1965

The Hard of Hearing Child Programming for Learning

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THE HARD OF HEARING CHILD
PROGRAMMING FOR LEARNING

A Thesis

Presented to

the Graduate Faculty

Central Washington State College

In Partial Fulfillment

of the Requirements for the Degree

Master of Education

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by

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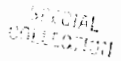
May 1965



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CHAPTER I

INTRODUCTION

Loss of hearing may be present at birth or it may be acquired at any time during an individual's life span. The degree of hearing handicap may vary from slight to profound and the effect of the hearing loss may, in varying degrees, manifest itself in emotional, social and/or personal development. It is the general consensus of the authorities in the field of impaired hearing that the earlier in life that the hearing loss is identified, the sooner the individual can be given the special medical and educational help that is needed for him to become a valuable and contributing member of society.

Unfortunately "many children have gone all the way through school plagued by the handicap of impaired hearing without anyone ever discovering the trouble" (5:181). Heck (18:279) accounts for this neglect by stating that the reason for so little concern for hard of hearing children is that they so often appear normal. A hearing loss is often a subtle thing, not as easily detected as crippled conditions or some visable handicap. The child who is restless and inattentive in school or the child who has repeated grades may not hear well. The child who does not come when he is called may not be disobedient, he may be hard of hearing. The child who does not follow directions well may not hear them

accurately. The child who has delayed or defective speech or an unusual voice quality may have defective hearing. Because these symptoms might be indicitive of other causes the hearing loss may be misdiagnosed and undiscovered for years (3:9).

This writer's interest in hard of hearing children was aroused after two years of teaching in the regular classroom. There was a child with impaired hearing in the classroom both years. At times, because of the teacher's ignorance and neglect, those children were unaware of what was going on in the class and, sometimes when they could not hear or understand, they lost interest and busied themselves with daydreams or by playing with whatever was at hand. It is this writer's sincere hope that a similar situation does not occur again.

I. THE PROBLEM

Statement of the problem. The purpose of this study is threefold: to gain a better understanding of the hard of hearing child, to become aware of methods of discovering the hard of hearing child and to become cognizant of the methods and the means whereby the needs of the hard of hearing child could best be met by the teacher in the regular classroom. After a review of the literature available, the writer has attempted to present the two major problems confronting the classroom teacher in working with the hard of

hearing child in the regular classroom. The problems are: (1) identification of the hard of hearing child and (2) determining appropriate placement, curricula, methods, and materials for meeting the educational needs of the hard of hearing child.

Importance of the study. Research indicates that there are from one-fourth million to two million children in the United States who have impaired hearing (22:168, 7:456). In terms of the regular classroom, it is estimated that "in the average classroom there is at least one child who has a hearing handicap" (36:1). Children with impaired hearing have handicaps which have influence on their total development and adjustment. "The effects of impaired hearing pervade all communication: understanding, speaking, reading, writing, as well as hearing language" (4:339). The prevalence of hearing impairments and the importance of hearing in relation to communication become especially of significance when we realize that "hearing provides the most efficient basis for interpersonal and intersocial communications" (8:111).

II. DEFINITIONS OF TERMS USED

Hard of hearing child. The hard of hearing child is the one whose hearing ability is significantly less acute than that of the normal child but still great enough to be used for the understanding of verbal communication.

Audiometer. The audiometer is a precision instrument for measuring hearing acuity.

Decibel. The decibel is a unit of sound energy. A change of sound energy of one decibel is approximately the smallest change which the human ear can detect. It is a logaritheic unit. It is sometimes abbreviated db.

Speech reading. The process of understanding spoken language while watching the speaker, without fully hearing, or if need be, without hearing at all, is referred to as speech reading.

Speech education. Speech education is the process of teaching speech to the deaf or the hard of hearing with the purpose of developing intelligible speech and a pleasing voice suitable to the age and sex of the person.

Auditory training. Auditory training is the process of training the child to listen to and discriminate between sounds.

Itinerate teacher. An itinerate teacher is one who travels to two or more schools to teach certain pupils.

Otologist. An otologist is a specialist in diseases of the ear.

CHAPTER II

BACKGROUND INFORMATION

HISTORY

Until approximately 1900 the hard of hearing did not receive recognition. The children were either left in the regular schools with little or no adjustment made for their handicap, which was usually unknown, or they were placed in schools or classes for the deaf (1:353). "Only recently have attempts been made to provide them with an educational program that would meet their needs" (18:262).

The first public school for hard of hearing children was organized in 1902 in Berlin (18:279). In this country, educational programs for the hard of hearing began "during the first decade of the present century" (24:288). Special trained teachers were hired in Rochester, New York, and Lynn, Massachusetts to teach the skill of lip reading to the hard of hearing children in 1902 (18:262). The first class especially for hard of hearing children in the United States was organized in 1916. By 1931 there were 83 cities in this country with such classes and by 1948 the number increased to 262 (18:262).

Dunn (10:401) states that "great progress has been made in the education of the hearing impaired since the founding of the first school a century and a half ago." He reasons that the progress has been the result of advancements

in the fields of medicine, psychology, and electronics. Streng (24:288) credits the combined efforts of science, medicine and education since World War II for the increased awareness of the needs of hard of hearing children. As a result of the combined efforts, today we are aware and better understand the different types of hearing losses and their effect upon children. We are better able to measure a hearing loss. We are able to bring the spoken word to children who were without it before. The quality of research, teacher education, classroom instruction, and pupil achievement has been upgraded (10:401).

Progress in this field does not necessarily mean that there are more schools and classes for the hard of hearing. Baker (1:353) states that "developments in the remedial and preventive programs with less need for segregation become the line of progress."

STRUCTURE AND FUNCTION OF THE HUMAN EAR

The person who has two ears which function normally is able to do more than to identify sounds and understand them. He is also able to locate the direction of sound.

Hearing begins when a sound wave vibrates against the tympanic membrane and the sound is heard when it results in a mental concept which is recognized and understood within

the speech center of the brain. Dunn (10:352) refers to the phenomena of the process of hearing as a "psychobiological marvel."

