabled and non disabled children are promoted outside hours through extra curricular activities.
- **Functional Integration:** This is the most optimal form of integration where disabled students along with non-disabled students attend regular classes being exposed to same kind of teaching and learning experiences. However, students with disabilities may receive special support to meet their special education needs from outside classroom like in the resource room.

Inclusive Setup: Inclusive education means that all students in a school regardless of their strengths or weakness in any area become part of the school community. They are included with the feeling of belonging among other students, teacher and support staff. Individuals with Disabilities Education Act (IDEA-India) and its 1997 amendments.make it clear that schools have a duty to educate children with disabilities in general education classrooms. Inclusive education is mainly designed for general education teachers, special education teachers, parents and school staff to help and provide some guidelines about how inclusive education can be accomplished and fit children with disabilities.

Certain views about inclusion by the teachers

- Inclusion is based on the belief that people/adults work in inclusive communities, work with people of different races, religions aspirations and disabilities. In the same vein, children of all ages should learn and grow in environments that resemble the environments that they will eventually work in.
- Inclusion involves all kinds of practices that are ultimately methods of good teaching. What a good teacher does is to think thoughtfully about children and develop ways to reach all children.

Inclusive education is a developmental approach to address the learning needs of all children, youth and adults with a specific focus on those who are vulnerable to marginalization and exclusion. The principle of inclusive education was adopted at the world conference on special needs education (Salamance, Spain 1994) and was restated at the world education forum (Dakar, Semgal, 2000). The idea of inclusion is further supported by the UN standard Rules on the equalization of opportunities for persons with disabilities proclaiming participation and equality. Inclusive education is a right and not a privilege to every child. Inclusive education helps to reduce the isolation of disabled children, promotes psychological acceptance by normal children and equips disabled with the competencies required to face life with courage and confidence.

The integrated education programmed adopts various models for service delivery in various circumstances and settings. Two major educationists Evelyn Deno (1970) and Lowe (1972) proposed a cascade to explain the different levels of integration.

Levels of integration

1) Evelyn Deno (1970) has proposed a cascade of education services to illustrate the continuum of programming from special to regular education. This cascade emphasizes individuality by including various options for the student. The largest number of handicapped student can be accommodated in the regular class with or without supplementary services. Where as fewest numbers of handicapped.students would require hospital/home bound instructions. When handicapped students are placed in regular classes, they often need various types of support services. They might be in a regular

class for a portion of the school day and a resource room or special class for the rest of the day. A resource room is an educational setting that provides assessment services and remedial instructions to handicapped students on a regularly scheduled basis for a portion of the school day.

Evelyn Deno's (1970) cascades of educational services

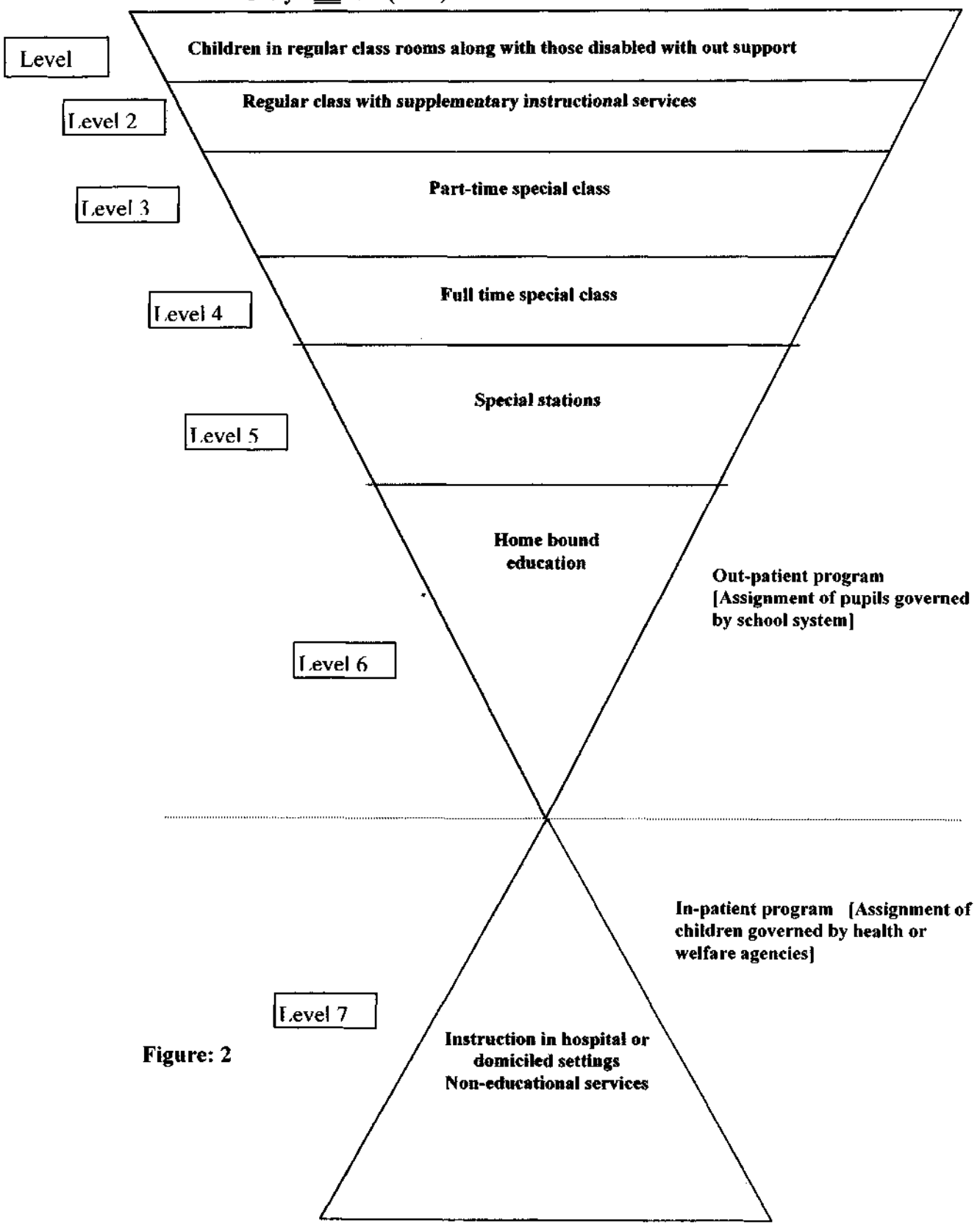


Figure: 2

2) Lowe (1972): Based on the various educational programs and facilities that are available for the hearing impaired, Lowe (1972) proposed the following nine levels of integration.

A. **Full integration**

Level 1: In this, the hearing impaired child is placed in normal class with normal children. Child wears the hearing aid, the teacher is aware of his handicap, and the child is able to follow regular classroom curriculum without any additional instructions.

Level 2: Hearing impaired children are placed in a regular class and are able to follow regular curriculum but they require some additional instructions in the form of auditory training, speech reading or speech therapy.

Level 3: Hearing impaired child in regular class and in addition to the supplementary instruction as in level II, they also require some amount of remedial teaching on regular basis and they may require modifications in the procedures and materials used by the teacher.

B. Partial integration

Level 4: Hearing impaired child attends a regular school but in a special classes setup. Therefore the child learns some subjects with the normal hearing children (partial integration) but for certain other subjects, they will be given special training in classes meant only for the hearing impaired children.

Level 5: Here the child will be integrated with normal children only for subjects such as arts, craft, games etc. but for other subjects he is taught in a special class.

C. **Partial** segregation

Level 6: Here the hearing impaired children are in a special day school. Children receive specialized training i.e. separate program all through the day. But after the school hours, they can go home and have some opportunities to interact with the normal children.

Level 7: Here the hearing impaired children are in a special residential school specially meant for them and hence they have very little interaction with normal children. Their interaction with normally hearing people is limited to holidays during their vacation.

D Full segregation

Level 8: Here the hearing-impaired children are in a special school for multiple handicap excluding or without mentally retarded children. These hearing-impaired children may have additional handicaps like visual impairment or orthopedic handicap etc. These children need to be given specialized training. Hence they get very little opportunity to interact with normal children.

Level 9: Hearing impaired attends a special school along with the mentally retarded. These children require special care in an institutionalized set up and in the long run they require vocational therapy. Figure 3 shows the representation of the major types educational settings for the hearing impaired.

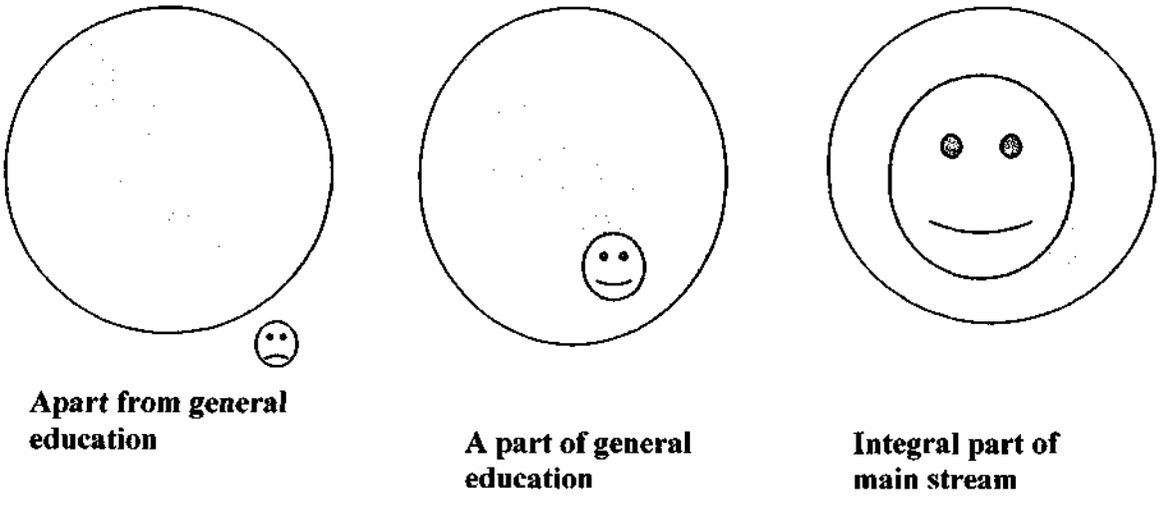


Figure 3: Representation of the major type's educational settings for the hearing impaired.

Advantages of inclusion

Numerous studies have documented some of the advantages of inclusion. The National Center on Educational Restructuring and Inclusion (NCERI) conducted a study of inclusion in schools in several districts implementing an inclusive education model and made the following observations

- The number of schools reporting inclusive education program has increased significantly since 1994

- Outcome for students in inclusive education program, both general and special education are positive

* Teachers participating in inclusive education programs report positive professional outcomes for themselves

- Students with a wider range of disabilities are in inclusive education programs

Several studies have concluded that inclusion result in specific benefit for both students with disabilities and those with out disabilities. These include developing a better understanding and acceptance of other students further the studies indicate that students with disabilities do as well or better academically in general classrooms as they do in special education classrooms. Students with disabilities have more instructional time in general classrooms than in special education classrooms. Teachers generally support serving students with disabilities in general education classes.

METHOD

The purpose of the present study was to survey a large sample of regular school teachers of 15 schools in and around Mysore city who were providing educational services to hearing-impaired students also. The aim of the present research project was to assess the teacher's awareness and their attitude towards children with hearing impairment in regular classrooms. Study also aims to help the regular school teachers to overcome the problems faced while dealing with hearing impaired children and educate the peers to cope up better with their hearing impaired classmates.

Subjects: Regular primary School teachers handling hearing impaired children in class rooms were considered as subjects for the study. These teachers were selected from more then 15 local regular schools in and around Mysore city where children with sensory neural hearing loss are integrated. The following demographic information of the subjects with regard to the 107 subjects is important were collected.

- Educational qualification
- Number of years of teaching in normal school.
- Number of disabled children in the class at present
- Strength of the class(Total number of children in the class)
- Type of disability of the child in the class
- Number of years of experience in handling disabled children
- Knowledge about hearing aid
- Attended any orientation programs/ short term training on the management of disability in an inclusive setup.

Material: The questionnaire is the best tool for the researcher who wishes to acquire original data for describing a large population. With this objective in mind and also considering practical problems involved in including all teachers at different schools, it was decided to use questionnaires rather than formal/informal interviews. The aim of the questionnaire prepared was to determine the knowledge and attitude of regular primary school teachers towards hearing impaired children in an inclusive set up. It was hoped that this would lead to a comprehensive idea of the knowledge and attitudes of the

teacher, and that it could contribute to an understanding of the aspects that would need to be addressed in the process of inclusion. The questionnaire prepared for this study is of "forced choice pattern" on a 5 point rating scale that varied from "strongly agree", "agree", "disagree" and "Strongly disagree" at the extremes with "undecided" at the centre. Each individual teacher had to select any one option out of five, which ever they considered appropriate for that particular question. The questionnaire included 30 questions; covering the following aspects of hearing impaired children in an integrated set up. The questionnaire form is given in Appendix II

- Language and communication skills
- Social skills
- Reading /writing skills
- Arithmetic skills
- General knowledge
- Pragmatic skills
- Ability to ask questions and doubts
- Problems faced during classroom activities and extra curricular activities

Data collection procedure

Pre-test

- Questionnaires were personally delivered to the teachers at the selected schools with prior appointments. Each teacher was given one questionnaire form.

- The questionnaires were completed by the individual teachers and were returned to the researcher on a later date. Questionnaires" were distributed to 125 teachers of selected schools.

Orientation Program

- Following the administration of questionnaires, an orientation program was conducted to the target teachers and some parents at each school separately. Orientation program focused on the following aspects

    - Hearing impairment and its causes
    - Class room management of hearing Impaired children.

Details of the orientation program delivered to the teachers who served as subjects for the present study are given in Appendix I

Post test

- Following the orientation program same questionnaire was administered to the same subjects (teachers) for the post testing after a minimum period of four months from the initial administration of the questionnaire. Out of 125 teachers only 107 teachers gave cooperation in the post test.

Data Analysis

All data as collected on the questionnaire, was coded in the appropriate column for statistical processing using the Program (SPSS 10 version). For the quantitative analysis of data relating to different variables frequency tables were used to determine the performance of the sample. Descriptive statistics, consisting of the tabulation of the data and the calculation of the descriptive magnitudes were applied in such a way that the trend and properties of the observed data became apparent. Wilcoxon Signed Rank test was used to compare the pre and post test data obtained. Following are the variables which were considered for the study. Tablel below summarizes the Age, Gender and Education of the teachers.

Educational qualification of the teachers	Age				
	20-30	30-40	40-50	50-60	Total
TCH	12	10	11	8	41
UG	. 3	2	1		6
NST(Nursery school training)	5	5	4	2	16
B.Ed.	9	11	3	3	26
PG	5	4	3	2	14
B.P.Ed(Bachelor of physical education)	3		1		4

Table-1: Age, Gender and Education of the teachers included in the sample.

According to Table 1, out of 107 teachers in the sample considered for the present study, 41 teachers had TCH qualification, 6 were under graduates, 16 had NST training, 26 were BEd., qualified teachers where as 16 were post graduates and four teachers were

graduates in physical education (BPEd). From Table 1 it is evident that there were no teachers who had undergone training to teach children with hearing impairment in an inclusive set up

Age Range	Gender		Total
	Males	Females	
20-30	2	36	37
30-40	6	26	32
40-50	6	17	23
50-60	1	14	15
Total	15	92	107

Table 2: Age groups and gender distribution of teachers considered.

According to Table 2, out of 107 teachers, 37 were in the age range of 20-30 years in which 2 were males and 36 were female teachers. 32 were in the age range of 30-40 years, 23 were between 40-50 years and 15 teachers were in the age range of 50-60 years.

Experience in handling disabled children	No. of teachers
No exposure	22
< 1 year	42
1-2 years	19
2-4 years	20
4-8 years	3
8-12 years	1
Total	107

Table 3: Shows the distribution of personal experience of teachers in handling disabled children in inclusive set up.

Table 3 indicates the teacher's experience in teaching children with hearing impairment. Out of 107 teachers, 42 teachers had less than one year experience of handling hearing impaired children, 19 had 1-2 years of experience, 20 had 2-4 years of experience, 3 had 4-8 years of experience and only one teacher had 8-12 years of experience. It is evident that very few teachers have more number of years of experiences in handling hearing impaired children in class rooms.

Strength in class	No. of teachers
<20	31
20-30	20
30-50	36
>50	20
Total	107

Table 4: Showing distribution of strength in class.

According to Table, 31 teachers had less than 20 students in a class, while 20 had 20-30 students in a class, where as 36 teachers had 30-50 and another 20 teachers had more than 50 children in a class.

Teachers Knowledge of Hearing Aid	No. of teachers
Nil	20
Seen it	47
Heard about it	12
Inadequate knowledge	24
Knows about it well	4
Total	107

Table 5: Shows the distribution of knowledge of hearing aid among the teachers.

Table 5 reveals the fact that large majority of the teachers are oblivious to the use and function of hearing aids which is a primary requirement for children with hearing impairment in inclusive set ups.

Teachers attended Orientation Program	No. Teachers who attended Orientation Program
Yes	32
No	75
Total	107

Table 6: Shows the number of teachers who had attended training program on hearing impairment prior to this study

Table 6 indicates that out of 107 teachers, only 32 teachers had attended in service training program and 75 teachers stated that, they did not undergo any training program regarding management of children with special in inclusive education set up prior to this study.

RESULTS AND DISCUSSION

The purpose of the present study was to survey a large sample of regular education teacher's attitude towards various aspects of children with hearing impairment in an inclusive education set up. The purpose was also to evaluate and meet the needs of teachers, parents, peers and the children with hearing impairment in inclusive classroom situation. Regular primary teachers in and around Mysore handling hearing impaired children in inclusive schools were considered as subjects for the study. To asses the teacher's attitude, a questionnaire was prepared, which included the different aspects of hearing impaired children in an inclusive classroom. The 30 questions questionnaire was administered to 125 teachers of 15 regular schoolteachers, which inferred the attitude of teachers regarding different skills of hearing impaired children. The questionnaire used is of "forced choice pattern" on a 5 point rating scale. Each individual teacher had to select any one option out of five, which ever they considered appropriate for that particular question. Teachers were also sought to demographic and their professional experience details in the questionnaire like age, gender, qualification, number of years of experience in teaching children with hearing impairment etc. All the teachers who served as subjects for the study schoolteachers attended the orientation program on classroom management and hearing impairment. Following the orientation program same questionnaire was administered to the same subjects (teacher) for the post testing after a minimum period of four months from the initial administration of the questionnaire. The data obtained before the orientation program (pre test) was compared with the data obtained after the orientation program (post test) Non-parametric Wilcoxon Signed Ranks test of the SPSS package, was used to statistically analyze the data. Results obtained are discussed under eight skills, which were included in the questionnaire.

1) Language Skills

Following are the three questions in the questionnaire administered to the teachers to evaluate the language skills of the hearing-impaired children in an integrated classroom setup.

Q1. There is no problem to communicate with the hearing-impaired children

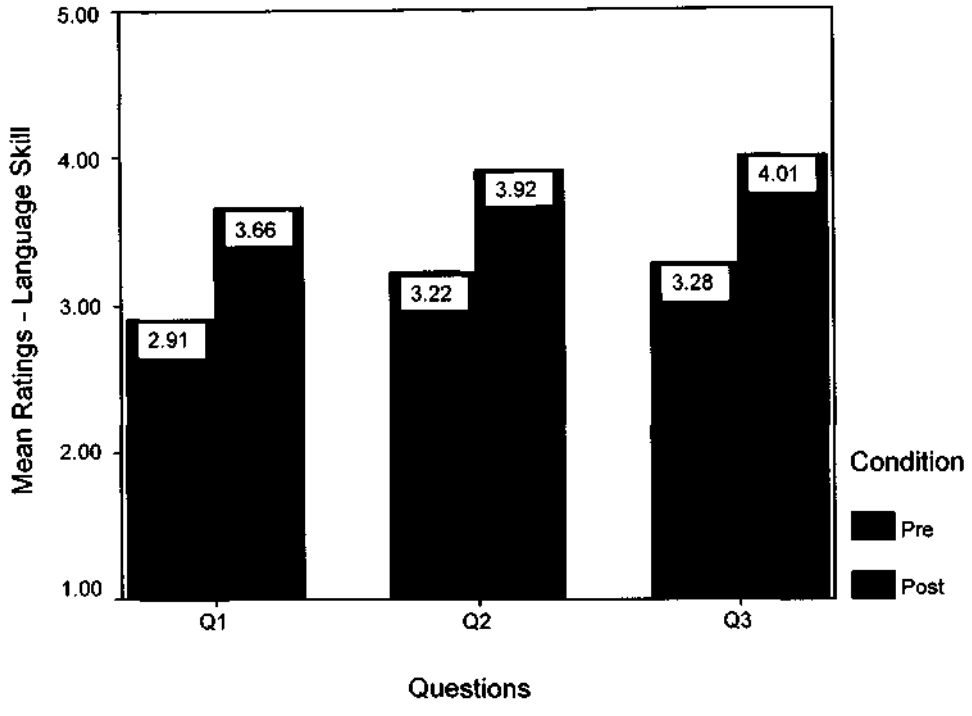
Q2. There is no problem to understand the speech of the hearing-impaired children.

Q3. Hearing impaired child can understand when different people communicate with him/her using speech.

Using the non-parametric Wilcoxon Signed Ranks test of the statistical package SPSS 10, the opinion of the teachers in all the age groups was compared for these three questions before and after the orientation program. The "p" values obtained revealed that there was significant difference at 0.05 levels in the teacher's attitude following the orientation program for the three target questions assessing the language skills. That is, teachers in all the age groups had a positive out look after they were oriented on the language aspects of the hearing-impaired children as shown in Graph 1.

Age-group of Teachers	Question Numbers	Pre-test Mean rating	Std. Deviation	Post-test mean rating	Std. Deviation	P value
20-30	Q1	2.81	1.51	3.54	1.14	0.025*
	Q2	3.38	1.46	3.92	1.04	0.082
	Q3	3.43	1.19	3.92	1.09	0.045*
30-40	Q1	2.72	1.22	3.78	0.97	0.000*
	Q2	3.13	1.39	3.78	1.18	0.020*
	Q3	3.25	1.32	3.84	1.11	0.005*
40-50	Q1	3.09	1.16	3.65	1.07	0.036*
	Q2	2.91	1.38	4.13	0.76	0.001*
	Q3	3.30	1.06	4.35	0.57	0.001*
50-60	Q1	3.27	1.33	3.73	1.16	0.083
	Q2	3.53	1.25	3.87	1.25	0.143
	Q3	2.93	1.39	4.07	0.46	0.012*
Overall	Q1	2.91	1.33	3.66	1.07	0.000*
	Q2	3.22	1.39	3.92	1.06	0.001*
	Q3	3.28	1.23	4.01	0.95	0.000*

Table 7: Shows the mean ratings, standard deviation and 'p' values of the comparison between pre and post test for the language skill in teachers of different age groups.
"Indicates significant difference between pre & post test scores



Graph 1: Shows Mean ratings of pre and post-test in Q1, Q2 and Q3 for Language skill

The present study showed an overall significant improvement in the attitude of teachers in all the four age groups from pre to post test as shown in Table 7. The teachers in the middle age groups 30-40 and 40-50 have significant improvement from pre to post test scores for all the three questions where as the lower age groups 20-30 did not show significant improvement for the 2nd question and the higher age group 50-60 did not have significant improvement in the attitude for the 1st & 2nd questions. Possible reason for this finding is that Sarva Shiksha Abhiyan is a recent policy of the central government. The teachers in the 20-30 age range has less acquaintance with hearing impaired children, and 50-60 age groups of teachers are almost in the retirement slot and probably had very less acquaintance with the hearing-impaired children. The present finding is also supported by studies conducted on teacher's attitude towards hearing impaired children in an inclusive setup in an Indian context as well as in the western setup. Paranjape and Sadashiv (1991) have studied the effect of supplementary education program for hearing impaired children on their language development awareness of acceptance of the child's handicap by the teachers. Their major findings were that, children with hearing impairment in an

inclusive set up were speaking confidently and they were eager to express themselves without feelings of hesitation. Teachers opined that there is no problem to communicate with hearing impaired children and they also opined that hearing impaired must first learn to communicate using oral communication before they can move on to formal education.

Sharma (1989) conducted a study to explore the language competence of the hearing-impaired children in an integrated setup and in special schools of Haryana and Delhi. The findings revealed that the hearing-impaired children of special schools are significantly better on their intelligence than in the inclusive setup where as the language competence of the hearing impaired studying in an inclusive setup was significantly better than special schools. Therefore, teachers opined that it is not difficult to understand speech of hearing impaired children in an inclusive setup.

In the western context, Hall, B.J., Oyer, H.J. & Haas, W.H. (2001) conducted a study on language and cognitive development of hearing impaired children. Results indicated that language development of hearing-impaired children are inter related with the cognitive exposures provided to the child. If proper cognitive skill is developed with imagination play, it is easy to develop language skills in the hearing-impaired children and there by increasing the speech intelligibility in them.

2) Social Skills

Four questions in the questionnaire were used to evaluate the social skills of the hearing-impaired children in an integrated setup classroom. These questions are as listed below

Q4. It is important to educate the peers regarding the disability of the hearing- impaired child

Q5. Hearing impaired children have no problem in getting along with other children in normal schools.

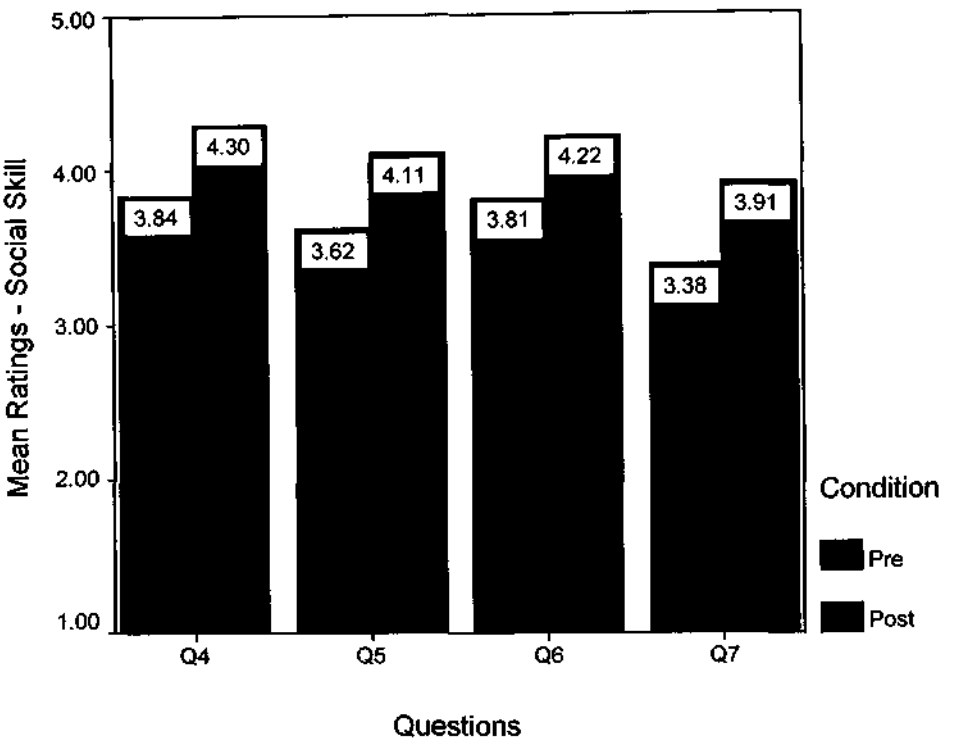
Q6. Other normal children in the class do not have any problem in adjusting with hearing impaired children

Q7. Hearing impaired children will not interfere in the learning process of other children.

Age-group Teachers	Question Numbers	Pre-test Mean rating	Std. Deviation	Post-test mean rating	Std. Deviation	P value
20-30	Q4	4.08	1.04	4.46	0.80	0.050*
	Q5	3.70	1.24	4.11	1.07	0.110
	Q6	3.95	1.13	4.35	0.95	0.082
	Q7	3.35	1.40	4.00	1.11	0.038*
30-40	Q4	3.81	1.15	4.09	1.00	0.247
	Q5	3.44	1.34	4.22	0.94	0.005*
	Q6	3.63	1.39	4.13	1.04	0.023*
	Q7	3.22	1.31	3.66	1.26	0.089
40-50	Q4	3.87	1.06	4.26	0.69	0.131
	Q5	3.61	1.41	4.00	1.09	0.304
	Q6	3.52	1.04	4.00	1.21	0.142
	Q7	3.22	1.35	3.96	1.11	0.041*
50-60	Q4	3.27	1.44	4.40	0.51	0.011*
	Q5	3.80	0.94	4.07	0.80	0.431
	Q6	4.33	0.49	4.47	0.52	0.317
	Q7	4.07	0.80	4.13	0.74	0.803
Overall	Q4	3.84	1.15	4.30	0.82	0.000*
	Q5	3.62	1.26	4.11	0.99	0.001*
	Q6	3.81	1.15	4.22	0.99	0.005*
	Q7	3.38	1.31	3.91	1.11	0.001*

Table 8: Depicts the mean ratings, standard deviation and 'p' values of pre and post-test$_t$ of different age groups of teachers for the social skill.

indicates significant difference from pre to post test scores.



Graph 2: Shows Mean ratings of pre and post-test in Q4, Q5, Q6 and Q7 for social skill.

Table 8 shows the distribution of mean and standard deviations obtained for teacher's attitude towards social skill of hearing impaired children in an inclusive set up. From the Graph 2 It is evident that on overall comparison, attitudes of teachers have shown significant difference for the above four questions pertaining to social skills after attending the orientation program. For question number four, findings revealed that there is significant difference in the mean value from pre test to post test for age groups 20-30 and 50-60, where as 30-40 and 40-50 age group teachers did not show significant difference in their attitude after attending the orientation program. While answering the questionnaire for post-test, teachers from their experience opined that it is not necessary to educate the peers because they (peers) themselves are able to understand how to behave with the hearing impaired children in the classroom situation. For question numbers 5 and 6 there is significant difference from pre to post test mean only in the age group of 30-40, where as teachers in the other age groups of 20-30, 40-50 and 50-60 did not show significant difference in their attitude following the orientation. Potential reason

for this finding could be that hearing-impaired children due to their inability to communicate or express, behave inappropriately in the classroom to get attention of teachers or peers. This could have created problems for teachers in managing hearing-impaired children along with their normal peers. The attitude of teachers with regard to this can be changed by more orientation lectures focusing on behavior control and training with practical demonstrations. The process of socialization should start at an early stage right from home to educational institutions to play grounds expanding gradually to a variety of social situations. An understanding peer can often best fill the gaps caused by communication difficulties. Also because of the isolation that the hearing loss can impose, it is important for the child to have relationship with other children that will make him/her feel more a part of educational experiences. In consonance with our finding, Paranjape and Sadashiv (1991) have conducted a study on the effect of a supplementary education program for hearing impaired children on their socialization and the awareness of acceptance of the child's handicap by the teachers. This study revealed that children with hearing impairment have positive higher social behavior. Teachers opined that the hearing-impaired children get adjusted in all situations with out any major difficulty.

On the social aspect, it has been reported in the western literature that in the mainstream education hearing impaired often has trouble in social relationship. For example, Foster (1988) reported that these students' descriptions of their social experience include much loneliness, rejection and social isolation. Several descriptive studies of hearing impaired child interactions in integrated settings with either oral or total communication indicate that hearing impaired children have difficulty relating to the hearing peers. The hearing impaired interacted more frequently with their teachers and other hearing impaired children than with hearing ones As the above studies suggest, hearing impaired students have had largely negative social experiences in the mainstream setting. A few studies however, have reported that these students have positive or at least not negative experiences.

Ridsdale and Thompson (2002) conducted the study "Perceptions of Social Adjustment of Hearing-Impaired Pupils in an Integrated Secondary School Unit". The aim of this case study was to investigate issues surrounding the social inclusion of hearing-impaired pupils within a mainstream comprehensive school in a large northern city. Tutors and mainstream subject teachers of the hearing-impaired pupils were interviewed. The data collected suggested that the hearing-impaired pupils were not particularly well integrated socially with their hearing peers. The socio metric data showed the hearing-impaired pupils to be of low status within friendship groups. Interview data from mainstream teachers suggested that they had little relevant knowledge of the personal concepts and social experiences of hearing-impaired pupils. Recommendations are made to improve the social skills of the hearing-impaired young people, and to foster a greater degree of peer-group support, with some adaptations to their curriculum to social learning and communication skills.

2) Reading/Writing Skills

There were three questions in the questionnaire that evaluated the Reading/Writing skills of the hearing-impaired children in an integrated setup classroom

Q8. Hearing-impaired children are able to write down on dictation.

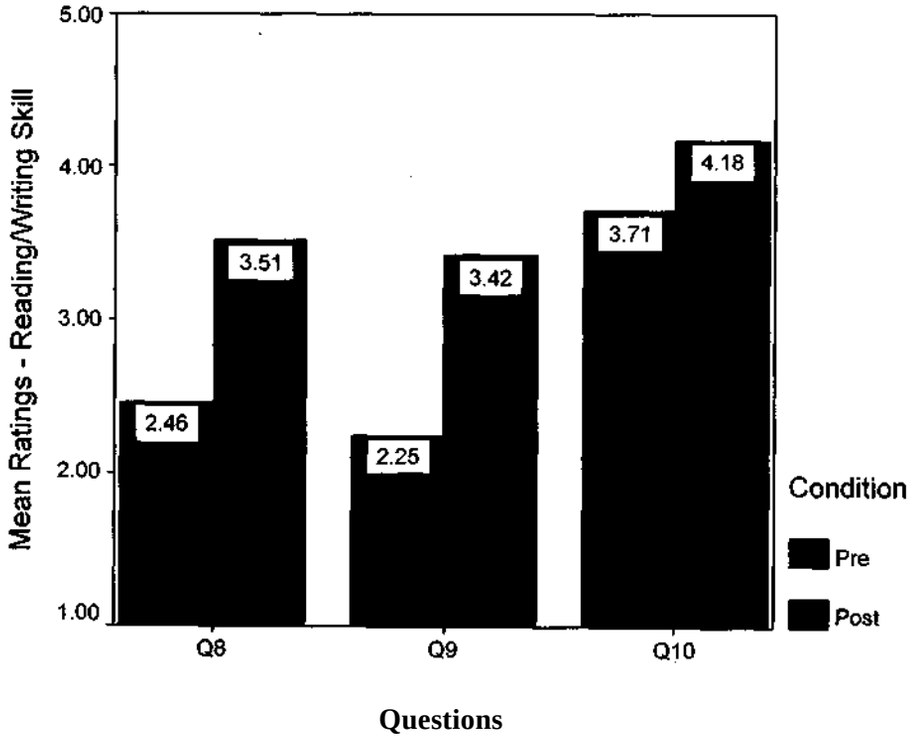
Q9.Hearing-impaired children are able to pronounce the words correctly when they read the lesson aloud in the class.

QlO.Hearing-impaired children are on par with normal hearing children in copying from the black board.