There are three principal parts of the human ear: (1) the outer ear, (2) the middle ear, and (3) the inner ear. The outer ear is made up of two parts: the pinna and the auditory canal. The pinna is the most obvious part of the ear and it's primary function is "to conduct sounds to the inner parts. It's irregular shape is designed so as to gather up the sound waves and direct them into the canal" (1:337).

The opening on the side of the head leading in towards the middle ear is called the auditory canal. It provides protection against dust and insects for the middle and the inner ear (28:13). The protection function is handled by the hair growth, oil glands, and wax glands of the auditory canal (10:352). The tympanic membrane, sometimes erroneously called the eardrum (10:353), terminates the outer ear and is the beginning of the middle ear. This membrane is:

> a sturdy, thin, fibrous material which stretches tightly across the auditory canal. Attached to it is one of the ossicles, the mallus, and the tensor tympani, a small muscle which helps keep the tympanic membrane tight and flexible. The purpose of the tympanic membrane is to transmit air vibrations to the middle ear by causing the ossicular chain to vibrate; the ossicular chain consists of the malleus, the incus, and the stapes. The function of this chain is to conduct vibrations into the inner ear. The stapes provides a connection between the middle and

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“Sections Diagram of the Human Ear”, *The House of Hearing*. Sonotome Corporation, New York, 1953. No online source for this content was found.

> inner ear and protrudes into the oval window, the avenue through which sound vibrations are transmitted, and into the inner ear. Around the foot plate of the stapes is the annular ligament which seals the stapes in the oval window but permits vibratory action. The stapeduis muscle assists further with making movement possible by pulling the stapes outward as the vibrations press it forward into the inner ear" (28:13).

The purpose and function of two other openings in the middle ear are also important for understanding the auditory processes. Those openings are: (1) the Eustachian tube and (2) the round window. "The Eustachian tube provides a tubular connection between the middle ear and the nasopharynx" (28:14). It's purpose:

> is to make possible the equalization of air pressure on both sides of the tympanic membrane. The round window, located just below the oval window, provides another membranous contact between the middle and inner ear. It is an opening covered with a thin, highly elastic, flexible membrane. As the stapes moves, the fluid in the inner ear is forced into the round window in a bulging action (28:14).

Of the total ear structure the inner ear is the most complicated part. It is located in the temporal bone of the head, which provides a "maximum degree" of protection. "It consists of a series of tubular structures referred to as the labyrinth" (28:14) The tubular structures are catagorized into two divisions: (1) the non-acoustic labyrinth and (2) the acoustic labyrinth. The non-acoustic labyrinth has to do with the function of balance.

> The acoustic labyrinth is the part of the inner ear which pertains specifically to audition. The central portion of the inner ear is referred to as the vestibule. On one side of the vestibule are semicircular canals and on the other side is the cochlea. It is the cochlea which is the vital organ in the chain of structures comprising the hearing mechanism. The cochlea is divided by a membranous wall into upper and lower scalae. The basilar membrane provides another division. It is on the vestibular side of the basilar membrane that the sensory cells are found which are known as the Organ of Corti. The vibratory energy from the middle ear causes the basilar membrane to bulge, activating the cilia on the Organ of Corti. It is the movement of these cilia which constitutes the specific conversion of vibratory energy into nerve impulses. This process is not fully understood, but much has been learned about it in recent years (28:15).

CAUSES OF HEARING LOSSES

Much of the diagnosis of a hearing loss is "made by inference, and often the exact nature and origin of the defect are unknown" (21:159). It is estimated that the cause of hearing loss cannot be determined with certainty in one third of all the cases (21:159). Some cases of hearing loss are present at birth due to genetic structures. Other cases of impaired hearing are acquired through illness, a traumatic experience, or an accident.

Causes occurring before birth. Toxic conditions and infections present within the expectant mother may cause conditions which result in impaired hearing. Mumps, for

example, may cause "degeneration of important nerve cells" that result in hearing loss (21:159).

Sometimes a child is born with the structure of their ears, or one ear, malformed. Sometimes a part of the ear is totally missing.

A possible cause of hearing loss recently discovered, is "the effect of blood imcompatibility" between the mother and the infant. Current research indicates that there are other blood incompatibilities besides that of the Rh factor (21:160).

Causes occurring at birth. Damage to the auditory sense may occur during the birth process from such things as pelvic pressure, the use of forceps, or intercranial hemorrhage. Prolonged lack of oxygen during the birth process may also be the cause of hearing loss.

Causes occurring after birth. The largest number of hearing losses are the result of postnatal diseases and/or accidents. Infected tonsils, adenoids, and sinuses sometimes cause infection within the middle ear which result in the loss of hearing. Meningitis is sometimes the cause of impaired hearing. Fortunately medical advancements have decreased the frequency and severity of diseases in childhood.

Concussions on certain areas of the head may result in temporary or permanent hearing loss. The presence of

foreign bodies or abnormal growths may interfere with the hearing process. Chief among this type of difficulty is the presence of wax or hardened cerumem in the ear (2:102,103).

Some forms of hearing loss are the result of psychological and emotional factors. When an individual finds it easier to face life without hearing than any other mode of adjustment he is said to have a hysterical hearing loss (21:161,162).

TYPES OF HEARING LOSS

There are three generally recognized types of hearing losses. They are: (1) conductive losses, (2) sensory-neural or perceptive losses and (3) central losses.

The conductive losses are defined as such when the impairment is caused by some condition in the outer or middle ear which partially, or totally, obstructs the passing of sound vibrations to the inner ear.

Sensory-neural or perceptive losses result from an impairment or degeneration of the sensory structures located within the inner ear.

Discriminating Features of Conductive Perceptive Loss (20:87)

	Conductive Loss	Perceptive Loss
Progressive	Not necessarily	Usually
Curable	Usually	Not necessarily
All frequencies	Usually	Not necessarily

Central losses are those which result from difficulty within the nervous system.

Some authorities list another type which is a combination of the above mentioned types. This type is referred to as Combined loss or Mixed loss. When the cause of a loss is the result of a lesion of the inner ear and lesion of the external or the middle ear it might be termed a Combined or a Mixed loss.

Many authorities cite still another type of hearing loss which is referred to as a psychogenic hearing loss. A psychogenic hearing loss is the result of psychological or emotional difficulties. There is no damage to the central nervous system and the receptive organs function properly (21:164).

CHAPTER III

IDENTIFICATION OF THE HARD OF HEARING

According to most of the writers in this field the need for early discovery of the hard of hearing child cannot hardly be overemphasized. "Some authorities claim that 80 per cent of deafness could have been prevented in later life if the initial losses in hearing had been discovered early" (18:269). Other reasons for early discovery include the psychological well-being of the individual and early identification facilitates early training and help. "The first step in helping the hard of hearing child is to find him" (35:4).

SIGNS WHICH MAY INDICATE A HEARING LOSS IN THE INFANT AND/OR THE PRE-SCHOOL CHILD

"Routine audiometric procedures cannot be used with infants and young children, but clinical testing of young children can be accomplished by electrodermal and other procedures in audiology clinics" (21:158). Streng (33:11) goes further in stating that even though there are no standard hearing tests which are "easily administered to very young children, it is possible for a trained observer to identify profound losses in children as young as one year of age."

In general, the methods used for detecting impaired hearing in infants and young children are informal, for

example, observations of the child's reactions to loud noises, music, and the like (21:158).

Characteristics of responses of children that are three months to five years of age which might function as a guide for concerned persons have been listed by Ewing (33:11):

> Children from three to six months of age may be able to locate familiar sounds such as their mother's voice. Up to nine months, they show increasing ability to locate quiet sounds like a rattle held two feet from the ear. From nine to fifteen months, they should be ablt to do this automatically. Children up to two-and-one-half-years should also be able to obey simple commands spoken quietly at three feet such as "Give the doll to your mother," or "Get the doll from the chair." Children up to five years should be able to respond to whispered or quietly spoken words and able to recognize such speech sounds as p, t, k, and s spoken at three feet.

Arnold Gesell has made a list of signs which might be suggestive of hearing impairment. The list is as follows:

I. HEARING AND COMPREHENSION OF SPEECH
   - General indifference to sound
   - Lack of response to spoken word
   - Response to noises as opposed to words

II. VOCALIZATIONS AND SOUND PRODUCTION
   - Monotonal quality
   - Indistinct
   - Lessened laughter
   - Meager experimental sound play and squealing
   - Vocal play for vibratory sensation
   - Head banging, foot stamping for vibratory sensation
   - Yelling, screeching to express pleasure, annoyance or need

III. VISUAL ATTENTION AND RECIPROCAL COMPREHENSION
   - Augmented visual vigilance and attentiveness
   - Alertness to gesture and movement
   - Marked imitativeness in play
   - Vehemence of gestures

IV. SOCIAL RAPPORT AND ADAPTATIONS
- Subnormal rapport in vocal nursery games
- Intensifies preoccupation with things rather than persons
- Inquiring, sometimes confused or thwarted facial expression
- Puzzled and unhappy episodes in social situations
- Suspicious alertness, alternating with co-operation
- Markedly reactive to praise and affection

V. EMOTIONAL BEHAVIOR
- Tantrums to call attention to self or need
- Tensions, tantrums, resistances due to lack of comprehension
- Frequent obstinacies, teasing tendencies
- Irritability at not making self understood
- Explosions due to self-vexation
- Impulsive and avalanche initiatives

(12:278)

SIGNS AND SYMPTOMS WHICH MAY INDICATE HEARING LOSS OF SCHOOL AGE CHILDREN

Not all children with impaired hearing are discovered before starting school therefore teachers have a responsibility to try to detect those children with suspected hearing losses (3:43). Research generally agrees that the following signs and symptoms may indicate impaired hearing to the teacher in the regular classroom.

1. Complaints by the child. A child may indicate ear trouble by complaining of an earache, noises in his head, funny sensations, or some kind of pressure in his head.
2. Inattention. Sometimes a teacher presumes that a child is a real discipline problem or that he is retarded if the child is persistently inattentive. However Dolch (9:27) states that it is not normal for any child to be consistently inattentive to everything.
3. Strange answers or doing the wrong thing. From what the hard of hearing child does hear he

tries to figure out what was said and often gets it wrong. Because of this he may react strangely or give a wrong answer.

4. Inaccurate speech. Inaccurate speech is one positive sign of poor hearing. When talking, a child is imitating what he has heard others say and the child with impaired hearing does not hear just what we hear.
5. Turns head in an effort to hear better. A child may be losing hearing in one ear only as each ear is largely independent of the other. If such is the case, a child may turn his good ear toward the person who is speaking.
6. Too great intentness. When a child can just barely hear he may stare at a speaker with great intensity.
7. Frequent requests for repetition. If a child consistently asks for repetition the teacher has good reason to try to discover the cause.
8. Frequent daydreaming. If the child cannot hear or hear enough to understand what the teacher is saying it may be very easy for the child to spend a great deal of his time daydreaming.
9. More aware of movement than sound. The teacher should suspect hearing loss if the child seems to be more aware of movement than he is of sound.
10. Frowns or wears a strained expression when listening. If the child cannot hear well and has to work hard at listening he may be inclined to frown or his expression may become strained as a result of his efforts.
11. Poor body balance. Impairment of hearing might be suspected if a child has poor body balance.
12. Draining ears. Draining ears may indicate ear infections and subsequent or temporary hearing loss.

Any combination of the preceeding signs or any one of them alone should not be overlooked as a possible clue of hearing impairment. Identification of the hard of hearing is the first step towards helping them (35:4).

CHARACTERISTICS OF HARD OF HEARING CHILDREN

Physical characteristics. Very little has been written in regard to the physical characteristics of hard of hearing children. Most authorities generally agree that hard of hearing children are physically no different than normal children except for the hearing loss.

Mental characteristics. It seems to be the consensus of the authorities in the field that the intelligence of hard of hearing children is equal to that of normal hearing children. Myerson states that "there is no convincing evidence that hearing impairment is directly or necessarily related to intelligence..." (26:150). However, investigation reveals that, in general, hard of hearing children are frequently retarded in school progress due to the hearing difficulty (4:344).