Age-group Teachers	Question Numbers	Pre-test mean ratings	Standard deviation	Post-test mean ratings	Standard deviation	IZI	P value
20-30	Q8	2.65	1.36	3.62	.32	3.241	0.001*
	Q9	2.22	1.29	3.41	i.21	3.550	0.000*
	Q10	3.46	1.24	4.14	1.11	2.890	0.004*
30-40	Q8	2.63	1.41	3.41	1.32	2.239	0.025*
	Q9	2.22	1.04	3.28	1.44	2.865	0.004*
	Q10	3.84	1.35	4.09	1.03	0.999	0.318
40-50	**08**	2.09	1.04	3.30	1.36	2.734	0.006*
	Q9	2.48	0.95	3.39	1.53	2.427	0.015*
	Q10	3.96	1.26	4.22	0.90	1.218	0.223
50-60	Q8	2.20	0.86	3.80	0.80	2.761	0.006*
	Q9	2.07	1.03	3.80	0.52	2.931	0.003*
	Q10	3.67	1.35	4.40	0.74	2.070	0.038*
overall	Q8	2.46	1.26	3.51	1.29	5.638	0.000*
	Q9	2.25	0.11	3.42	1.31	5.638	0.000*
	Q10	3.71	1.29	4.18	0.97	3.295	0.001*

Table 9: Depicts the mean ratings, standard deviation and 'p' values of pre and post-test of different age groups of teachers for reading/writing skills.

*Indicates significant difference from pre to post test scores.



Graph 3: Shows Mean ratings of pre and post-test in Q8, Q9, and Q10 for reading/writing skills

The present study showed an overall significant improvement in the attitude of teachers in all the four age groups from pre to post test as shown in Graph 3.When

compared to pre and post test scores, non-parametric Wilcoxon Signed Ranks test revealed that (Table 9) there is a significant difference in the mean from pre test to post test for question numbers 8 and 9 for all age groups of teachers. For question number 10 there is a significant difference in attitude following the orientation program in 20-30 and 50-60 age groups of teachers whereas there is no statistical difference in the attitude of teachers in the age ranges 30-40 and 40-50. This can be explained from the findings of studies that hearing impairment impose an invisible acoustic filter which retards an individual verbal language development and in turn their reading and writing skills (Ling 1986). Consequently hearing impaired students, as a result of their hearing loss, present unique obstacles to learning that require special techniques and strategies in order to achieve academic and social skills. Teachers of 30-40 and 50-60 age groups need more information regarding the acoustic characteristics of the hearing-impaired children because without hearing high frequency sounds such children have difficulty in reading and writing. Overall opinion of teachers towards reading/writing ability of hearing impaired children improved after the orientation program.

Wahid and Ishfaq (2000) in Pakistan conducted a study on teacher's attitude towards the academic capabilities of children with hearing impairment. Their study revealed that teachers believed children with hearing impairment could develop reading, writing, mathematical, social and vocational skills like other children with appropriate training.

4) Academic skills

There were eight questions in the questionnaire, which evaluated the academic skills of the hearing-impaired children in an integrated setup classroom

Ql1 It is necessary to make curricular adaptations (Syllabus modification to teach the hearing-impaired children)

Q12. It is necessary to make classroom adaptations (modifications) to handle the hearing-impaired children.

Q13. Hearing-impaired children are prompt in doing homework

Q14. Hearing-impaired children are able to do the homework on their own.

Q15. It is difficult to teach arithmetic skill to hearing-impaired children

Q16. It is necessary for the parents of hearing impaired children to take active role in providing curricular support.

Q17. Parents of hearing impaired children need to meet the concerned teachers regularly for home training and guidance.

Q18. Parents often complete the homework of the hearing-impaired children.

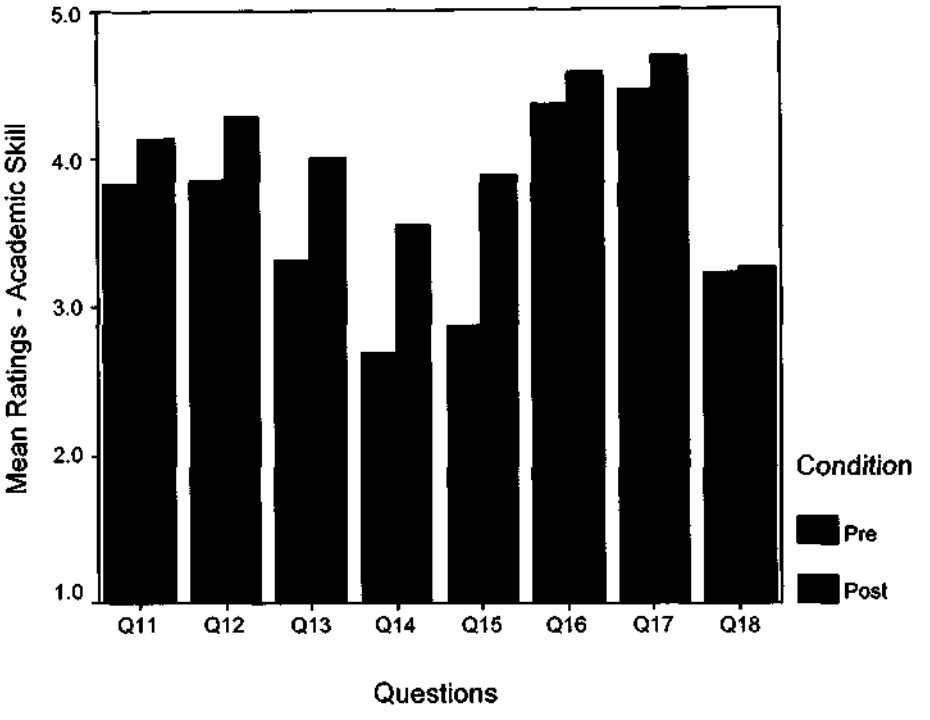
In the present study, statistical analysis on academic skills as shown in Table 10 revealed that there is a significant improvement in the attitude of teachers for six of the eight academic related questions except for question numbers 11 and 17. Plausible reason for this finding could be that as teachers opined making curricular adaptations in a class of 50-60 students is time consuming. Teachers also indicated that generally parents of hearing impaired children did not show interest in the school activities of the children once they admit their children in an inclusive set up.

Teachers opined that they wanted the child to be regular in schoolwork and wanted parents to help the child with it. Teachers desired that parents should visit the school regularly, give personal attention to their studies, explain difficulties and largely help him/her to comprehend better. Some teachers felt that the parents should be trained to teach the child at home. Most teachers wanted parent's active involvement in their child's education. They wanted the parents to encourage the child to participate in various competitions to build confidence using positive reinforcements. Some teachers felt the need for counseling the parents. So that there should be acceptance on part of the parents regarding the child's disability and should interact more frequently with the child

Age-groups teachers	Question Number	Pre-test mean rating	Standard deviation	Post-test mean rating	Standard deviation	P value
20-30	Q1l	3.95	1.03	4.11	0.91	0.604
	Q12	3.70	0.97	4.43	0.80	0.002*
	Q13	3.27	1.24	4.19	1.00	0.001*
	Q14	2.81	1.35	3.62	1.34	0.007*
	Q15	2.86	1.18	3.97	1.01	0.000*
	Q16	4.41	0.69	4.59	0.69	0.193
	Q17	4.65	0.63	4.73	0.51	0.589
	Q18	3.19	1.10	3.32	1.23	0.578
30-40	Q1l	3.78	1.07	4.06	0.95	0.086
	Q12	3.63	1.01	4.13	0.98	0.036*
	Q13	3.66	1.47	3.72	1.22	0.826
	Q14	2.44	1032	3.41	1.32	0.002*
	Q15	2.97	2.97	3.78	1.31	0.019*
	Q16	4.47	4.47	4.56	0.67	0.606
	Q17	4.56	4.56	4.63	0.71	0.724
	Q18	3.09	3.09	3.13	1.07	0.990
40-50	Q1l	3.78	1.38	4.13	1.18	0.199
	Q12	3.61	1.47	4.30	0.88	0.066
	Q13	3.22	1.38	4.04	0.93	0.003*
	Q14	3.04	1.52	3.70	1.02	0.055*
	Q15	2.91	1.00	3.96	1.02	0.002*
	Q16	4.09	1.12	4.57	0.95	0.008*
	Q17	4.17	1.11	4.65	0.57	0.048*
	Q18	3.52	1.04	3.13	1.29	0.303
.50-60	Q1l	3.73	0.88	4.40	0.51	0.020*
	Q12	3.87	0.74	4.27	0.80	0.145
	Q13	2.87	1.41	4.13	0.52	0.010*
	Q14	2.33	1.11	3.53	1.41	0.007*
	Q15	2.60	1.12	3.80	1.26	0.004*
	. Q16	4.47	1.06	4.50	1.52	1.000
	Q17	4.20	1.08	4.73	0.46	0.054*
	Q18	3.20	1.21	3.60	1.30	0.417
Overall	Q1l	3.83	1.09	4.14	0.94	0.055*
	Q12	3.86	1.07	4.29	0.87	0.000*
	Q13	3.32	1.37	4.01	1.01	0.000*
	Q14	2.68	1.36	3.56	1.37	0.000*
	Q15	2.87	1.12	3.89	1.14	0.000*
	Q16	4.36	0.93	4.57	0.72	0.022*
	Q17	4.46	0.88	4.68	0.58	0.066
	Q18	3.23	1.14	3.26	1.20	0.000*

Table 10: Depicts the mean ratings, standard deviation and 'p' values of pre and post test of different age groups of teachers for academic skill

""Indicates significant difference from pre to post test scores.



Graph 4: Shows Mean ratings of pre and post-test in Ql 1, Q12, Q13, Q14, Q15, Q16, and Q17 and Q18 for academic skill

As shown in the Graph 4 overall opinion of teachers improved after the orientation program except for Q17 Probable reason for this finding could be, The range of academic skill in hearing impaired children is as varied as it is with normal hearing children. Educational personal should be familiar with the child's academic history to identify the individual capabilities and special problems of each individual child. The results of this study indicate that the teachers in regular education had sufficient knowledge about the theoretical aspects of inclusion but they lack knowledge regarding the child with a hearing loss. The negative attitude of the teachers was significantly related to their personal experience with hearing impaired children and their years of teaching experience. The teachers indicated specific needs in terms of further training and the content of training. Having a hearing impaired child in class does require extra planning and special consideration that will mean greater commitment for that class. Teachers and

administrators should consider the advisability of reducing class load of those classes in which hearing-impaired children are integrated.

Afzali- Nomani and Tucson (1995) at the University of Arizona investigated the attitudes of 55 educators of children who were hearing impaired and 48 regular educators, long involved in inclusion programs for school age children who were hearing impaired. Both groups of teachers indicated that inclusion had a positive impact on the academic achievement of hearing impaired children.

5) General Knowledge

There were two questions in the questionnaire, which evaluated the general knowledge of the hearing-impaired children in an integrated setup classroom.

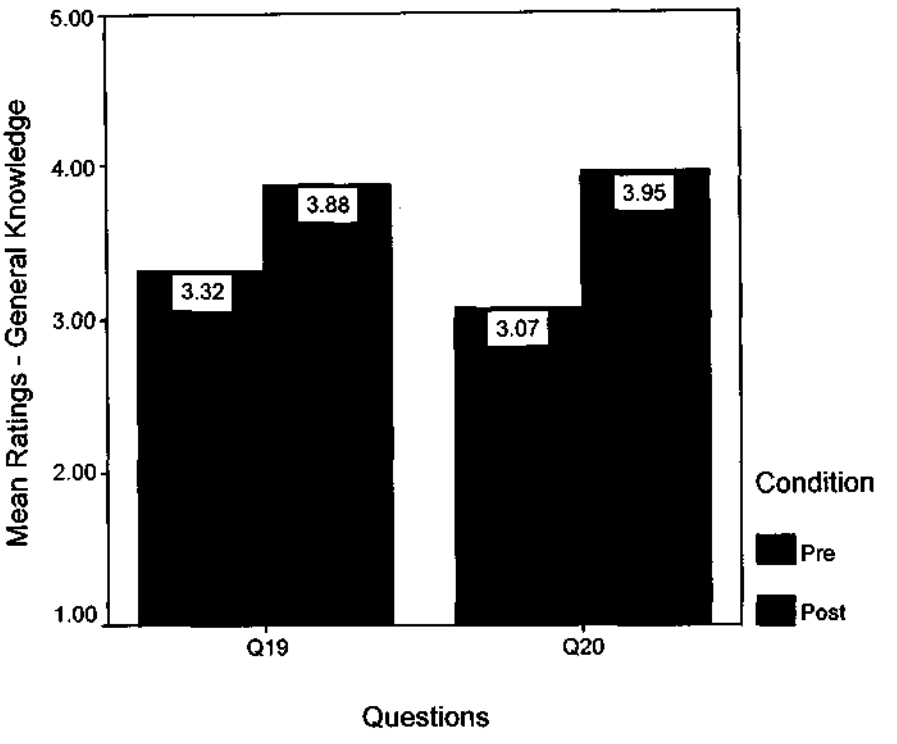
Q18. Hearing impaired children show interest in reading general storybooks.

Q19. General knowledge of hearing impaired children is on par with peers.

Age-Group Teachers	Question Number	Pre-test mean ratings	Standard deviation	Post-test mean ratings	Standard deviation	' P value
20-30	Q19	2.95	.27	3.84	1.04	0.005*
	Q20	3.14	.18	3:89	0.99	0.004*
30-40	Q19	3.31	.23	3.72	1.25	0.133
	Q20	3.06	.11	4.03	1.18	0.002*
40-50	Q19	3.48	.31	3.96	1.22	0.003*
	Q20	2.91.	.16	3.96	1.26	0.006*
50-60	Q19	4.00	.65	4.20	0.56	0.366
	Q20	3.20	.08	3.93	0.96	0.096
Total	Q19	3.32	1.23	3.88	1.10	0.001*
	Q20	3.07	1.13	3.95	1.09	0.000*

Table 11: Depicts the mean ratings, standard deviation and 'p' values of pre and post-test of different age groups of teachers for general knowledge.

"Indicates significant difference from pre to post test scores.



Graph 5: Shows Mean ratings of pre and post-test in Q19 and Q20 for general knowledge.

Table 11 reveals that there is significant difference in the mean scores of the attitude of teachers before and after the orientation program in all age groups of teachers except for the 50-60 age group. This may be because the 50-60 age group teachers are almost in the retired slot had very less acquaintance with hearing impaired children as the concept of integration is relatively a recent phenomenon. Teachers of this age group has less practical exposure in an integrated school situation and also factors like sympathy and empathy may play a vital role for developing positive attitudes. But the overall Professionals those who are working in the disability area have increased knowledge towards the disability and may enhance their attitude towards children with hearing impairment. The overall opinion of teachers towards general knowledge of hearing impaired children improved after the orientation program as depicted in Graph 6. The present study is supported by Umit Girgin (2006) in Turkey, who conducted a study on teacher's opinion about interest of hearing impaired children in reading storybooks'. Teachers opined that when hearing impaired students read a story at their instructional level, they do use their knowledge of syntax, semantics and phonemes, they understand

what they read and there is a consistency between the mistakes they make and their reading comprehension.

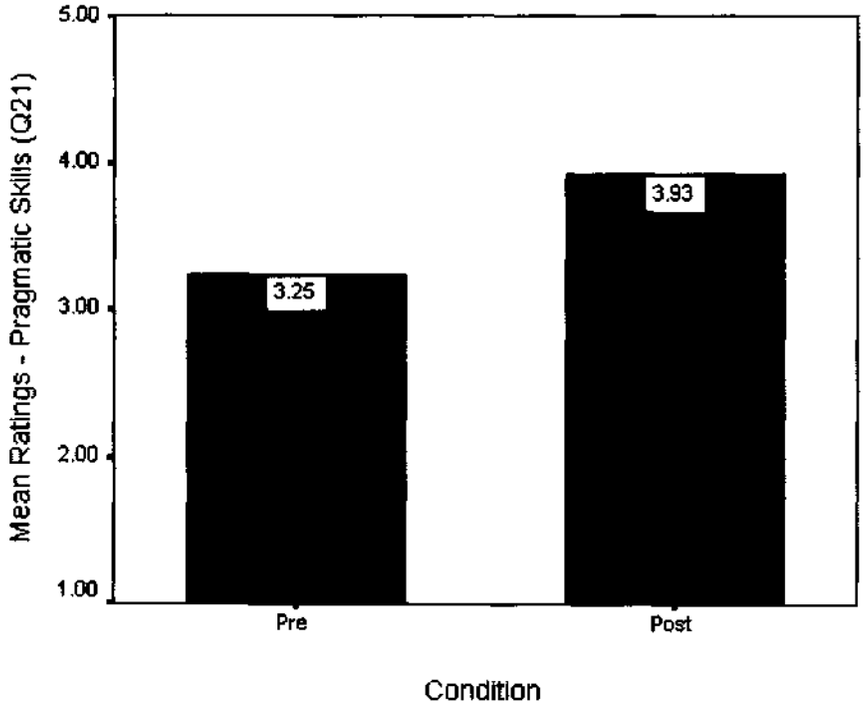
6) Pragmatic Skills

There was only one question in the questionnaire, which evaluated the pragmatic skill of the hearing-impaired children studying in an integrated setup classroom

Q21. Hearing impaired children behave appropriately to the situations in the school.

Age-Group Teachers	Question Number	Pre-test mean rating	Standard deviation	Post-test mean rating	Standard deviation	P value
20-30	Q21	3.35	1.16	3.89	1.13	0.024*
30-40	Q21	3.13	1.26	3.94	1.27	0.009*
40-50	Q21	3.09	0.92	4.09	1.33	0.014*
50-60	Q21	3.53	0.92	3.73	1.33	0.842
Total	Q21	3.25	1.17	3.93	1.16	0.000*

Table 12: Depicts the mean ratings, standard deviation, and 'p' values of pre and post-test of different age groups of teachers for pragmatic skill, indicates significant difference from pre to post test scores.