Social characteristics. Again, authorities seem to be in agreement that there are only slight difference between hard of hearing and normal hearing children. The hard of hearing tend to be less aggressive and more shy than their peers (29:162).

Emotional characteristics. There seems to be a very small but real difference between hard of hearing children and normal hearing children in regard to their emotional stability. "The hard of hearing child is on the average

not quite so emotionally stable as is the normal hearing child" (30:199).

TESTS FOR IDENTIFYING THE HARD OF HEARING

Testing of hearing capacities is a very important and integral part of a program for helping hard of hearing children. Jordan (20:97) states that "accurate descriptions of children's hearing losses are the basis of educational planning."

The best procedure for identifying hard of hearing children in school is a systematic periodic testing program (10:349). This procedure would include a screening test for all children and an individual test for those who fail to pass the screening test. In most schools the children in alternate grades are checked each year. "It is important that this testing be done regularly, since a large percentage of hearing impairments in children develop from year to year.

Evaluation of hearing or hearing losses vary from simple techniques, which often give significant clues of hearing impairment, to standardized tests given by persons trained in hearing testing. The most common tests are described on this and following pages.

The Ewing Test. This is an informal test of hearing especially for the young child. While the child is actively involved in play the tester makes various noises at pre-

determined distances from the child. If the sound is accurately heard the child may respond with a startled reaction.

The Conversation Test. In this test the child is placed about twenty feet from the teacher and is asked questions in a conversational voice. If he cannot respond, the examiner moves closer and closer until the child can hear and respond. Ordinarily, a normal conversational voice is heard at twenty feet. The examiner can test one ear, then the other, to determine the relative acuity of each ear. This kind of test is rudimentary but can be used if a hearing loss is suspected. It does not tell the examiner what degree of loss exists, or whether it is a central, conductive or nerve loss. If the child has difficulty in hearing at ten to twenty feet he should be referred for an examination.

The Whisper Test. For the whisper test the examiner stands behind the child and whispers. The child is supposed to repeat what he hears. The examiner should begin twenty feet from the child and gradually move closer until the child hears accurately.

There are two weaknesses involved with this test. (1) It is not standardized and (2) voices differ and this factor prevents standardization (18:266).

The Watch-Tick Test. One ear is tested at a time with this test. The ear that is not being tested should be closed by a wad of cotton, an ear plug, or by the child holding his finger in one ear. The watch, preferably an Ingersoll watch (18:265) is held at the child's ear and slowly moved away until the child no longer hears the tick. The distance at which the child ceases to hear the tick should be recorded. Heck (18:265) states that "the normal hearing person can hear its (the Ingersoll watch) tick at forty eight inches." Next the examiner slowly moves the watch toward the child's ear and records the distance at which the child hears the tick. The greatest drawback to this test, in the writer's opinion is that the examiner cannot be sure that the child actually could or could not hear when he gave his response.

The Coin-Click Test. Like the watch-tick test, the coin-click test detects high frequency losses, since some children who have a high-frequency loss will hear a conversational voice but be unable to hear a coin click.

The afore mentioned tests are "rough" unpolished tests but they are practical and useful for the teacher who is without testing equipment.

Tuning Forks Tests. The tuning forks tests are useful in determining the type of hearing loss (32:85). However, they are primarily diagnostic techniques which are usually employed by an otologist.

The Phonographic Audiometer. The phonographic audiometer test can be given to a group at one time. The audiometer is placed in the front of the room and each child has a receiver. A recording of sets of numbers or words said by a man or a woman begins loud and becomes faint. The child records what he hears. His paper will give an indication of how good his hearing is. This test is for one ear at a time.

The Pure-Tone Audiometer. The pure-tone audiometer is generally considered the best hearing test technique. It is also the most common technique in use today (32:88). The pure-tone audiometer is basically an instrument which can be varied in frequency, intensity, or both at the same time. Because of this control the examiner is able to detect hearing loss at any point in the pitch range (18:267).

CLASSIFICATIONS FOR THE HARD OF HEARING

There are two main catagories for children with defective hearing. They are: (1) the hard of hearing and (2) the deaf. The outstanding determining factor of classification lies in the area of communication. Deaf children cannot, without extensive training, communicate by speech and language. On the other hand, hard of hearing children are able to use and understand speech and language because they can learn them through the sense of hearing even though that sense is defective (29:152).

It is difficult to assign a classification to an individual because classifications vary and "the varying degrees of hearing loss shade imperceptibly into borderline groups no matter how carefully the demarcations between terms are drawn (17:996).

Classifications concerning the hard of hearing have been based on various criteria. The medical specialist has based one classification on the type of deafness, conductive or nerve. This classification is determined by the location of the lesion. Impairment to the inner ear is referred to as nerve loss and conductive deafness means that there is impairment to the middle ear.

Another etiological classification procedure is based on the determination of whether the hearing loss is congenital or acquired. If the hearing loss is acquired it was sustained after birth and if a child is born with a hearing loss the loss is considered to be congenital and hereditary (27:52).

The degree of impairment is the basis for still another method of classification. An example of this type of classification for the hard of hearing follows:

Hard of Hearing:

Class 1. They are children with mild losses (20-25 db. in the better ear in the speech range). They learn speech by ear and are on the borderline between the normally hearing and those with significant defective hearing.

Class 2. They are children with marginal hearing losses (30-40 db). They have difficulty in understanding speech by ear at a distance of more than a few feet and in following group conversation.
Class 3. They are children with moderate hearing losses (40-60 db). They have enough hearing to learn language and speech through the ear when sound is amplified for them and when the auditory sense is aided by the visual.

Deaf:

Class 4. They have trainable residual hearing, but their language and speech will not develop spontaneously, so they must learn to communicate through the use of specialized techniques.
Class 5. They are children with profound losses (greater than 75 db). Even with amplification of sound they cannot use hearing to understand language. These are the children who require intensive specialized instruction in all areas. (32:164,5)

O'Conner and Streng suggest a method of classification that might lend itself very well to the field of education. This classification is based upon educational needs of the hard of hearing. They suggest classifying the hard of hearing into four groups.