Graph 6: Shows Mean ratings of pre and post-test in Q21 for pragmatic skill..

Table 12 depicts that, there is a significant difference in the attitude of all age groups teachers for question number 21 except for 50-60 age group teachers, which has been a common observation for most of the skills evaluated. The reason could be that the teachers of 50-60 age groups are not aware of the recent developments in the field of integration and hence need more exposure regarding the recent developments for their attitudinal change. However, on overall there is significant difference in the attitude of teachers as shown in Graph 6.

Pragmatic ability may be seen as the ability to combine linguistic, cognitive, affective and social competence to be able to communicate effectively and appropriately with others. Vaishnavi, Bhalinge and Nagaraju (1985) conducted a study on pragmatic aspects of language in normal and hearing-impaired individuals. Findings of this study were that there exists significant difference in pragmatic skills of hearing impaired subjects and normal hearing subjects. Normal hearing subjects have better pragmatic skills than hearing impaired subjects.

Krestschmer and Krestschmer (1980) believe that research in the area of pragmatic language skills may be especially valuable in helping hearing-impaired persons. Pragmatic functions can be identified non-verbally as well as verbally in hearing impaired. Studies of pre school deaf children have revealed that their development of some pragmatic abilities is similar to their hearing peers, while their development of other pragmatic abilities is delayed or deviant.

7) Problems faced during classroom activities and extra curricular activities

There were two questions in the questionnaire, which evaluated the problems faced by hearing impaired children in an integrated classroom during classroom activities and extra curricular activities.

Q22.Hearing impaired children also might have exceptional abilities,(like indrawing, athletics etc.)

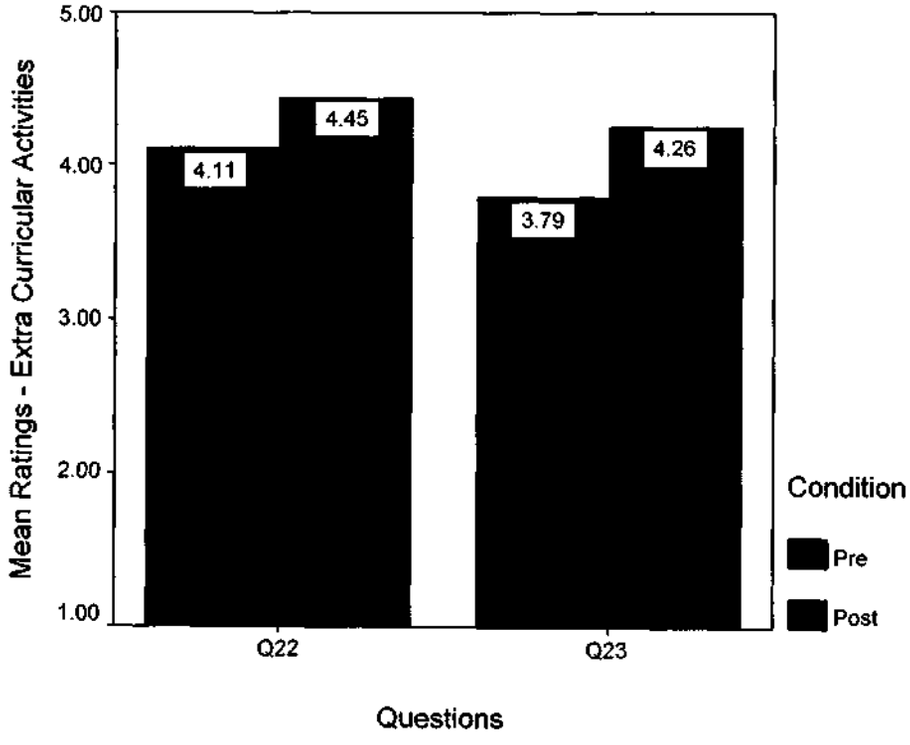
Q23. Hearing-impaired children are able to participate in all the activities of the

school (Dance, PT etc)

Age group Teachers	Question Numbers	Pre-test mean rating	Standard deviation	Post-test mean ratings	Standard deviation	P value
20-30	Q22	4.00	0.94	4.00	0.69	0.016*
	Q23	3.97	0.93	4.32	0.82	0.105
30-40	Q22	4.22	1.04	4.41	0.86	0.300
	Q23	3.41	1.39	4.28	1.02	0.003*
40-50	Q22	4.04	1.11	4.52	0.05	0.048*
	Q23	3.87	1.29	4.30	1.02	0.133
50-60	Q22	4.27	0.96	4.47	0.52	0.380
	Q23	4.00	0.85	4.00	0.93	1.000
Overall	Q22	4.11	1.00	4.45	0.66	0.001*
	Q23	3.79	1.17	4.26	0.94	0.002*

Table 13: Depicts the mean ratings, standard deviation, 'p' values of pre and post-test of different age groups of teachers for problems faced during classroom activities and extra curricular activities by hearing- impaired children in an inclusive set up.

*Indicates significant difference from pre to post test scores.



Graph 7: Shows Mean ratings of pre and post-test in Q22 and Q23 for extra curricular activities

Table 13 depicts that the attitude of the teachers for the above two questions related to problems faced during classroom activities and extra curricular activities by

hearing impaired children have significantly improved after the orientation program. For question number 23 significant differences were identified only in the 30-40 age group of teachers. There is no significance difference in the attitude of teachers in age groups of 20-30, 40-50 and 50-60.however overall opinion of teachers improved from pre to post test, which is depicted in Graph 7. Reason for this finding could be inferred from the following study of Winter (1995), which examined the quality of play of hearing children in integrated groups. Study examined the effect of partner's hearing status on the social and cognitive play behaviors of 46 preschool children who were hearing impaired (3-6 years old) enrolled in various types of program models across the country. The playgroups were small, and contained children of different hearing status, with at least two children who were hearing impaired in each group. Children who were hearing impaired engaged more frequently in group play than in parallel play with all partners and at all age levels. The children who were hearing impaired engaged in significantly more constructive than functional or dramatic play. When playing with hearing partners, they engaged in equal levels of functional, constructive, and dramatic play. However, when playing in groups consisting of both hearing and hearing-impaired children, the children engaged most frequently in dramatic play. Winter (1995), suggest that the interactive dramatic play of the children who were hearing impaired children was facilitated by the presence of familiar playmates with whom they could communicate, as well as the presence of hearing playmates that initiated dramatic play and modeled advanced behaviors.

8) Classroom Management

There were seven questions in the questionnaire that evaluated the classroom management of the hearing-impaired children in an integrated setup

Q24. Teachers are able to manage hearing-impaired children in normal classrooms without difficulty.

Q25. Disabled children should be educated in special school only.

Q26.lt is satisfying to work with hearing impaired children in the class.

Q27. It is desirable to educate the hearing impaired in an integrated set up.

Q28. It is not over burdening for teachers to manage disabled children.

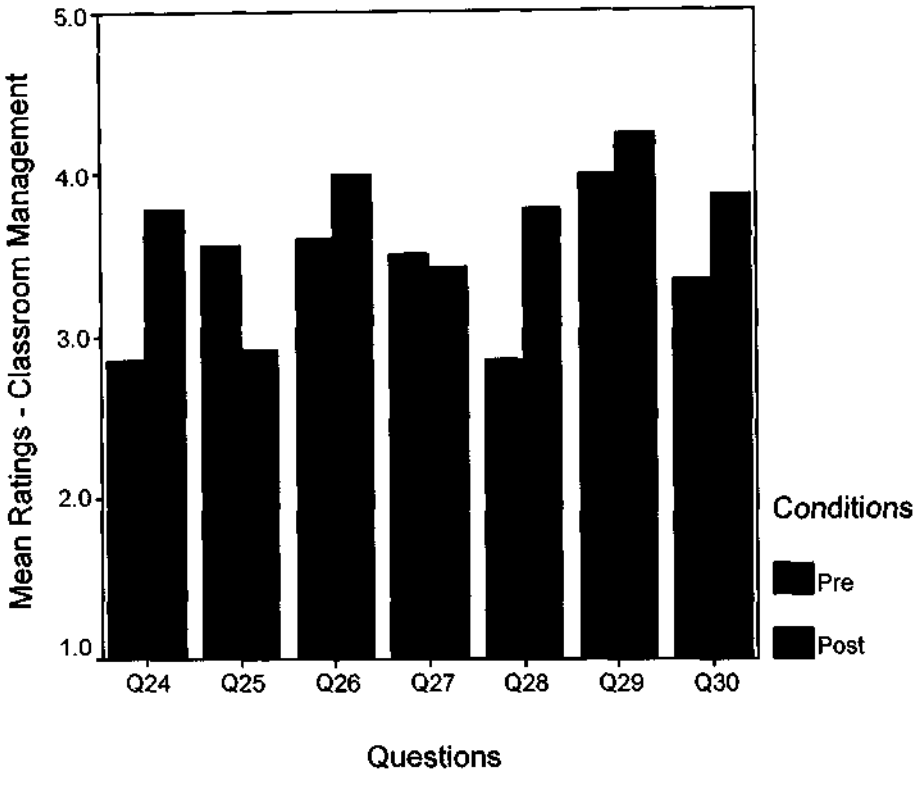
Q29.Teachers need additional training and resources to manage disabled children in classrooms

Q30.Teachers need to be paid extra to manage disabled children in the classrooms.

Age Group	Question Number	Pre-test mean	Standard deviation	Post-test mean rating	Standard deviation	P Value
20-30	Q24	**2.51**	1.41	3.68	1.08	0.000*
	Q25	3.81	1.17	2.73	1.41	0.001*
	Q26	3.62	1.06	3.97	1.28	0.078
	Q27	3.76	0.86	3.62	1.30	0.498
	Q28	2.86	1.21	3.84	1.24	0.001*
	Q29	3.92	1.34	4.38	0.83	0.063
	Q30	3.38	1.26	3.78	1.20	0.195
30-40	Q24	2.56	1.39	3.44	1.39	0.003*
	Q25	3.38	1.50	2.78	1.34	0.890
	Q26	3.50	1.34	3.88	1.16	0.164
	Q27	3.69	1.15	3.69	1.26	0.901
	Q28	2.94	1.39	3.66	1.38	0.041*
	Q29	4.16	1.22	4.09	1.23	0.928
	Q30	3.44	1.48	3.94	.05	0.065
40-50	Q24	2.91	1.35	3.26	.32	0r287
	Q25	3.13	1.36	3.04	.43	0.886
	Q26	3.74	1.29	4.09	().95	0.097
	Q27	4.00	0.85	3.00	**.51**	[1] 0.012*
	Q28	2.74	1.18	3.52'	.31	0.065
	Q29	3.91	1.12	4.04	.30	0.586
	Q30	3.17	1.47	3.83	.34	0.028*
50-60	Q24	2.73	1.33	3.27	.28	0.240
	Q25	3.93	1.16	3.47	.30	0.200
	Q26	3.53	0.92	4.13	0.83	0.101
	Q27	3.87	**0.83**	3.07	1.53	**0.095**
	Q28	2.80	1.26	4.27	0.80	0.003*
	Q29	3.93	1.28	4.60	0.51	0.100
	Q30	3.33	1.11	3.93	1.01	0.208
Total	Q24	2.80	1.42	3.80	1.04	0.001*
	Q25	3.55	1.33	2.92	1.38	0.001*
	Q26	3.60	1.17	3.99	1.11	0.001*
	Q27	3.50	0.95	3.43	1.38	0.000*
	Q28	2.85	1.25	3.78	1.25	0.000*
	Q29	3.99	1.05	4.25	1.05	0.018*
	Q30	3.35	1.16	3.86	1.16	0.000*

Table 14: Shows the mean and standard deviation and "p" values of pre and post-test of different age groups of teachers for classroom management.

""Indicates significant difference from pre to post test scores



Graph 8: Shows Mean ratings of pre and post-test in Q24, Q25, Q26, 27, 28 Q29 and Q30 for classroom management

Statistical analysis revealed (Table 14) that the overall attitude of teachers for all questions related to classroom management have improved from pre to post test. The Q25 is "Disabled children should be educated in special school only" When we compare mean ratings and Standard deviation of that particular question as expected there is a positive change in the attitude of teachers. This question was used to asses the reliability of the responses. For Q27 there is no significance difference in the attitude of teachers as depicted in Graph 8. This could be because, teachers felt under prepared and unequipped to teach in an inclusive setting without any professional guidance on integration. Also due to various reasons like lack of time, lack of adequate infrastructure, too high teacher/child ratio, too much work pressure on the teachers, lack of adequate support, lack of training, not being updated on the radical changes in the education system that has transformed their working environment etc. have influenced their negative attitude towards the classroom management aspects in integrated conditions. However following

the orientation program on effective classroom management their overall attitude has shifted towards the positive side. There are different studies to support the present scrutiny. Chorost (1988) published findings concerning the attitudes of 15 general education teachers, who had been the home room teachers for a group of six hearing impaired children over a 6-year period as the children moved from preschool settings into the elementary grades. The majority felt that the extra time required to accommodate the children was time well spent. Several viewed the experience positively, and many felt comfortable repeating the experience.

Studies were conducted by Giangreco and Schumn, (1993) on teacher's attitude in modification of classroom for hearing impaired in an inclusive set up. The study revealed that, teachers are willing to make adaptations that involve social and motivational adjustment such as establishing a personal relationship with.students with disabilities, or involving the students in classroom activities. They are less willing to consider adaptations that require changes in curriculum, planning, evaluation or activities that are not typical for their classroom. However, they will adopt instructional practices that can be used with all their students.

Leyser, Kapperman and Keller (1994) undertook a cross-pultural study of teacher's attitudes towards inclusion or integration in the United States, Germany, Israel, Ghana, Taiwan and the Philippines. Their findings showed that there were differences in attitude to inclusion between these countries. Teachers in the United States and in Germany had the most positive attitudes. Positive attitudes in the United States were attributed to inclusion being widely practiced. Teachers in Germany exhibited positive attitudes to inclusion.

Another study results on teacher's attitudes towards children with communication difficulties in regular schools indicated that, teacher's attitudes to the integration of individual disabled children reflect lack of confidence both in their own instructional skills and in the quality of support personnel currently provided to them. They are positive about integrating only those children whose disabling characteristics' are not likely to require extra instructional or management skills on the part of the teacher.

However, their pre-service training and the nature of their subsequent professional experience may significantly modify teacher's attitudes. Examination of the skills needed by mainstreaming staff reveals that, while general competence is considered neither essential, neither regular nor resource teachers seem aware of the need for a structured approach to curriculum objectives. The finding that principals attitudes are consistently more positive than those expressed by teachers suggests a somewhat unrealistic perception by the former of teacher's current anxieties about integration.

Training for teachers is important for improving teachers' attitudes towards inclusion. The importance of training in formation of positive attitudes towards inclusive education was supported by the many studies, found that professional training of teachers was reported to be one of the key factors of successful inclusion. In some of the studies it is reported that, in-service training was highlighted as an effective way of improving teachers' attitudes towards inclusion. Some studies suggested that teachers' concerns about moving towards inclusion can be minimized using a number of strategies. They suggested that teachers should be empowered to initiate changes in their lessons and teaching plans, and they should have opportunities to visit settings where inclusion is practiced. Factors external to the school that affect the working conditions of teachers, such as financial rewards, status in the society and professional expectations, have also been found to influence the teachers' motivation and dedication. Teaching pupils with special needs in the mainstream classroom no doubt deviates from the program. Teachers are confronted with the question of how to instruct these pupils. Pupils with special needs may require more instruction time or other learning methods and professional knowledge. In that case, teachers will feel the need for more time, materials and knowledge. Generally, this can be achieved in two ways: by an increase in resources (more time allocated to teachers) or by re-arranging available resources.

SUMMARY AND CONCLUSIONS

The present study was carried out to evaluate the attitude of teachers towards hearing impaired children in an inclusive set up. Attitude of the teachers towards hearing impaired children has been less studied in the field of education of the children with hearing impairment especially in our country. Therefore, the present study focuses on assessing attitudes of teachers in an inclusive set up towards children with hearing impairment. This study also focuses on understanding the needs of teachers, parents of hearing impaired children, peers and also children with hearing impairment in an inclusive set up.

A questionnaire was prepared considering eight different skills related to children with hearing impairment. These eight skills considered are language skills, social skills, reading/writing skills, academic skills, general knowledge, pragmatic skills, problems faced during extracurricular activities and class room management. This "questionnaire was administered on teachers handling children with hearing impairment in integrated schools. Following this, these teachers who served as subjects for the study attended an orientation program focusing in general on hearing impairment and effective classroom management in an inclusive set up. The same questionnaire was administered on teachers before and after the orientation program (pre and post test). The obtained post test data was compared with the pre test/before orientation data. Non-parametric Wilcoxon Signed Ranks test of the SPSS package was used to statistically analyze the data. Results show that there is a positive change in the attitude of teachers for all the eight skills considered following the orientation program. Study also shows younger teachers and those with fewer years of experience have showed higher positive attitude towards inclusion of children with hearing impairment. The most experienced teachers of more than 11 years of teaching were the least accepting for the concept of inclusion. Attitudes were also not significantly related to teacher's gender, teaching type/subject, and previous knowledge of someone with communication difficulties. This finding is also supported by several earlier reports in the literature.

This study reveals that views on the educational placement for children with a range of communication difficulties varied. The concept of inclusion needs to be understood and conceptualized for changes to be brought about in existing teaching methodologies to benefit all children including those with disabilities. Inclusion largely depends on teachers' attitudes towards pupils with special needs and on the resources available to them. A comprehensive program like Sarva Shiksha Abhiyan should focus not only on educating the teachers regarding the management of children with hearing impairment, but also on changing the misconceptions or negative attitudes of regular school teachers who interact with hearing impaired children in a classroom situation. If the practical application of inclusion has to be successful to provide meaningful learning experiences for learners with hearing loss, teachers need to understand and recognize that they have the power, and the responsibility to act as the agents to bring about change in education.