> Group A has children with slight hearing loss up to 20 decibles and hence able to make a fair adjustment in regular classes if allowed special privileges in seating. Group B with 25 to 50 or 55 decible loss in the better ear in the usual speech range show a need for help either in speech-reading or possibly in the hard-of-hearing class. Group C with 55 or 60 to 65 or 75 decible loss may profit from hard-of-hearing classes with hearing amplification so as to take advantage of speech-reading. At the more extreme end of the scale is Group D with 70 to 75 decible loss who are unable to have practical hearing of speech and language so that they must be taught by methods applicable to deaf children (29:153,4).

Streng has made a chart of the educational needs of children with impaired hearing using the above system of classification. It is as follows (33:21,22):

DB	Effect of Hearing Loss on Understanding of Speech and Language	Educational Adjustments and Services
Mild, 20-30 DB	Will be unable to hear faint or distant speech clearly. Will probably adjust satisfactorily to school situations. Will have no defective speech resulting from loss of hearing.	Speech reading. Individual hearing aid-for selected primary children with hearing levels approaching 30 db. Help in vocabulary development. Preferential seating.
Marginal, 30-40 DB	Will be able to understand conversational speech at a distance of three to five feet without much difficulty. Will probably miss as much as 50 per cent of class discussions if voices are faint or if face is not visible. May have defective speech if loss is of high-frequency type. May have limited vocabulary.	Speech reading. Individual hearing aid if prescribed. Training of hearing. Speech training if necessary. Help in vocabulary development. Preferential seating or, for selected children, special class placements.
Moderate, 40-60 DB	Conversational speech must be loud to be understood. Will have considerable difficulty in following classroom discussions. May exhibit deviations in articulation and quality of voice. May misunderstand directions at times. May have limited language, with vocabulary and usage affected.	Speech reading. Individual hearing aid, if prescribed. Auditory training. Use of group hearing aid for those with hearing levels approaching 60 db. Speech training. Special help in language arts. Preferential seating and/or special class placement for elementary pupils with hearing levels approaching 60 db.

Severe, 60-80 DB	May hear loud voice at one foot from ear and moderate voice several inches from ear. Will be able to hear loud noises, such as sirens and airplanes. Speech and language are not learned normally without early amplification. May be able to distinguish vowels but not all consonants even at close range.	Speech reading. Individual hearing aid, if prescribed, and training on group aid. Integration of language and speech program by special teachers. Special class placement at elementary level except for few pupils selected for placement in regular classes. Regular classes for those high school students achieving exceptionally well in communication skills. Vocational guidance, and vocational education for most.
Profound, 80 + DB	May be able to hear a loud shout about one inch from ear, or may be unable to hear anything. Not aware of loud noises. Speech and language do not develop.	Speech reading. Training on group aid, any remnant of hearing. Use of individual aid elective. Special techniques required to develop language and speech. Special class or school for elementary children. Regular class for those high school students achieving exceptionally well in communication skills. Vocational guidance and education.

CHAPTER IV

PROGRAMMING FOR THE HARD OF HEARING CHILD

PARENT EDUCATION

"It is generally agreed that parent education is an essential part of any program for the hearing-impaired child" (4:346). According to Dunn (10:375), the hard of hearing child has so many special learning problems that he should have as many opportunities and experiences during his early childhood as possible. He writes (10:375):

> Many parents confronted with the rearing of a child possessing a severe hearing impairment are overwhelmed for lack of understanding concerning what they can and should do. They know that a normally hearing child learns to communicate, play games, and participate on his level in family activities--physically, mentally, and socially. But they do not always understand the importance of this or how they can start their hearing impaired child toward similar goals. . . It is therefore important to make "education" of the hearing-impaired child's parents one of the first steps toward his education.

The John Tracy Clinic in Los Angeles, California was one of the first agencies to offer orientation and education for parents of hard of hearing children. They have two avenues for helping interested parents. One is through classes at the clinic for parents and children and the other is through correspondence courses. They also have a film library. Good mental hygiene for the family is emphasized at the John Tracy Clinic (4:346).

Other agencies offering services to the parents of hearing impaired children include the Volta Bureau in Washington D. C. which publishes The Volta Review and the local chapters of The American Hearing Society, also in Washington D. C. Some residential and day schools for hard of hearing children offer programs for orientation and education of the parents (10:375).

Charlotte Avery believes that the parent education programs need to be designed especially for each set of parents. This is because each set of parents react to their own child's hearing impairment in their own way. For example, some parents are disbelieving and take their child to many different doctors and specialists, some parents just wait and hope that things will take care of themselves, some parents feel burdened and resentful, and some accept the knowledge and want to try to help their child in every possible way (4:345-6).

Mrs. Spencer Tracy, the founder of the John Tracy Clinic, which was named after her deaf son, urges parents to "talk, talk, talk" to their hearing impaired child (34:10). She says that if the mother says something that goes with something concrete, such as "This is a ball" and at the same time hands the child a ball, the child will learn to associate the words formed on her mouth with the action.

Some other suggestions for parents of hard of hearing children include:

1. Remember that the hearing impaired child is a child (34:13).
2. Parents, by giving love, warmth, and security to the child and by cooperating with the otologist and teacher will be doing much to help the child.
3. The hard of hearing child should be treated as much like a normal child as possible. He should have to keep his toys picked up and have responsibilities appropriate for his age.
4. It will always be necessary for the parent to make sure that the child understands just what is expected of him.
5. The child should never be pampered because of his hearing loss. If he is over-protected and not given the opportunity to develop self-reliance his personality may be damaged.
6. The child should be well nourished and kept in good health because "there is a definite relationship between health and good hearing" (35:11).

THE PRESCHOOL YEARS

During the preschool years children with moderate, severe, or profound hearing losses need help in "learning what is said to them, (lipreading), in developing intelligible speech and language, and in learning to interpret what they imperfectly hear (auditory training) (4:347). Those children who can benefit from the use of hearing aids are encouraged to use one as soon as they will wear it. It is important that the child is not forced to wear the aid and it is also very important that the child receives instruction in the use and function of his hearing aid.

Nursery schools and preschool situations are the common source of instruction the areas of need mentioned above. The nursery school or preschool situation for the hard of hearing involves "play and rest, as well as sensory training, socialization, orientation to amplified sound, and beginning communication" (10:376).

At present there are many facilities for the preschool child with a hearing impairment. Besides nursery schools there are audiology centers located within many universities and colleges. The Volta Bureau in Washington D. C. is an excellent source for information regarding the locations of such centers.

PLACEMENT IN THE REGULAR SCHOOL

Recent developments in the field of education of exceptional children have prompted educators to try to provide for exceptional children within regular school situations either by part-time or full-time educational programs. Some of these developments include: (1) improved methods and instruments for diagnosing and assessing exceptionalities in children, (2) development and refinement of prosthetic devices for children, (3) preschool training programs, (4) the increase in the number of trained itinerate and specialized personnel in public schools, and (5) the recognition by educators of the educational, social, and emotional needs of exceptional children (16:1).

In relation to the hard of hearing the above developments have helped to make such children ready for placement in a regular school situation earlier than before and, also, have made placement within regular classrooms more practical than ever before. For example, the early diagnosis and early preschool training have helped to qualify children for a regular classroom at an earlier date and the recent developments in hearing aids and methods of amplification have made it possible for some children to participate fully with normal hearing children. The itinerate teacher can supply the extra help that the hard of hearing child requires and the information and aid that the regular classroom teacher needs.

The educational philosophy of integration of exceptional children into the regular classroom states that "exceptional children should have the benefit of experiences with their non-exceptional peers whenever possible" (16:3). The feeling is that since exceptional children will have to eventually make a satisfactory adjustment with a "normal" society such integrated experiences during childhood should be of value to them. Also, since children do not have as much difficulty in accepting persons with exceptionalities as do adults it is hoped that through childhood experiences children will grow up to be accepting and understanding adults (16:3).

The authorities in the field of education for the exceptional seem to agree that hard of hearing children should have the benefit of an education within the regular classroom.

Heck (18:262) states, "Since these children are normal mentally, their schooling should be kept normal; they should attend regular classes and have continuous contact with hearing children." Magnifico (25:306) says, "Since most hard of hearing children will have achieved some degree of communication, they should, if possible, attend classes in the public schools..." In agreement, Streng (24:293) writes that "children who are hard-of-hearing are so much like other children that they should share the educational program of their brothers and sisters..." and Charlotte Avery (4:348) states, "Ideally, the hard of hearing child should attend a regular school and, with supplementary help, be able to compete adequately with his classmates."

SUPPLEMENTARY HELP NEEDED

The supplementary help that the authorities recommend for the hard of hearing children in the regular classroom includes: (1) speech reading, (2) auditory training, (3) speech education, and, if applicable, (4) instruction in the use of hearing aids.

Speech reading. Speech reading, which is sometimes referred to as lip reading, has been known for hundreds of years. Some major contributions to the field of speech reading were made as early as the seventeenth century (20:99).

Speech reading is a skill in which the eyes do part of the work of the ears. Sortini states (31:5) that speech reading is "the process of understanding spoken language while watching the speaker without fully hearing, or if need be, without hearing at all."

A number of methods for teaching speech reading have been devised. The methods listed in the following paragraphs may be considered representative of the methods that are in use today.

1. The Jena Method. This method was developed in Germany by Karl Brauckman and was made known in 1925. It was introduced in this country, Canada, and New Zealand a little later. The special features of this method include: (1) the emphasis on kenaesthetic cues and rhythm, (2) the techniques of presentation employ a degree of formality, and (3) syllabic units are spoken "as if one were bouncing a ball at the same time" (20:100).

2. The Mueller-Walle Method. This method was introduced in 1902 and was also developed in Germany. It was originated by Martha Bruhn. The special features of this method are: (1) the emphasis on the rhythmic component of speech, (2) the use of rapid syllable drills which eventually will lead into meaningful speech, and (3) stress on the value of written work. This method is more natural and spontaneous than the first method described.

3. The Nitchie Method. Edward Nitchie is the originator of this method which was developed in Germany. This technique was introduced around 1900 and revised in 1920. The distinguishing features of this method are: (1) lack of emphasis on formal techniques and (2) primary emphasis on grasping the meaning and thoughts of the speaker.

4. The Kinzie Method. Some of the features of the Mueller-Walle and Nitchie methods are used by the Kinzie method. It is an eclectic method.

5. Morkovian and Moore Method. Movies are used in this method. Each film is a life situation and the child sees the speakers at close range. The features of this technique are (1) the continuity of the spoken language and (2) the development of both synthetic and analytic approaches to speech. Proponents of this method claim that this method motivates children and that it is a tool for creative instruction (20:100).

All of the above methods have their good and poor points. The preparation of the teacher who uses a certain method has a great deal to do with its success (20:101). For the regular classroom teacher of today it would probably be best for her to acquaint herself with the various methods, evaluate them carefully, and then decide upon the one she wishes to use.

Auditory training. Auditory training is the process of training the child to listen to and discriminate between sounds. It is the improving of a child's listening skills. Avery (4:368) says that:

> ...this training systematically develops the child's discrimination of (1) gross sounds--including environmental noises, (2) rhythm patterns of speech and music, (3) easy speech sounds in words--the vowels, and (4) difficult speech sounds in words--the consonants.

Auditory training is an essential part of the hard of hearing child's education. The following statement attests to that importance. "Development of auditory discrimination is basis in pre-reading activities for normal children: obviously it is supremely important for children with hearing impairment" (4:368).

Speech education. Many hard of hearing children have developed inaccurate speech because they have not heard all the sounds as they really are. Some do not know how to adjust the volume of their voices appropriately in relation to the noises in their immediate environment either because they cannot hear background noises or because of bone conduction they hear their own voices much better than they can hear others.

The first step in helping the child with his speech is to find out specifically what errors the child makes in speech (21:171). The teacher should evaluate the child's

speech in terms of its articulation, pitch, and melody. After the errors are detected, corrective measures can be initiated.