As a premier institute in the area of communication problems, the All India Institute of Speech and Hearing should also focus more on training the regular school teachers to be better equipped for an inclusive education program. Only with the teacher's cooperation and improved knowledge about the problems faced by such children, inclusive education can become a reality in our country. The study also points to the fact that a regular follow up program by the specialists in speech and hearing and special educators for those children who are integrated in normal schools should be more rigorously implemented for the success of inclusive education program.

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APPENDIX-I

Orientation Program for the teachers focused on the following aspects

- Hearing impairment and its causes
- Class room management of hearing impaired children

Details given in the orientation program is in Appendix I

Hearing Impairment

Hearing loss or hearing impairment occurs when there is a problem with one or more parts of the ear. Some one who has hearing loss or impairment may be able to hear some sounds or nothing at all. Impairment means something is not working correctly or as well as it should. People also may use the words deaf, deafness or hard of hearing when they are talking about hearing loss. About 3 in 1000 babies are born with hearing impairment, making it the most common birth defect. A hearing problem can also develop later in life. To understand how and why hearing loss occurs, it helps to know how the auditory mechanism functions.

Hearing Mechanism

Disabled children belong to the poorest of the poor in any community and tend to stay poor as they lack opportunities for education health and employment, misconceptions about disability abound ignorance, negative attitude and the indifference-of the society community create hostile and un-friendly environment for children with disability environment for children with disability. The problem is severe in rural and tribal areas where there is no access to basic education and health facilities. However, in the last decade there has been a tremendous increase in awareness. Hearing impairment in young children is quite common .It has been estimated that in any infant class at any one time as many as 20% (or even more in some areas) of pupil will be experiencing some degree of fluctuating hearing difficult. Besides there are pupils with permanent hearing losses that are now being integrated into mainstream classes. This poses hurdles for many teachers who encounter such pupil in the course of their work. So it is very necessary for the teachers to have a clear perception of the ear and the hearing.

Auditory mechanism

The ear is made up of three different sections, the external ear, the middle ear and the inner ear. Figure 1 shows the external ear or the pinna

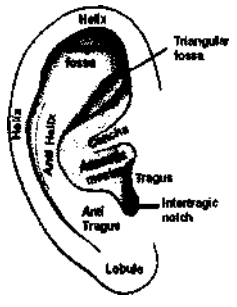


Fig 4: The External ear or The Auricle (Pinna)

The external ear has two main parts, the pinna or auricle and external auditory meatus or ear canal. Pinna has different parts, rim like periphery of the auricle is known as helix. A second Semicircular ridge, just anterior to the helix, is called as the anti-helix, while a depression between the helix and anti-helix is called the scaphoid fossa, or "Boat shaped ditch". At the level of the ear canal anteriorly is a cartilaginous flap, which is called tragus and opposite is a small ridge called anti-tragus. A notch called the intertragal incisure separates the tragus and antitragus. The inferior extremity of the ear is the earlobe or lobule.

The external Auditory Meatus (Ear canal)

Communication between the middle and inner ears and the external environment is provided by the external auditory meatus or, simply, the ear canal. It has one primary function, and that is to conduct sound to the eardrum. It also has some acoustical properties we should examine. Canal is divided into two parts cartilaginous portion and bony portion. The shape of the canal is's' shaped.

Middle Ear

Fig 5: The middle Ear

The middle ear is composed of the tympanic membrane, the air - filled middle ear cavity, and the structures contained within it, such as the auditory ossicles (the malleus, incus, and stapes), middle ear muscles, and the highly vascular mucos membrane, which invests the structures in the middle ear cavity. Figure 2 depicts the middle ear. The tympanic membrane is placed obliquely in the external auditory meatus in such a manner to form an obtuse angle (140 degree) with its upper wall and an acute angle (40 degree) with its lower wall.

Most space in the middle ear is occupied by the ossicular chain, which consists of the malleus, incus and stapes. The ossicles have two main purposes. Put bullets below

1. To deliver sound vibrations to the inner ear fluids
2. To help the inner ear from being overdriven by excessively strong vibrations

Sound energy, which impinges in the middle ear cavity, an excitation, is transmitted directly to the inner ear.

Inner Ear

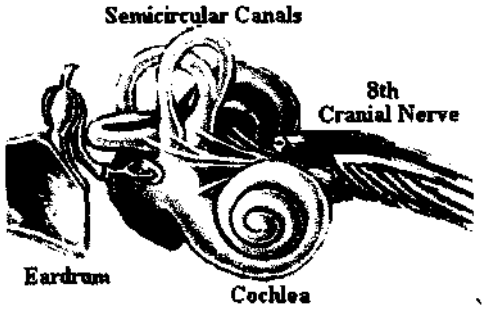


Fig 6: The inner ear

The inner ear (Figure 3) may be divided into two cavity systems, one of which houses the organs of equilibrium and the other essential organ of hearing. The two portions are bony labyrinth and membranous labyrinth. The capsule consists of three parts: the vestibule, semicircular canal and the cochlea.

The vestibule, which forms the central portion of the bony labyrinth, is continuous with the semicircular canals and with the cochlea. The three semicircular canals, superior, posterior and lateral, open into the vestibule by way of five orifices. The superior and posterior canals join to form a common canal or cms, which opens into the vestibule on the upper and medial wall. Circular canals lie in three planes, perpendicular to one another any two forms nearly a right angle. The membranous semicircular canal is similar in shape to the osseous semicircular canals in which they are housed. The cochlea is bony, spiral shaped cavity, about 35 mm in length, and incompletely divided into a scala vestibule and scala tympani by the osseous spiral lamina. The vibration travel to the cochlea, which is filled with liquid and lined with cells that have thousands of tiny hairs on their surfaces. There are two types of hair cells.

- Outer hair cells
- Inner hair Cells

The sound vibrations make the tiny hairs move. The outer hair cells take the sounds information amplify it (make it louder) and tune it. The inner hair cells send the sound information to your hearing nerve, which then sends it to your brain allowing hearing. Sound travels through the air in the form of waves of varying frequencies. The

frequencies of these waves determine the pitches of the sound that is heard. Sound waves are channeled into the external ear canal where they are transmitted to the middle ear, which consists of the eardrum and three small bones in the ear cavity. This part of the ear serves as an amplification system. The middle ear compensates for the loss of the intensity of sound as it travels from the air medium of the middle war to a fluid medium within the inner ear known as the cochlea.

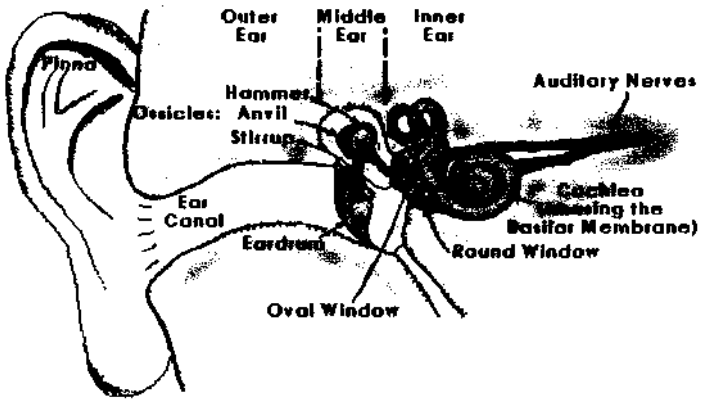


Fig-7: Anatomy of the Ear

Sound travels as waves of fluid to a specific area depending on the frequency of the sound in the cochlea. The fluid movement in the inner ear then causes the tactorial membrane to vibrate against the hair cells, which then stimulates the auditory nerve. The auditory nerve is responsible for transmitting the sound stimuli to the auditory center in the brain. The components that make up the sound and speech that are heard are coordinated and sent to higher centers of the brain for interpretation

External ear

- It directs the sound waves through the external auditory meatus or ear canal, to the tympanic membrane
- Primary function of the external ear is to protect the middle and inner ear from foreign body
- External ear also helps for localization of the sound source
- Auricle and External auditory meatus plays an important role in resonant effect of sound signal

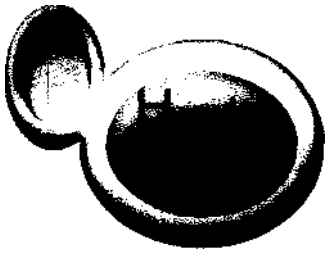
Physiology of middle ear

Two tiny muscles are found in the middle ear called the tympanic and stapedial muscles. The main function of these muscles is to contract in the presence of excessively loud noise, causing the ossicular chain to stiffen and thus protecting the ear from noise damage. Also located within the middle ear chamber is a tube that is not directly involved in the transmission of sound, still plays a role in overall ear function. This tube, called the Eustachian Tube links the middle ear cavity to the naso-pharynx region and functions to equalize air pressure between the middle ear and the outside air. This is what is happening when we feel the need to "pop" our ears while flying or traveling up a mountain. At the end of the third middle ear bone (the stapes) is a footplate called the stapes footplate, which attaches to a flexible window in the cochlea known as the oval window. This leads us to the third division of the ear, the inner ear.

The shape of the human ear acts as a "sound collector" which funnels the signal . through the external auditory meatus, and directs it down the ear canal to the tympanic membrane. The sound wave hitting the tympanic membrane causes it to vibrate. It is at this point in the middle ear that sound is converted from an air wave **to** mechanical energy. The reason for this is the connection between the tympanic membrane and the ossicular chain. Because the first ossicle, the malleus, is attached to the center of the tympanic membrane, the vibration of the tympanic membrane is passed along the ossicular chain, creating a "lever" type of action. This lever type action is one way to help overcome the 'impedance mismatch' that results from the difference between the characteristic impedance of air in the middle ear and the more dense characteristic impedance of the inner ear fluid. As such the middle ear acts as an 'impedance transformer', reducing the reflection of sound energy that would otherwise occur at the oval window due to the air - fluid impedance mismatch. The pressure exerted onto the oval window from the lever action of the ossicular chain causes the fluids of the inner ear to move, setting the basilar membrane into a wave-like motion. Different frequencies will set different points into motion along the basilar membrane. For example, the highest point of the wave for low frequencies (i.e. 60Hz) will occur at **the** most apical **end** of the membrane, while the highest point for high frequencies (i.e. 3,000Hz) will occur at the base of the membrane. One of the functions of the basilar membrane is to translate

the mechanical energy from the middle ear ossicles into neural pulses or responses of the auditory or eighth nerve. These neural pulses to the auditory nerve result from the following inner ear process. The wave-like motion of the basilar membrane causes motion in the attached hair cells, which in turn, causes the stereocillia on top of the hair cells to bend. The bending of the hair cells creates a channel through which electro-chemical processes take place, triggering neural responses from nerves at the base of the hair cells. There are two types of nerves at the base of the hair cells: "Afferent nerve fibers" carry sensory information away from the cells to the brain while "Efferent nerve fibers" bring information from the brain to the hair cells. These afferent neural pulses are then collected and sent out the internal acoustic meatus via the auditory nerve thus translating mechanical information into neural information. Once the auditory nerve has received the neural impulses, it continues the signal through various pathways in the brainstem. From the auditory nerve, signal information is sent to the cochlear nucleus, then proceeds to the superior Olivary complex, to the lateral lemniscuses, to the inferior Colliculus, and to the medial Geniculate body, until it reaches its final resting place in the brain, the auditory cortex. The auditory cortex then interprets the signal into sound where, from previous experience, we are able to understand what that sound represents.

Types of



Hearing impairment is best defined as a lack of reduction in the ability to hear clearly due to a problem somewhere in the hearing mechanism. A hearing impairment can occur in the outer, middle, or inner ear along the pathway to the brain. A complete audiological assessment consisting of many tests will best determine and specify the type of loss a child has. Once the loss has been determined, parents and educators will be able to help their child develop the necessary skills needed to develop speech and language

skills and communicate effectively. Early detection of a hearing loss is imperative so intervention and treatment can be established immediately. Parents and teachers of a child with hearing impairment must be educated. Understanding a child's hearing loss will help the child flourish and develop the necessary skills to adapt to their hearing loss.

Classifications of hearing loss

There are three types of hearing loss: conductive, sensorinural, and mixed. A conductive hearing loss is a result of damage to outer or middle ear. Conductive losses are not severe and often times can be surgically corrected. A person with a conductive loss may reap great benefits from hearing aids. A sensorineural hearing loss is a result of damage to the hair cells of the inner ear or nerves. This type of loss ranges from mild to profound and is permanent. In other words, surgery cannot be performed to correct a sensorineural hearing loss. Often times, hearing aids are not helpful either. While the aids may amplify sounds, the sounds are still distorted. A mixed hearing loss simply means that the hearing problem occurs in the outer or middle ear and inner ear.

Degrees of hearing loss

There are different degrees of hearing loss. Below is a chart that lists and classifies the degrees of hearing loss according the dB range in which sound is heard. Following is the Goodman's classification of hearing loss.

Degree of hearing loss	dB range
Normal Hearing	0-20dB
Mild Hearing Loss	20-40dB
Moderate Hearing Loss	40-65dB
Severe Hearing Loss	65-90dB
Profound Hearing Loss	95 dB and above

Table 15: Goodman's classification of hearing loss.

Reading an Audiogram

An audiogram is a picture of your hearing. The results of your hearing test are recorded on an audiogram. The audiogram below demonstrates different sounds and where they would be represented on an audiogram. The yellow banana shaped figure represents all the sounds that make up the human voice when speaking at normal conversational levels.

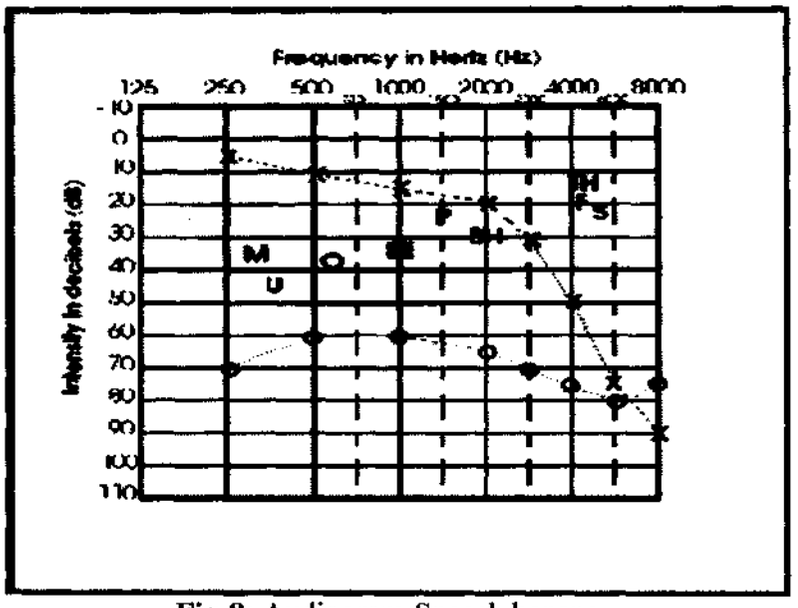


Fig-8: Audiogram-Speech banana

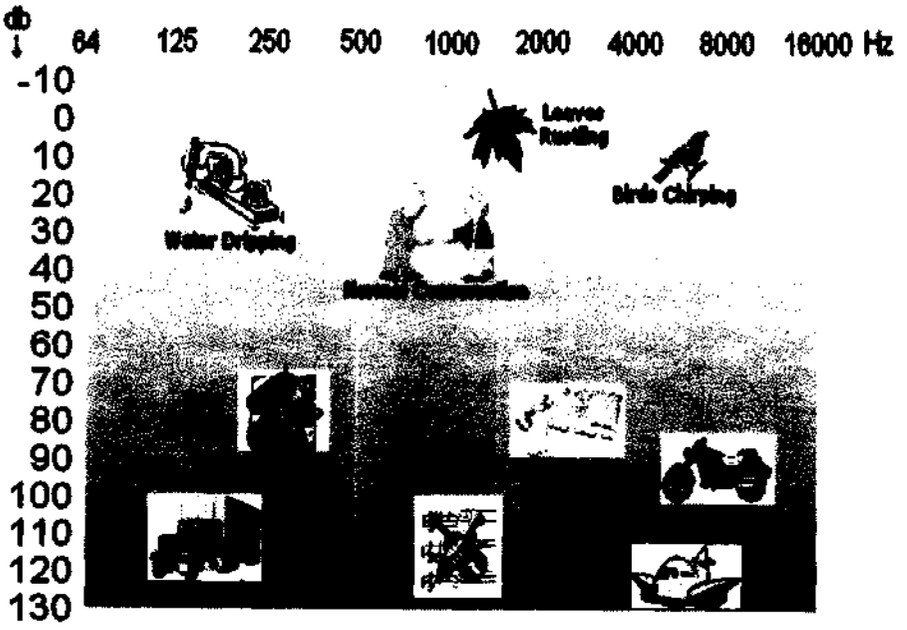


Fig-9: Audiogram of familiar sounds

Configurations of **hearing loss**

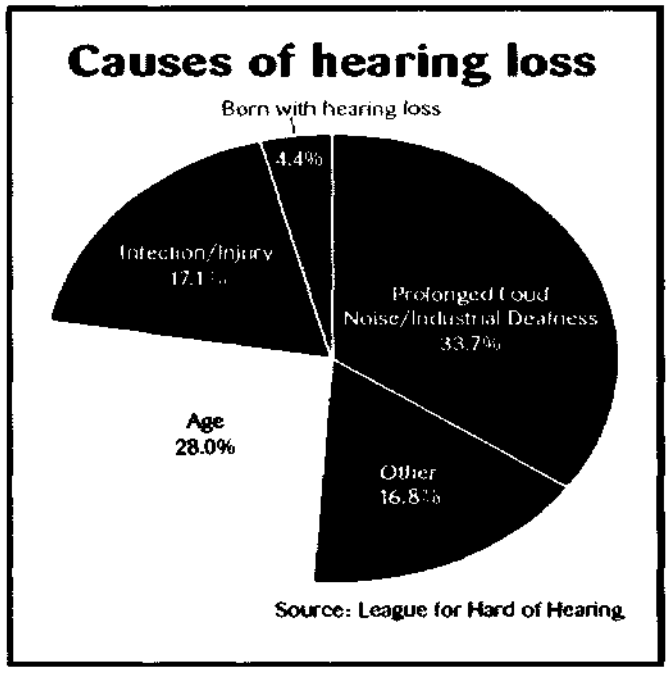
Next, one must understand the configuration of a hearing loss. There are three types of configurations: rising, sloping, and flat. A rising configuration means that a person can hear high pitch tones better than low pitch tones. A sloping configuration means that a person can hear low pitch tones well than high pitch tones. Finally, a flat configuration means that a person needs the same amount of loudness to hear a low or high-pitched sound. Finally, it is important to understand the symmetry of a hearing loss. If a person has the same degree and type of hearing loss and configuration in each ear, the loss is symmetrical. However, if the degree and type of hearing loss and configuration varies or is different in each ear, the loss is classified as asymmetrical. It is important to note that hearing loss affects all individuals differently. While some hearing disabled people may benefit from hearing aids or amplification, others may not. It is extremely important to talk with the hearing disabled person and find out exactly what type of loss they have in order to accommodate their needs.

Restrictions of the hearing impaired

Many individuals with hearing impairment face many restrictions when they use technology. Often times hearing-impaired people are limited to the amount of technology because it is not accessible. For example, many hearing impaired individuals cannot listen to live voice mail or on-line audio chat because amplification cannot be made loud enough or because the sound is not clear to the listener. Most people believe that if hearing impaired individuals wear hearing aids or other types of amplification that they can hear anything. While hearing aids do help amplify sound, they do not help clarify the sound. To explain, a person who suffers from a nerve damage hearing loss will not fully benefit from hearing aids. The hearing aids will make all sound louder; however, just because the sound level is increased does not mean the hearing impaired person will be able to clearly understand the sound. Hearing aid amplification can be compared to a car radio. In other words, just as the volume control on the radio makes the sound louder, the hearing aid makes the sound louder. However, if the radio is not tuned into a station then it does not matter how loud the sound is because all that is heard is static. This is similar to how some hearing impaired individuals hear. The sound is

amplified but not necessarily clear. There is no technology available that can clarify sound for hearing impaired persons.

Causes of Hearing Loss



Graph 9: Showing the causes of hearing loss

Hearing loss occurs if a person was born with parts of the ear that did not form correctly and do not work well. Causes of hearing loss are classified into three types.

- Pre-natal
- Pere-natal
- Post-natal

Hearing loss in the external car may be caused by several factors like:

- Congenital malformations
  - Malformation of the pinna
  - Closure of the ear canal
- Blockage of the ear canal
  - Impacted Wax

- Foreign bodies like seeds, piffles etc.
- Infections of the external ear like fungal infections

Conditions of the outer ear

The Commonest cause of an impairment of hearing impairment due to the improper functioning of the outer ear is a blocking or plugging of the external meatus or canal by an excess accumulation of cerumen (wax). The blockage will cause a conductive impairment that will persist until the object is removed. The skin lining the external canal is very sensitive and easily be scratched. Probing the canal with a hairpin or any other object can easily result in painful lacerations of the skin with the ensuring danger of infection.

Occasionally, babies are born with missing or occluded canals. The occlusion may be soft tissue or it may be bone. One or both ears may be affected. This condition, which is an embryonic defect, is referred to as congenital atresis. Naturally complete bony atresia of the canal produces a complete conductive loss, and if the condition is bilateral the child will definitely be handicapped in his language development.

Conditions of the middle ear

Otitis media: The most common cause of conductive impairment is an inflammation or infection of the middle ear known as otitis media. Frequently, it accompanies an upper respiratory infection, particularly in children. The connection between the middle ear and the nesopharynx, the Eustachian tube, provides an easy pathway for infection or inflammation to reach the ear. When the Eustachian tube is not functioning normally, changes in outside air pressure can cause middle ear problems and hearing loss. The common "earache" in children is usually a manifestation of otitis media. Hearing loss associated with the middle ear may arise due to

- Rupture or perforation of the eardrum while removing was with a sharp object like hairpin, sudden loud sound.
- Infections of the middle eaR Infections of the throat, Nose such as cold can be transmitted through the Eustachian tube to the middle ear.

Conditions of the inner ear

This is a disease process that affects the bony capsule of the inner ear, turning the normally hard bone into vascularized, spongy bone. It produces a progressive hearing loss through the fixation of the stapes in the oval window, owing to the invasion of the spongy bone that is hardening of spongy bone which lead to hearing loss.

The Inner Ear and Auditory Nerve

- Birth complication like prolonged labor instrumental delivery or inadequate oxygen supply. Could result in damage to the inner ear or higher centers in the auditory pathway.
- Exposure to X-rays or any injury to the mother will damage fetus growing(developing) ear
- Excess of alcohol and drug consumption during pregnancy will affect the fetus hearing mechanism
- Presbycusis: is a condition which leads to the sensory neural deafness, this is due to ageing factor
- Exposure to continue loud noise may generally lead to sensory neural hearing loss.
- Drugs like quinine streptomycin, garamycin etc are harmful to the ear, because these destroy the hair cells in the cochlea
- Brain Fever (encephalitis, meningitis) and other viral and bacterial infections damage the inner ear
- Abnormal blood supply to the cochlea also leads to hearing loss
- Tumors arise on the auditory nerve ledd to haring impairment

Genetic causes for hearing impairment

At-least 50% of moderate to profound sensory neural hearing impairment present at birth or occurring in early childhood results from genetic factors. (1983), from 150 to 175 different genetic syndromes have been described that involve hearing impairment as a major feature.

Prevalence of disability

No population-based study has been conducted at the national level to provide authentic data on the prevalence and incidence of disability in India. Therefore we must rely on the projections made by sample surveys.

According to the Project Integrated Education for the Disabled (PIED), under which a door-to-door survey was conducted in 1993 in a block each often selected states of India, nearly 2.5% of school-age children have disability of a given kind.

The National Sample Survey Organization (NSSO 1991) estimated that approximately 100 million Indians are affected with one or more disabilities. This projected nearly 10% of Indians with some disabling condition. However, according to the Census 2001, approximately 5% of people in India is affected with impairment or disability.

Prevention of Hearing Loss

1) Pre-natal stage

- Vaccination is very important to fight against measles, mumps, Syphilis, TB, Typhoid and malaria, because all these lead to hearing impairment.
- Avoid exposure to X-ray scanning because it may affect the child's fetus hearing mechanism.

- Avoid taking medicines or drugs such as aspirin
- Physical injury and falls also affect the child inside the womb. Therefore care should be taken.
- Pregnant mother should meet doctor periodically for advice and diet, because alcohol in diet and smoking may damage the child's ear part.

2) Pere -natal Stage

- Forceps delivery prolonged labor may damage child's ear.
- If the instrument use for delivery are not properly sterilized there are chances of child getting infected and may lead to hearing loss. Therefore care should be taken to go to experience doctors.
- Lack of oxygen to the brain during birth leads to hearing loss

3) Post Natal stage

- While feeding hold the baby in a oblique position this can prevent the baby from having ear infection in many instances.
- Do not use oil or any other liquid to clear your ears. They can result in pain and ear discharge.
- Immunization is must for the newborn baby at every stage of life.
- A fall from certain height damage the ear parts, therefore avoid head injury
- Do not try to clean the ears with sharp objects like hairpins, pencil and match sticks etc. Because eardrum may be ruptured in the process use cotton buds to clean the excess of wax.
- Do not expose your ears to blasts from loud crackers, gunfire etc. Do not use noisy appliances.
- Use ear plugs while swimming
- Avoid marriages among blood relatives and closed relatives. This reduces the chance of giving birth to a hearing handicapped baby.
- Do not neglect discharging ears

Types of Hearing Aids

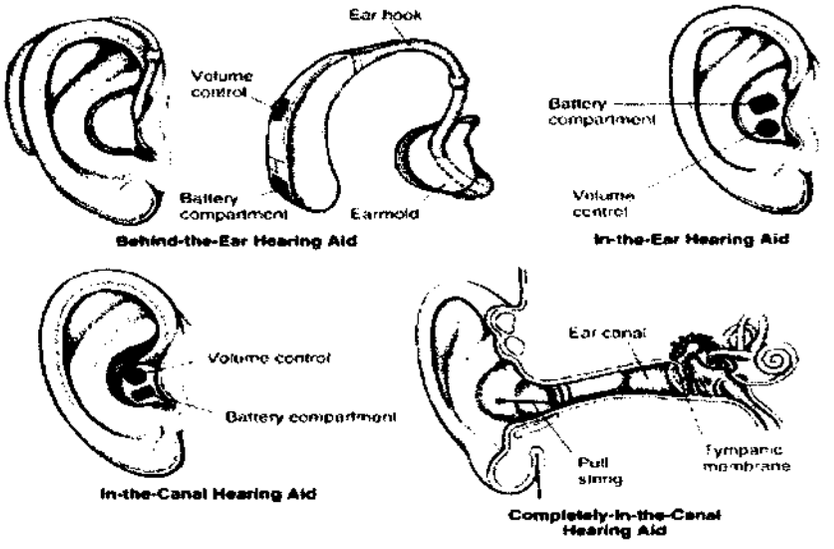


Fig 10: Types of hearing aids

A Hearing aid is an electronic battery operated device that amplifier and changes sound to allow for improved communication. Hearing Aids receive sound through a microphone, which then converts the sound waves to electrical signals. The amplifier increases the loudness of the signals and their sends the sound to the ear through a speaker. There are several types of hearing aids. Each type offers different advantages depending on its design, level of amplification and size.

1) Body level hearing aid:- Body aids are used by people with profound hearing loss. The aid is attached to a belt or a pocket and connected to the ear by a wire (cord).

2) **Behind the ear (BTE):-** Behind the ear (BTE) hearing aids are worn behind the ear and are connected to a plastic ear mould that fits inside the outer ear. The components are held in a case behind the ear.

3) In **the Ear the Ear** :-(ITE) hearing aids fit completely in the outer ear and are used for mild to severe hearing loss.

4) In the Canal hearing aid and Completely in the canal: Canal aids fit into the ear canal are available in two sizes. In the Canal (ITC) hearing aid is customized to fit the size and shape of the ear canal and is used for mild or moderately severe hearing loss. A completely in canal (CIC) hearing aid is largely concealed in the ear canal and is used for mild to moderately severe hearing loss.

4) Cochlear implant

A cochlear implant is a small, complex electronic device that can help to provide a sense of sound to a person who is profoundly deaf or severely hard-of-hearing. The implant consists of an external portion that sits behind the ear and a second portion that is surgically placed under the skin (see figure). An implant has the following parts:

- A microphone, which picks up sound from the environment.
- A speech processor, which selects and arranges sounds picked up by the microphone.
- A transmitter and receiver/stimulator, which receive signals from the speech processor and convert them into electric impulses.
- An electrode array, which is a group of electrodes that collects the impulses from the simulator and sends them to different regions of the auditory nerve.

An implant does not restore normal hearing. Instead, it can give a deaf person a useful representation of sounds in the environment and help him or her to understand speech.

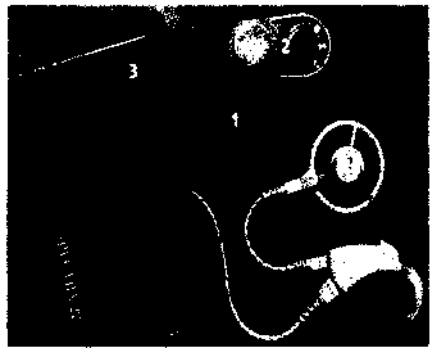


Fig 11: Cochlear implant device

A cochlear implant is very different from a hearing aid. Hearing aids amplify sounds so damaged ears may detect them. Cochlear implants bypass damaged portions of

the ear and directly stimulate the auditory nerve. Signals generated by the implant are sent by way of the auditory nerve to the brain, which recognizes the signals as sound. Hearing through a cochlear implant is different from normal hearing and takes time to learn or relearn. However, it allows many people to recognize warning signals, understand other sounds in the environment, and enjoy a conversation in person or by telephone.

Two types of circuitry

Analog Hearing Aids

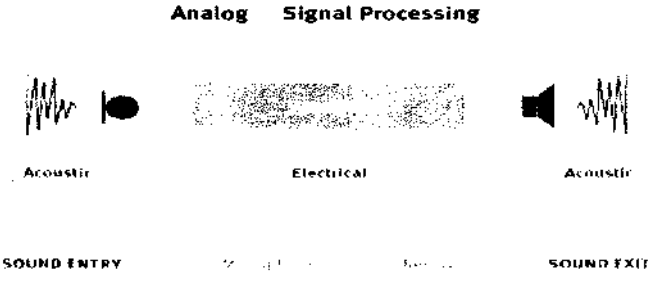


Fig 12: Analog hearing aid circuitry

Analog hearing aids use a continuously varying electrical signal to produce sound, just like a microphone and loudspeaker. Analog hearing aids have a microphone that picks up sound and converts the sound into small electrical signals. These signals vary according to the pattern of the sound. The signals are then amplified (made louder) by transistors and fed to the earphone on the hearing aid, which is next to your ear drum so you can hear them. Most of the better analog hearing aids compress the sound using 'automatic gain control" (AGC). This amplifies quiet sounds until they are loud enough to be heard, but gives less amplification to sounds that are already loud, so you're protected against uncomfortably loud sound levels. Analog hearing aids don't have all the features that come with advanced digital aids, but they are less expensive.

Digital Hearing Aids

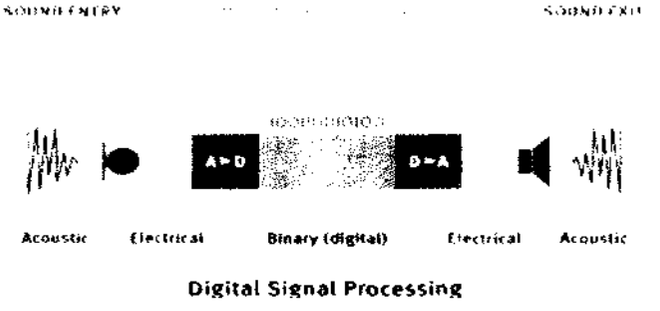


Fig: 13 Digital hearing aid circuitry

Digital aids take the signal from the microphone and convert it into "bits" of data - numbers that can be manipulated by a tiny computer chip in the hearing aid. This makes it possible to tailor and process sounds very precisely in ways that are impossible with analog aids. The digital chip takes the bits representing the sound and analyzes and manipulates them using what is called DSP or Digital Signal Processing. Software algorithms (a set of instructions), are used to perform the precise complex DSP actions, and are then converted back into electricity, which is finally changed back into sound that goes into the ear. This process happens very rapidly with several million calculations occurring in the hearing aid each second. The digital sound representations can be manipulated in almost any way imaginable, and this is what gives the digital hearing aid its big advantage.

Class room management

The importance of the classroom teacher in the overall education of a hearing impaired child must not be underestimated. Not all teachers however, have the disposition or patience to meet the challenge and fulfill the time consuming responsibilities associated with efficient management of these children. There are

numerous special considerations that are vital to the success of the child with a hearing impairment.

Criteria for enrollment into an integrated setting

The effectiveness of each type of educational setting will depend upon many factors

- Degree of hearing loss
- Age at onset of loss
- Ability to speak and speech read
- Intelligence level
- Personality characteristics are example of internal variables that will affect the child's success or failure in an integrated setting. External variables such as attitudes of parents, teachers and fellow students, methods of communication used by the child and others, amount of support from parents; and hearing status of parents will affect the child's success.

A number of professionals have studied noted that children who are successful in mainstreamed programs tend to have characteristics that relate to their success in that type of educational format. Presented below is a list of those characteristics that are most often found in successful mainstreamed student, and, therefore, most often recommended as criteria for acceptance into these programs:

- Normal to highly developed speech and speech reading skills
- Personality traits that include independence, social maturity, determination, high motivation, ability to accept criticism, positive self concept, confidence, social skills that are similar to normally hearing children in regular classroom, outgoing personality, and a positive attitude toward school and toward being enrolled in an integrated setting(Brill, 1978; Courtman- Davies, 1979); northcott,1973;)
- Supportive parents who have accepted the hearing loss and the hearing aid, treat their child like the other children in the family, give aaffection freely, have actively requested enrollment in an integrated setting, have high expectations of their child, and are willing to be actively involved in the educational process. (Teller, 1975)

- Average or above intelligence as measured by a standardized test (O'conner, 1967)
- Able to use the language (reading, writing and speaking) at or near the skill level of the other children in the regular classroom.(Pflaster, 1980)
- Academic skills that are with in the normal range of the normally hearing children in regular classrooms. (Northcott,1973)
- Optimal use of residual hearing and full time use of a hearing aid when appropriate (Northcott, 1973; Pflaster 1980)
- Early intervention, which has helped the child develop the skills and traits listed above. Such intervention includes early evaluation and on going therapy services at speech and hearing clinics, early use of amplification, and early preschool or correspondence courses for language stimulation (O'conner, 1967)
- O'conner,(1967) suggested in an earlier report that only students with losses of less than 60-70db should be enrolled in integrated settings. Reich at al (1967) suggests that students with greater degrees of losses can be enrolled, but will need more support services than children with less severe losses. Pflaster (1980), on the other hand, found in a more recent study that the degree of hearing loss did not seem to have an effect on children's academic successes in integrated settings.
- Small family unit. The sibling constellation may have an impact on the success of hearing impaired students in integrated settings. Those with smaller families have been found to attain higher academic achievement levels than those with larger families (Pflater, 1980). This variable may be closely inter-related to the amount of time parents are able to give to their children in home assignments, speech and speech reading exercises, and natural parenting

Suggestions for teaches

When the student with hearing impairment met all the criteria for enrolment in an integrated set up. Regular classroom teachers who are presently or about to serve hearing

impaired students can benefit from a few tips for working with this population. This can be discussed under following headings.