It is very important that the teacher stays away from dull and meaningless sound drills (4:369). The materials and exercises should be interesting and above all, not beyond the mental age of the child. The lessons should be planned and carried out so that the child enjoys them and so that he looks forward to them. The teacher should choose a part of the day when both she and the child are unhurried. If care in these matters is taken maximum interest will be more likely and the child will remain attentive for longer periods of time.

The teacher and his parents can give the child a real boost by praising him when credit is due. "Strangers effortless understanding of what he says will be a real reward, for then he will feel that he is communicating adequately" (4:369).

Instruction in the use of hearing aids. Not all hard of hearing children should or can be expected to wear hearing aids (20:99). Children whose losses are so mild that they do not interfere with participation in social activities do not need to wear hearing aids. Also, some children with certain patterns of hearing loss, such as those children who can hear low frequency sounds but not high frequency sound, are not considered as potentially satisfactory users of hearing aids (33:291).

"Successful use of a hearing aid depends as much on psychological acceptance of the aid by the children and, incidentally, by their families, as on their ability to manipulate and care for their aids" (33:290-1). Magnifico (25:306) writes:

> ...the hearing aid of itself, while serving to solve one problem will create another, namely that of adjusting the child to the concept that the aid is to be an extension of his own sensory equipment, in other words, a new part of himself.

The amount of help that can be obtained from a hearing aid varies with the individual, depending upon--

> ...both the amount of hearing loss and the type of loss. Hearing aids usually give more help to individuals who have a conductive type of deafness. Those who have suffered involvement of the inner ear or the auditory features of the central nervous system resulting in perceptive deafness are less likely to derive help from a hearing aid... (37:29)

The hearing aid is not simply an amplifier; it may also have "important secondary values," helping "deaf children to develop greater skill in articulation and acquire a more natural quality of voice" (37:30). However, simply equipping the hard of hearing child with a hearing aid is not going to provide a complete solution to all of his difficulties, but only a tool with which he can help himself to solve them. Watson (37:29-30) writes:

> Obviously he will not be able to hear and understand speech solely through the use of a hearing aid. He is going to need the special skills of speech reading and language to do this.

> Nor is he going to learn speech through the use of the hearing aid. He will require skilled, intensive, special instruction in speech development.

For those children who can benefit from hearing aids training and guidance in the use of the aids must be provided. At first the aid should be used for short and meaningful periods of time with instruction. Then, gradually, the time should be increased until the child learns to use the aid profitably (21:169).

THE ITINERATE TEACHER

For this special help, the most widely recommended source is the itinerate teacher. The itinerate teacher travels from school to school and meets with the hard of hearing pupils at each school either individually or in small groups. She must be "competent in three areas: (1) parent orientation and education, (2) education of the hard of hearing, and (3) cooperation with regular classroom teachers and school administration" (4:364-5). Her special qualifications should include:

1. Being a good teacher (knowing teaching techniques and school curriculum);
2. Being a good speech and hearing model for the children with whom she works (good hearing and speech are essential in order to be able to demonstrate speech to children: normal facial features are required so that children can lipread without distraction);
3. Understanding normal speech and language development, and the ability to diagnose and correct errors made by the children;

4. Thorough knowledge of special techniques required to teach children lipreading, auditory training, speech, and language (speech perception and expression);
5. Understanding the construction of hearing aids; how to operate and use them effectively;
6. Ability to interpret diagnostic reports (medical, audiologic, and psychological) to parents and regular teachers.
7. Ability to administer audiometric, educational achievement, and social maturity tests;
8. Ability to appreciate parents' strengths and needs; to be able to give them normal support and if need be refer them to a counseling agency;
9. Awareness of community resources: medical, educational, psychiatric, and vocational

The two main difficulties encountered by the itinerate teacher are: (1) a case load that is too large and (2) too large a geographic area to cover. Either of these problems or a combination of the two results in the itinerate teacher not having enough time to work with the parents or the teachers as much as she would like.

If there is not a hearing therapist available within the school system, the audiology center usually helps the hard of hearing child in the areas of speech reading, auditory training, speech education, and use of the hearing aid. The therapist at the center consults frequently with his classroom teacher.

THE ROLE OF THE REGULAR CLASSROOM TEACHER

The regular classroom teacher can help prevent hearing loss by teaching all the children in her classroom about their

ears and the proper care of them. Some of the principles that the teacher should teach are listed as follows:

1. Hearing should be checked at regular intervals. Sometimes hearing losses develop rapidly and periodical checks would uncover a loss before it progressed too far (2:109).
2. A physician should be consulted whenever there is any pain or discharge from the ear. Ear pain or discharge from the ear generally indicates some kind of ear infection and infection can lead to loss of hearing (21:160). An ear infection can usually be controlled if caught early because of the medicines and drugs we have today.
3. Ears should be cleaned properly. The ears should be washed with a clean, soft cloth held over the fingertips. The ears should be dried carefully. Ear infection can start from water remaining in the ear.
4. No one should ever put foreign objects into their ears. If wax accumulates a physician should cleanse the ears.
5. Children should avoid blowing their noses too hard or with the nostrils pinched shut. Blowing too hard can cause infection in the middle ear. "Blowing the nose with the nostrils pinched shut puts pressure on the Eustachian tubes. This tends to force the tubes open and allow germ-carrying mucus to enter the lower end of the tubes" (5:182).
6. Loud noises close to the ear should be avoided. Shouting or making other loud noises in people's ears can cause ear trouble as can slapping or hitting or blowing into someone's ears.
7. Children should be taught to cover all coughes and sneezes. "By covering coughes and sneezes the spread of germs is reduced" (5:183).

The regular classroom teacher who has a hard of hearing child in her room should work closely with the itinerate teacher. The itinerate teacher can tell the classroom teacher what she can do to help the child and how to go about helping him. She can also help the classroom teacher to gain an understanding of the hard of hearing child and his handicap.

The following list suggests some basic techniques that the regular classroom teacher should use in helping the hard of hearing youngster in her classroom.

1. Seat the child who has a loss in both ears near the center and front of the room. If the child has a severe loss in one ear, seat him on the side of the room with his good ear towards the class.
2. When speaking face the class squarely. Avoid unnecessary movement of the head. Stand so that the light is on your face. This will give the child an opportunity to see as well as hear what you say. Standing against the window with your back to the light causes shadows on your face and makes it difficult for the child to look into the glare behind you.
3. Give the hard-of-hearing child opportunity and freedom to move about the room whenever he needs to follow class activity which is remote from his seat.
4. Speak maturally. Don't exaggerate lip movements. Exaggerated lip movements are more likely to confuse and upset the child than normal speech movements (5:184).
5. Speak distinctly. Distinctness of speech is particularly important to the hard-of-hearing child. Slurred words and words oddly pronounced will be difficult for the child to understand.
6. Help the child accept his hearing handicap as naturally as possible. Let the child make his place with the other children. Encourage him to be active in the other children's activities.
7. Be sure you have the child's attention while giving assignments.
8. Teach the child to use the dictionary pronunciation key so that he can help himself with vocabulary.
9. Try to discover and encourage the hard-of-hearing child's special interests and capabilities.
10. Discuss the problem of a hearing handicap objectively with the class. Children can be helped to understand someone else's problem.
11. Use as many visual aids as possible to help the hard of hearing child's learning.
12. Rephrase a question or statement if the hard of hearing child does not understand it in its original form. You may be saying words that look and/or sound alike to him.

Most authorities in the field of educating the hard of hearing child seem to agree that the hard of hearing child should be placed in the regular classroom and given special considerations and training. They feel that the most effective results of special training are obtained when it is integrated with the work of the regular classroom (21:172).

CHAPTER V

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

SUMMARY

The education of the hard of hearing is a fairly recent development in the field of education. Provisions for meeting their educational needs began right after the turn of the century (1900's). Before that time children with hearing impairments were misdiagnosed or ignored and left without the special help needed to reduce their handicap or they were placed in a school for the deaf and treated as though they were deaf.

Today, thanks to science, medicine, and education we are more aware of the needs of the hard of hearing child and what can be done to help fulfill those needs.

It is usually difficult to determine the exact cause of hearing loss. One estimate is that the cause of a hearing loss cannot be definitely determined in one third of all the cases of hearing impairment. The loss of hearing can occur before, during, or after birth. However, the most frequent causes of hearing loss are diseases and accidents occuring after birth.

There are three generally accepted types of hearing loss and two other types not as frequently mentioned. The

three accepted types of loss are: (1) the conductive, in which some condition blocks sounds from the inner ear, (2) perceptive or sensory-neural loss which results from damage within the inner ear, and (3) central losses, which are the result of damage to the central nervous system. The other two types are referred to as: (1) psychogenic, which results from psychological or emotional difficulties and (2) combined or mixed loss, which is a combination of damage to the inner ear and the external or middle ear.

One of the most important needs in this area is the need for early identification of the hard of hearing. The earlier that the impairment is discovered the sooner help can be given to the individual.

The most common method for discovering hearing loss in infants and young children is by observing the child. There are, at this time, no formal tests that are easily given to young children and/or babies.

Hearing loss is not always obvious or apparent. It can be quite subtle and the clues often misleading.

Teachers have a responsibility to try to discover children with possible hearing losses within their classrooms. They should be aware of the signs and symptoms that might indicate hearing difficulties.

There are several tests designed for testing hearing. They range from simple "rough" methods, such as the whisper

test, to more sophisticated methods involving precision instruments specially designed for measuring hearing acuity. A regular systematic program for testing the hearing of school children is important.

There are two main catagories defined for the hearing impaired. They are: (1) the deaf and (2) the hard of hearing. In addition to these two divisions there are several classification schemes which are based on various criteria. Some are based on etiological factors, some on the degree of loss and some on the educational needs of the hard of hearing.

The first step in helping the hard of hearing child, after identifying him, is to "educate" his parents. Parents must understand their child's handicap and what they can and should do to help their child as much and as best they are able.

Today there are many preschool facilities for hard of hearing children where they can gain many rich experiences and receive instruction, if necessary, in speech reading, auditory training, use of a hearing aid, and/or speech education.

At this time, the recommended school placement for the hard of hearing child is in the regular classroom. Hard of hearing youngsters are very much like normal hearing children and can benefit from the regular classroom experiences if the classroom teacher is aware of the child's needs and is careful to allow for his handicap (preferential seating, etc.) and if the child receives the special supplementary help that

he needs in the areas of speech reading, auditory training, speech education, and use of the hearing aid. The itinerate teacher is considered to be the best source of the supplementary help. She travels from school to school and meets with the hard of hearing children, either individually or in small groups, to give instruction in the areas of need.

In addition to discovering possible hearing losses and providing a learning environment for the hard of hearing child in her classroom, the regular classroom teacher has a responsibility to teach all the children in her class about their ears and how to take care of them. In this way she could help fight hearing loss.

RECOMMENDATIONS

The two recommendations that this writer can make in regard to providing for the educational needs of the hard of hearing child in the regular classroom are as follows:

1. More research, study, and experimentation needs to be done concerning how the regular classroom teacher can help provide for the hard of hearing child's needs. At this time the teacher has general suggested techniques for helping them, such as seating according to hearing ability, avoiding shadows on the face, cooperating with the itinerate teacher and so on but is there more that she can and should do? What? How? How can she fit this added responsibility into her already busy schedule? It is this writer's opinion that these questions need to be answered.

2. Teacher preparation courses at colleges and universities should require at least one general course in recognition of exceptional children within the regular classroom and some instruction in meeting their needs.

CONCLUSIONS

The area of providing for the educational needs of hard of hearing children within regular classroom situations is relatively new. The methods of providing for the educational needs of these children have improved with time as a result of research in the fields of science, psychology, medicine, and education. Educators, and others interested and involved with hard of hearing children, are today more aware of their needs, the effects of their handicap, and what can and should be done for them to help them to fulfill their potentials. Education of hard of hearing children has progressed and improved in recent years but, in this ever-changing world of today when advances are occurring so rapidly, more research and experimentation is needed if the education of the hard of hearing child is to be appropriate and realistic.

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