* Physical Environment
* Communication
* Classroom
* Professional development

I. Physical Environment

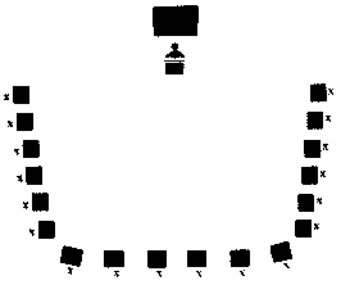
The design of the classroom is important to the success of the student who is hearing-impaired. In preparing the classroom, three primary points to be kept in mind.

- The child must be able to clearly see the face of the person who is talking
- The child should be near the person who is talking
- The class must not be exposed to un-necessary noise

This includes physical aspects in a classroom environment that the teacher can manipulate the enhance condition and opportunities in learning. The guiding principle in classroom arrangement or physical management for student with disabilities is creating physical accessibility. This means children with disabilities must be able to use classroom facilities like other non disabled children or students and the classroom should be free or potential hazards .The physical setting needs to be specially arranged to ensure that their individual needs are met and they are enable to function can be described interims.

- Layout
- Wall space
- Storage
- Individual space
- Signage

Layout



This may include arrangement of students and staff seating, allocating specific work area (lab, library, co-curricular room) enhancing lighting and arranging pathways and space of moment etc when planning a layout should strike a balance between utility, cost effectiveness and aesthetics .

Wall Space

This includes all spouse for displaying supplementary learning material and important Information and communication. Generally planning for wall space includes not only walls by also better and display boards some times even scaling are used any mobile and other visual materials wall space and display board may accommodate. Instructionally relevant and other informative materials, students assignments and other contribution. Classroom rules and announcements from table and other schedule and decorative items.

Storage

This includes shelves, rack cupboards for storage and table drawers shutters etc.

1. Teaching learning materials: Display charts, maps manipulative aids, student text, work books etc
2. Teacher equipment lesson plan note book overhead projector other demonstrative equipment etc.

Frequently used classroom material like chalk, duster etc. Other emergency materials like first aid etc. Proper storage of serve 3 purpose.

- easy accessibility
- cost effective maintenance and preservative
- avoiding material becoming possible distraction when not in use

Individual space

General norm suggest that each child has at least 3 square feet of individual space for comparable seating and storage space. However, children with disabilities may has additional requirements (like Orthopedically handicapped more space may required for standing and turning wheel chair additional. Storage place to keep bulky material seating arrangement with proper supports inclined tables etc. Preferential seating for hearing impairment child near the teacher or instructional material for.

The student need to see the speaker's lips and facial expressions is vital. To facilitate this, the teacher should place the child's desk in positions that offer optimal viewing of all persons in the classroom. Perhaps even more important than seating arrangement is flexibility in seating. The students should be allowed to exchange seats with other students as activities change (Birch, 1975; Gildston, 1973).Allowing the child to move to positions of optimal viewing will also give the teacher more flexibility in planning classroom activities.

Lighting is important. The classroom should provide an unflickering light source that offers maximum output without glare. The light source should be on face of the speaker and not on the eyes of the student. Distance between the speaker and the child is also an important consideration. As the speaker moves away from the listener, the ability to hear and to understand speech decreases exponentially(Birch, 1975; Gildston, 1973).

Evaluating or Monitoring Time Management

After planning and implementing time schedule in order to have feed back of its effusiveness teachers can carryout comparative appraisal of the following level of instructional time.

- **Allotted time:** It is the amount of time set aside specific skills concepts on subject areas.
- **Actual instructional time:** It is a measure of how much instructional time is actually spent on delivering instruction to the students
- **Engaged time:** This refers to how much time students attend to actual instructional time.
- **Learning time:** This is the most meaningful measure of instructional time. This final level of instructional time in a amount time that student attend to work that is diagnostically and instructionally appropriate. Educators should take care instruction time is not less than allotted time. In case of short comings or inadequacies for maximizing efficiency of time management. These might include.

In both inclusive as well as special set up all children with special needs should be seated so as to establish clear lines of vision with the teacher. On one hand this will help student with disability of attend instruction better on the other hand teachers can also constantly monitor them and reach out and help there promptly where in need. Conducive seating arrangement in inclusive set up should also include seating a helpful peer near he child.

Seating arrangement for teacher: It should be in such a way that what ever be the activity or mode of instructional she should be able to supervise all students at a glance.

Seating arrangement for Students: It depends on the type of activity.

- It is a small group activity students may be seated in a semicircle around the teachers where should have eye contact with al the students.
- Large Group activity: It may be of two types

Formal

For formal activities, it is traditional arrangement in proper rows and column. It is better to have a gallery type arrangement. Therefore, that student has direct view of teacher and the learning activity.

Informal

For informal large group activity like story telling students just cluster around teacher.

Learning activities in specific centers

At times specific plans, equipments and materials may be assigned for specific leaning activities arrangement of teaching and worktables in thus centre will gain depend upon number of students involved in the activity at a time. Type of equipment used. (Draft table, experimental substances, plant and animal specimen, play materials etc)

Nature of activities to be involved

Individual activities: In local context individual activities usually refers to students working in their traditional seating arrangement teacher going round and providing help. In more developed set up children may be provided with individual study. Carrels (Booth lies) which are cabins made of wood or card board with a single seat and support for books and writing materials.

Suggestions regarding noise levels in the classroom are as follows:

Classroom Acoustics/ selecting a classroom

The selection of class room for a child with a hearing loss should be based on finding the best possible acoustic conditions to maximum a child's speech perception ability.

The following factors cause a degradation of the speech signal in a classroom.

- " Reverberation
- Noise
- Speakers/Listener distance

Reverberation: Effect on speech signal

Reverberation is the prolongation or persistence of sound within a room as it is reflected off hard surface in the room. Speech perception is reduced in a reverberant room, because direct sound energy is masked by reflected energy. Vowel phonemes are prolonged with reverberation and tend to mask consonant information. Individuals with sensorineural hearing loss have greater degradation in speech perception in reverberant rooms than do persons with normal hearing.

Minimizing negative effect

Classroom surface such as walls, ceiling, floors, furniture, and windows should be covered with materials that absorb unnecessary noise. Examples of such materials are draperies, textured wallpaper or plaster, upholstery, carpeting, and acoustical tile. Hard, smooth surface should be avoided (Stassen 1973).

Noise: Effect on speech signal

Noise is any sound that interferes with what a listener wants to hear. Noise primarily affects the perception or consonants. The spectral energy of consonants is less than that of vowels. Noise makes the consonants less intelligible to **a** listener. The resulting effect can distort speech or reduce linguistic cues. Noise has **a** greater impact on speech perception for the individual with sensorineural hearing loss than it does for a typically hearing individual.

Minimizing Negative Effect

First analyze the sources of noise in a classroom. There are both internal and external noise sources. Internal noise is the noise that is generated within the classroom. Internal noise Can include children talking, chairs and desks being moved, books and papers being suffled, shoes scraping on non-carpeted floors, computers or other equipments being used, and heating and cooling systems. External noise can come from within or from outside the school. Classrooms that are next to a busy hall, gym, or cafeteria may have high noise levels during certain periods in the day. Noise can also

enter through windows and hallways from the street, a construction site, or a playground. The location of a classroom within the school building is a important. A more structured teaching style reduces the activity generated within a classroom.

Speaker/ Listener Distance

Effect on speech signal

The farther an individual is from a speaker, the less intense the signal. Also, as one gets closer to a speaker, there is more direct sound energy. Farther from a speaker, reverberation mixes with the direct energy. Therefore, sound at a distance a signal that is not only less intense but contains the interference of reverberation.

Minimizing Negative Effect

The most obvious solution to distance in a classroom is to move a child close to the teacher. Other assistance can include FM systems or sound field amplification.

II. **Communication**

In addition to understanding the importance proximity, lighting, and noise, the teacher needs to know how to communicate with the child and how to facilitate communication between others and the child, The following suggestions can apply to both teachers who use manual communication and those who do not.

- Provide short, clear instructions
- Speak clearly and normally- do not exaggerate the pronunciation of words
- Keep your face visible to students
- Avoid frequent movements around the classroom, turning your back on students while talking, and standing in front of bright light source
- Use appropriate gestures and facial expression
- If the student reads speech, make sure students are attending
- Make sure that your mustache and beard are trimmed to maximize visibility
- Maintain eye contact with the student, not the interpreter
- Check with students to confirm that they are understanding what is being discussed

- Encourage students to request clarification and to ask questions
- Identify other speakers by name so that student can more easily follow a discussion among more than one speaker
- Reaped the comments of other students who speak
- Paraphrase or summarize discussions at the end of class session
- Write information when necessary
- Have students take responsibility for making themselves understood
- Provide students with advance organizers such as out lines of lectures and copies of overhead transparencies
- review new vocabulary and concepts prior to their presentation during a lecture
- Use the demonstration- guided practice-independent practice paradigm as often as possible
- Utilize a verity of instructional format including demonstration, experiments, and other visually oriented activities
- Emphasize the main points covered in a lecture both verbally and visually
- Use lot of visual aids (Eg: Over head transparencies, diagrams, charts, multimedia to explain material
- Provide summaries outlines, or scripts of video tapes, video disk or films ,
- Let students use micro computers for processing and for checking their spelling and grammar

III. Classroom

- TEACH-RETEACH METHOD: Many regular classroom teachers have found the teach reteach method to be helpful especially with regard to teaching communication skills, language skills, subject with high verbal content, and the subjects required for graduation. Special education teachers, itinerant teachers, and resource room teachers can be of great benefit when using this method (Brill, 1978).

- SPEECH AND AUDITORY TRAINING: Request regular speech and auditory training for the child. These should be provided by qualified professionals.

- SETTING GOALS: Work closely with the speech education teachers, resource room

- teachers, itinerant teacher, and speech therapist to ensure that similar goals have been set for the student.(Birch, 1975)

•CLASSROOM ACTIVITY SCHEDULES: avoid scheduling important classroom activities •when the child is with specialists, such as the speech therapist or the itinerant teacher.

- STUDENT ATTETION SPAN: Remember that speech reading and the use of residual hearing can be extremely tiring for the student(Court-man-Davies,1979; Gildston, 1973).
- PARENTAL INVOLVEMENT: Attempts to involve in the educational process.Elicit their help in teaching communication skills, in helping with homework, and in giving emotional support. This can be accomplished through a regular, organized program (Aubel, 1973; brill, 1978, Courtman-Davies,1979). Parental involvement is extremely important.
- HEARING AIDS: Encourage the child to use a hearing aid when one is prescribed. Ensure that the aid id functioning(Birch, 1975;Courtman-davies, 1979)To make certain that the aid is operational, it should be checked on a daily basis. Ideally, this should be done at home by the parents; however, to assure regularity-and accuracy of the check, it should probably be done at the school.
- SPEECH: Encourage the child to use speech and to be involved in oral communication in the classroom (Brill, 1978).

IV. PROFESSIONAL DEVELOPMENT: It is vital that the teacher have knowledge and understanding of hearing impairment and its effect on students. Get advice from a specialist like speech pathologist, audiologist, special educators regarding the type of loss the child has and what its effect might be.. There should be in-service training both before the hearing -impaired child enters the classroom and on a continuing basis(Brill, 1978).This training should include, but not be limited to:

- Different types of hearing losses and their possible effects on the student
- Different types of hearing aids-their benefits and limitations
- Care of hearing aids
- Psychological aspects of deafness
- Techniques for improving communication between the teacher and student

- Teaching methods related to communication skills and other important academic areas
- Manual communication

Teachers can plan the following activities to improve the regular classroom learning of the hearing impaired child.

- Cooperative learning
- Peer directed learning/Peer tutoring

Cooperative learning

In cooperative learning structures a few students work together on an instructional task. Positive interdependence individual accountability and collaborative skills are essential part of all cooperative learning activities.

Peer tutoring/ Peer directed learning

In this type a student "Teaches" another student, with the teacher's supervision. Disabled can be placed full time in general education classrooms which is commonly referred to as full inclusion. In this model, special education teachers may go into general education classrooms and work with students who experience difficulties or work directly with classroom teachers to develop and implement methods and materials that will meet the needs of many students.

Socio-Emotional considerations

Classroom constitutes complex social systems. In addition to development of scholastic abilities and academic support skills, personal development is also occurring. Students need to learn how to get along with their peers and authority figures while they learn how to deal with their belief and emotions. Teachers should help students to develop a realistic sense of their abilities; become more responsible and independently interact appropriately with their peers and enhance their self concept and sense of belonging. The following are specific suggestions

- Create a positive, supportive and nurturing environment.
- Encourage classroom involvement through active participation in classroom activities and interaction in small groups.
- Let students know that you are available if they are experiencing problems and need to talk.
- Help the students with normal hearing understand the nature of hearing impairment what they can do to assist.
- Practice appropriate interactive skills
- Encourage and assist students to get involved in extracurricular activities
- Help to develop problem solving abilities
- Help students to develop realistic expectations
- Prepare students for dealing with the demands of life and adulthood

Although it is not likely that children with profound hearing loss will be placed in the regular classrooms, the regular classroom teacher may at one time or another have hard of hearing children in his charge. There are a number of suggestions for handling the special problems of hearing impaired children in the regular class rooms. Most of these recommendations are based upon a "common sense" understanding of the special problems of such children.

The following sections provide basic information on hearing impairment. A number of different terms are associated with hearing loss, which often cause confusion. Three terms frequently encountered in print and in professional conversation are hearing impairment, deafness and hard of hearing.

- Hearing impairment is the generic term used to describe any level of hearing loss, ranging from mild to profound.

- Deafness describes a hearing loss that is so profound, the auditory channel (the ear) cannot function as the primary mode for perceiving and monitoring speech or acquiring language.

- Hard of hearing describes individuals who have a hearing loss, but are able to use the auditory channel as their primary mode for perceiving and monitoring speech or acquiring language.

The important effective teaching strategies for hearing impaired children include

- Curricular guide
- Developing unit plans
- Structuring the unit plan
- Delivering instructions
- Teaching bottom- up skills
- Helping the child to write
- Computer assisted learning
- Motivation
- Adopting Maslow' s Theory of Needs
- Improving self-concept
- Efficient teacher

Curriculum guide

The most important function of a curricular guide is to serve as a frame work for instructions. A curriculum provides the process through which a child will be guided towards the attainment of long term objectives in education, which are determined by society. A curriculum can be defined as a systematic sequential plan of activities designed to achieve specific goals established by society's expectation that certain competencies to be achieved within the educational setting.

There are basically two types of curricula. The first type is spiraling curricula. It builds on previous information, lays the foundation for following information and provides for interaction between the different levels of the curriculum. This type of curriculum is based on the concept that new ideas can be presented to a young child and then gradually be increased in complexity as the child matures. The second type of curricula is vertical curriculum, which provides information that is an end in itself within that level.

The first problem that the teachers of hearing impaired children have to face is that hearing impaired children generally come to school with very limited information and a dearth of experiences. Another problem is that hearing impaired children exhibit linguistic deficits. Together these two problems usually render the prescribed regular education curriculum inappropriate for most of the hearing-impaired students.

With some degree of modifications, the content of the regular education curriculum can be successfully followed for hearing impaired students. Modifications must be made not only in what we teach, but also in how we teach. To ensure and enhance implementation of the curriculum activities, sequencing must be appropriate to age and ability. The adapted curriculum should follow comprehensive systematic approach, contain specific goals and internal measures and be diversified with a wide, range of teaching appraisal techniques. Whatever adaptation we make must provide appropriate necessary experiences for attainment of the fundamental objectives of education while modifying the process so that all hearing impaired students can learn efficiently. Teacher should incorporate learning opportunities into his unit plan and make it accessible daily to his/her students.

Developing Unit Plan

Units provide the framework for the achievement of smaller steps, or short-term objectives, which will eventually lead to the attainment of long-term goals. Each individual unit within specific content areas should focus on a central theme and make use of its non-resources and student experiences. Each unit is therefore, a small part of the whole. Sanders (1988) lists out the following specific considerations as vital for planning a unit for hearing impaired children.

- Units should be structured in terms of central themes or problems
- Units should be developed based on the interests, needs and problems of the children as they grow and mature.

- Unit should have relevance and purpose for the learners. If students can recognize the importance of the information and see that it has practical application, maximum learning place

- Units should be appropriate that will take developmental level as well as the age of the learner

- Units should have clearly stated outcomes or goals. These will function as as guide to completing the units

- Units should have a variety of activities that will determine the teacher's course of the action and are significantly related to the subject matter

- Units should cater to the learning needs of all the students involved and provide activities that will enable each student to achieve the desired outcomes most easily

- Units should include effective evaluative strategies to enable the teacher to determine how effectively the material has been learned by the students

Structuring the classroom

It is very important to structure the classroom to provide opportunities for successful learning. The classrooms must be pleasant, as well as organized-, and comfortable for students. Efficient teachers are highly sensitive to what is happening in their classrooms. This helps to make the classrooms a safe place for students. This can be achieved by deciding in advance which behaviors are acceptable and which behaviors will not be allowed in the classroom. The following are some useful suggestions for establishing rules in the classroom.

- Rules may be written, spoken or signed and should be stated positively.
- The students must be briefed about the positive effects of following rules.
- Rules must be stated in such concrete terms and in such a language level that should be understood by the students.
- Modeling and imitation are important learning processes.

Delivering instruction

Efficient teachers must be able to communicate to their students exactly what it is the students are expected to learn. Verbal instruction, written instruction, depending on the needs of the students in the classroom can be used to provide information. Competent teachers know whereto begin instruction. They begin instruction by establishing such entry level that are designed to reduce student and teacher frustration. Teachers should analyze tasks into component skills and sub-skills. A competent teacher will say "this may be tough" instead of "this is easy". This gives room for students to feel inflated and competent when they are successful. Learning is a permanent change in behavior which can be observed and measured. Good instruction needs constant evaluation and adjustment. Evaluative measures should be incorporated into the lesson plans. An evaluation is a critical component of teaching; it should be an integral part of the regular teaching process.

Teaching bottom-up skill

Some researchers believe that the basic building blocks are visual and the child needs to establish distinctive letter or whole word shapes. Bottom-up skill provides useful information, as the child tries to work out what a test means. Here the reader utilizes several parallel sources of information during working. These include letters, sounds, whole words, sentences, as well as the reader's hypotheses about the test. For Hearing impaired children any approach to reading which starts with phonics or sound blending may be very confusing. Even children with minor conductive hearing loss experience difficulty in discriminating speech sounds. When different treatment strategies for poor readers are compared remedial programs which emphasize phonic skill are claimed to be more effective. (Gittlemen and Feingold 1983)

Computer assisted learning

The advantages of computer assisted learning have important implications for children with special needs generally and hearing impaired children in particular. Most children find micro computers stimulating and highly motivating. A computer assisted

teaching program usually presents individually paced learning steps which are controlled by the learners. The learners get immediate feed back to their response which is of course, important learning principle. The most important advantage for hearing impaired children is the visual presentation of the material and potential for overcoming many of the obstacles to communication which the children may experience in other areas of learning. At the same time it is to be noted that computer assisted learning is not an end in itself and needs to be used selectively to support the teacher's work. Ward et al (1985) observe in a review of software program for hearing impaired children that computers in the classroom do not create extra time for the teacher.

Motivation

Motivation is an essential factor for learning to take place, it is considered to be the driving force behind learning. Motivation can be defined as the incentive to the act brought about by an internal or external stimulation. Success of a teacher lies in how effectively he motivates his children to learn. In every class room there are some students who have a greater desire to learn. They are called motivated students. Motivation is clearly related to success or reward which is accompanied by feeling of self satisfaction failure seldom gets opportunities to feel good about them. This is, more relevant to hearing impaired children who experience considerable difficulties and failure in their academic career. As a result of history of failure deaf students remain poorly motivated.

Many deaf children come of self contained schools or classes with little experience, Language or self confidence. In the school they experience or self confidence. In the school they experience failure and frustration in academic areas. As a result, they develop a negative attitude about school in general or about specific content classes. To make motivational methods effective during this phase makes he following suggestions.

- Teacher should be aware of the history of his student
- He should establish a good relationship with them to that they will learn or start to trust the teacher.

- Teacher should make his lesson contain explicit value for he student instead of making it a busy work. This will enable the children to become more willing to participate and put forth the best effort to complete their work.
- Teacher should be aware of the climates of the classroom. A positive climate will facilitate student involvement thus influencing motivation.
- Teacher should provide an atmosphere of acceptance and cafe. Teacher should learn how to display rejection of unacceptable 21 harmful behavior white still showing acceptance of the child.

Adopting Maslow's Theory of Needs

A need can be considered a force that moves a person towards goal. Maslow's (1968) theory of needs emphasizes that unless basic requirements are met learning becomes an extremely difficult task, if possible at all. Maslow observes that self-actualization, knowing and understanding and aesthetic needs can be met only after deficiency needs are met. If the teachers know about his student thoroughly, he can understand immediately as they enter the class, if particular student has specific needs to be met that day.

Sanders (1988) Stresses that a teacher of hearing impaired children should4ake following measures to meet the physiological needs of his students.

- Teacher should ensure proper room temperature. Children will not be able to work comfortably if the temperature is too hot or too cold.
- Teacher should see whether any student has come to the class without taking food. Children can not concentrate on lesson if their stomachs are empty and growling.
- Teacher should take steps to check noise level. Students with hearing aids which amplify sounds will have problems if he noise level is not checked. Teacher should provide adequate opportunities for students to express their feeling. This is often very difficult for deaf children. Teacher should accept student's feelings and let them know it is okay to have and express different emotions
- Teacher should help the students gain a realistic awareness of their strengths. This will develop in them an honest effectiveness.

- Teacher should not give much work to red pencil. If the papers of hearing impaired children are much marked with red ink or red pencils it will make them feel incapable. Red check marks do not teach students their mistakes they just highlight the error. As every student is good at something teacher should plan activities to allow students to display and share their work and talents.

- Low functioning students should be provided with both public and private positive reinforcement for good academic work. Teacher should praise and attention on such students for their successes.

Improving classroom behaviors and social interactions

I. Establishing an Effective Inclusive Classroom

Effective classroom management begins with an effective teacher. In order to foster a healthy classroom environment and prevent possible behavior problems, the teacher must have a clear understanding of the unique learning needs of those who are deaf or hearing impaired. It is essential that the general educator take time to learn about hearing impairment and deafness, including current research and technologies. In addition, the instructor should gather as much information as possible about the nature of the particular student's hearing impairment and how it will affect academic and social needs in the classroom.

A good place to start is by thoroughly reading through all school records, including educational and medical history. School counselors, the student's former teachers, special educators, specialists, audiologists, and other professionals who have interacted with the child may serve as valuable resources of information as well. As soon as possible, it is best to set up a meeting with the student and parents. Discussion might include the nature of the impairment, the student's predominant mode of communication, and any technological devices to be worn or used in your classroom. The teacher might explore how to introduce the student to peers in the classroom. Other students will be curious about hearing devices the child may use, so you might want to ask whether the student would be willing to show the class how to use the instrument and how it helps

communication. If possible, this should occur as the child is integrated into the classroom in order to insure a smooth transition for all.

Classroom community has a considerable effect on both learning and behavior. The general education teacher must intentionally foster a positive classroom environment for the student. This begins with helping hearing students learn about hearing loss and deafness. The teacher might invite a guest speaker or someone knowledgeable about hearing impairment to educate peers about the disability. Students should have the opportunity to ask questions and to be introduced to any adaptations the child may use to aid communication, such as an FM system or an interpreter. The importance of such education is that it breeds tolerance and a fuller understanding of individual diversity. Teachers should require students to respect one another's differences. It is important to employ a zero-tolerance teasing policy in your classroom to insure that no student will be isolated or ostracized for his or her uniqueness.

I - A. Strategies for Effective Communication

In addition to being educated about hearing impairment, all students in the classroom should be taught ways to effectively communicate and any modifications they can make to more fully include the student in classroom activities. Often, hearing students call on the teacher for help when they have difficulty communicating with a student who is hearing impaired (Mullis & Otwell, 1998). Below are some suggested strategies students can use to communicate:

- Always face the student whom you are addressing
- Make sure you have the student's attention before you start speaking
- Do not speak too loudly or exaggerate lip movements for the student who is lip-reading
- Repeat or rephrase the message if the student seems confused
- Write down the message you are trying to communicate
- Act out the message or use visual cues or symbols

- Do not become frustrated, aggravated, or say "never mind" when communication is difficult
- Look for activities where less speech is required, such as sports, computers, puzzles, or board games.

Because of inherent differences in communication, it is likely that there will be times in your classroom when a student with hearing loss will misinterpret orally-presented information or need to ask for extra clarification. Make it clear to students that all questions are welcome, and students are encouraged to seek the help they need," both from you and from one another. Many teachers prefer to set up a classroom "buddy" for a student with special learning needs. While this approach may work well in your classroom, it is important to remember that no one student should be taking the sole responsibility of helping another. Fostering a helping and collaborative environment for *all* students ensures that all will grow not only academically, but socially as well.

I - B. Cooperative Learning

Cooperative learning is a valuable way to engage all members of the learning community and promote meaningful social interaction as students work together to achieve a common goal. Teachers of students with hearing impairments should utilize cooperative learning frequently to encourage communication. The following are suggestions for organizing group work in the classroom:

- Keep groups small to prompt conversation and interaction;
- Seat students at round tables where all faces are visible (Oral Deaf Education Homepage, 2005)
- Make use of visual and/or tactile resources so that the child with hearing impairment can become more fully involved
- Assign roles to group members so that each student will have the chance to participate. You may want to practice using these roles before expecting students to do so on their own

- Reinforce positive interactions as they occur during group work time.

I - C. Establishing Expectations for Student Performance

Finally, students are very aware of their teacher's expectations for them. Part of creating a positive classroom environment is maintaining high, yet reasonable, expectations for all students, emphasizing the belief that everyone can and will learn. In the case of students with special needs such as hearing impairment, teachers must take care to apply the same standards as to the rest of the class. This means not doing for students what they can do for themselves, as well as calling on students who are deaf or hearing impaired with the same frequency and in the same manner as hearing students. If students believe that a teacher does not call on them or only directs simple questions to them, the message is that they are not capable of the intellectual work expected of the other students. Such a belief about oneself may produce apathy or anger, manifested as behavioral problems (Mullis & Otwell, 1998; Oral Deaf Education Homepage, 2005).

Teaching listening skills for class discussion

Encourage active listening during directions: We can do this in several ways.

- Restate the directions in question form 'How may problems you are supposed to Do
- Ask the student to rephrase the directions
- Write the key word from the directions on the board
- Use Listening the buddies:
- Students can rephrase information for each ever in Co-operative structures.
- Students could also quiz each other at their regular intervals, either for test reviews or less formal checks for understanding

Encourage Listening During Teaching

After stating the objectives for the lesson, one way to encourage good active listening is to make use of student's prior knowledge. Let students begin discussions of a topic with brain storming session.

Arouse Student Curiosity

There are numerous questioning strategies that arouse student's interest in various topics. At the beginning of the lesson, let students generate a list of questions about the topic of the study. As the lesson progresses, return to the student's questions, point out the ones that have been answered and if there are still some questions unanswered at the end of the lesson, allow students to work independently or in co-operative groups to locate the information. Always try to encourage some higher level thinking questions that call for creative open ended responses.

Class room amplification equipment not just for the hearing impaired anymore

We are all in agreement that for a child to do well in school, he/she must be able to receive all auditory signals. If a child is know to have hearing loss, we are quick to provide special device to make the sound more audible or to provide special assistance to transform the audible signal into a visual signal. However, what happens to the average student in a typical classroom? It is assumed that all normal hearing students can hear. It is also assumed that if the child passes a standard hearing sensitivity test, he/she has no auditory difficulty. Unfortunately these are an incorrect assumption. "At risk" learners (example: minimal or mild hearing impairment, conductive hearing loss, history of Otitis Media, attention deficit etc) may have trouble learning to speak, read or spell. Behaviors could include withdrawal hyperactivity or distractibility. These behaviors are most frequently misleading and often go undetected by a health team as an auditory problem. It is estimated that on given day about 43% of elementary level children fail a hearing test. An estimated 75% of child's time in a classroom is spent engaged in listening activities. A child with a fluctuating hearing loss also has to over come another major problem in a typical class room, the acoustics of a class room. Background noise level tends to remain consistent throughout the room, but the teacher's speech level gets weaker as the distance between the teacher and student increases. Open windows increase the surrounding noise level of a classroom allowing the sound of outside, traffic, playground etc. to enter the classroom. Inside class room noise may include noise

created by other children, fans, computer equipment etc. High ceilings, bare floors and walls also decrease a child's ability to hear clearly.

In a class room is equipped with a sound field amplification system, all the children regards less of seats location and direction the teacher is facing, or able to hear the teacher this also provides the teacher with an opportunity to maximize the listening and learning opportunities in a class room. An amplification system includes a wireless microphones /transmitters that the teacher wears, a receivers, amplifier and 2 to 5 individual speakers or a single ceiling mounted speaker. The teacher's voice is amplified and projected out into the classroom via the speakers so the students can hear the teacher equally well, no matter where they are seated in the classroom. A variety of researchers have been done with various academic and pre-academic behaviors for both students with normal hearing and students with mild hearing losses. The results of these reports have found an increase in positive behavior and/or achievement in academic performance consequent to the sound -field amplification system.

Research has shown for more than a decade now, that a classroom sound-field amplification system is an effective way to produce significant change in the student's listening behaviors and academic achievement. Among the research findings are: '

- Improved academic achievement
- Increase in student's attention span
- Increase on behavior management
- Increase in student's comprehension of oral directions
- Increased mobility for teachers.
- Increase in seating options for students with fluctuating hearing loss
- An increase in signal to noise ratio
- Decreased number of requests for repetition
- Decreased vocal strain and fatigue for teachers
- Decrease in special education referrals
- Cost - effective means of enhancing the listening and learning environment

Consequently, leaders in special education advocated meeting the challenge to provide improved programming for children with special needs by embracing the concepts of the inclusive education. Also referred to by some as integration the philosophy of inclusion is founded in the belief that children should be educated and completely involved in the activities of their neighborhood schools and within their communities regardless of the severity of their disability. Inclusion involved bringing support services to the student rather than taking the student to the services. Full inclusion means that students will be in regular classroom for full time regardless of their disability and all services will be brought to them.

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APPENDIX-II

ALL INDIA INSTITUTE OF SPEECH AND HEARING
PRESCHOOL TRAINING CENTER

We are interested in studying the variables related to successful integration of children with communication disorders. We are aware that as teachers you will be facing many problems while dealing with them in the classrooms. The following is a questionnaire to understand such difficulties faced by you. We request you to spare some time to fill up this form.

Name of the teacher: Age/Sex:

Name of the School: Class teacher for:

a) Education: SSLC / UG / TCH /NST/ B.Ed/ Spl B.Ed./ PG

b) Number of years of teaching: < 1 **yr** / 1-2 yrs/ 2-4yrs/ > 4yrs

c) Number of disabled children in the class: Nil/1/2/3/ >3

d) Strength of class in your school: <20/ 20-30/ 30-50/ >50

e) Type of disability: hearing impaired ( )/mentally retarded( )/learning disabled( ) Autism ( )/cerebral palsy ( )/ others (specify) ( )/all

f) Number of years of experience in handling disabled children: No experience < 1 Yrs/1 -2yrs / 2- 4yrs / 4yrs

g) Knowledge hearing aid: know nothing/ seen it/ heard about it/inadequate knowledge/know about it well.

h) Have you had any orientation programs on the management of disability? No/yes.

QUESTIONAIRE

Please read the following questions carefully. You can rate each question on the following scale. Circle one of the options a, b, c, d or e whichever you feel is appropriate. Please feel free to clarify if you have any queries. You may also write about educational and other aspects of integrating disabled children in a regular school set up under the remarks head.

(a) Strongly disagree (b) Disagree (c) Not sure (d) Agree (e) Strongly agree

I Language Skill

I .There is no problem to communicate with the hearing impaired(HI) child **a b c d e**

2.There is no problem to understand the speech of hearing impaired children **a b c d e**

3.Hearing impaired child can understand when different people communicate with him/her using speech.(attendance, asking questions) **a b c d e**

II Social Skill

4. It is important to educate the peers regarding the disability of the HI child **a b c d e**

5. It is necessary to make curricular adaptation (syllabus modifications) to teach the hearing impaired child. **a b c d e**

6.Teachers are able to manage hearing impaired children in normal classrooms without difficulty **a b c d e**

7.Hearing impaired children have no problem in getting along with other children in normal schools **a b c d e**

III Reading/Writing Skill

8. Hearing impaired children are able to write down on dictation **a b c d e**

9. Hearing impaired children are able to pronounce the words correctly when they read the lesson aloud in the class **a b c d e**

10. Hearing impaired children are on par with normal hearing children in copying from the black board **a b c d e**

IV Academic Skill

11. It is necessary to make classroom adaptations (Syllabus modifications to teach the hearing impaired children) to handle the hearing impaired the hearing impaired children. **a b c d e**

12. It is necessary to make classroom adaptations (modifications) to handle the hearing impaired children. **a b c d e**

13. Hearing impaired children are prompt in doing home work. **a b c d e**

14. Hearing impaired children are able to do the homework on their own **a b c d e**

15. It is not difficult to teach arithmetic skills to hearing impaired children. **a b c d e**

16. **It** is necessary for the parents of hearing impaired children to take active role in providing curricular support. **a b c d e**

17. Parents of hearing impaired children need to meet the concerned teachers regularly for home training and guidance. **a b c d e**

18. Parents often complete the home work of the hearing impaired children **a b c d e**

V General Knowledge

19. Hearing impaired children show interest in reading general storybooks **a b c d e**

20. General knowledge of hearing impaired children is **on** par with peers **a b c d e**

VI Pragmatic Skill

21. HI children behave appropriately to the situation in the school **a b c d e**

VII Problems faced during classroom activities and extra curricular activities

22. Hearing impaired children also might have exceptional abilities (like in drawing, athletics etc) **a b c d e**

23. Hearing impaired children are able to participate in all activities of the school (Dance, PT etc.) **a b c d e**

VIII Classroom Management

24. Disabled children should be educated in special schools only. **a b c d e**

25. Disabled children should be educated in special school only ' **a** b c d **e**

26. It is satisfying to work with hearing impaired children in the class. **a** b c d **e**

27. It is desirable to educate the hearing impaired in integrated set up. **a** b c d **e**

28. It is not over- burdening for teachers to manage disabled children **a** b c d **e**

29. Teachers need additional training and resources to manage disabled children in classrooms **a** b c d **e**

30. Teachers need to be paid extra to manage disabled children in the classrooms **a** b c d **e**

Remarks: