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HELPING THE HEARING IMPAIRED TO ACHIEVE BETTER ARTICULATION*

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Speech and articulation are terms which refer to the expressive aspects of the complex language skills of man. Speech which is used for the expression of ideas is closely related to and dependent upon the comprehension of language and upon inner language or thinking. A delay in any aspect of language growth may result from psychological, neurological, or physiological disturbances. Anyone of these conditions may disrupt the communicative system relied upon for the reception or expression of speech. If such a communicative breakdown occurs early in life, before speech is established, a child will exhibit a disorder in expressive language (speech) or receptive language (comprehension) or both.

An impairment in hearing is a breakdown in the receptive part of the communicative mechanism. It impedes or prevents the reception of the acoustic speech stimulus. When this impairment is present from early life, the effects upon language usage are not confined to the comprehension of speech, but retard also the growth of verbal language used for thinking and for expression. The development of intelligible speech for the hearing impaired hinges upon a recognition of the fundamental role of speech reception in normal speech growth, of the inter-relationship of the expressive, receptive, and inner language processes, and of the compensatory behavior necessitated by a defective receiving system.

Intelligibility of speech is not simply a function of the precision with which speech sounds are articulated. It is related to the voice quality, speech rate, intonation patterns and to the clarity and conventionality with which the individual puts words together for the expression of ideas. Each of these features of speech may be deviant when a child has a critical loss of hearing from early life. These characteristics are a natural outgrowth of the way in which he perceives the speech of others, and of the way in which he monitors his own speech.

In order for an individual with a critical defect in hearing to comprehend speech, a partial or total shift to a visual communicative system is necessitated. Lipreading supplements the perception of the acoustic speech pattern or may, in instances of profound deafness, serve as the primary receiving method with acoustic patterns serving as alerting devices. Unfortunately visually perceived speech possesses serious limitations particularly in the language developmental period. Vision, being a directional sense, limits speech experience to a marked degree. Unlike the hearing child who cannot shut out speech coming from in front, behind, or the sides, the deaf or severely hard of hearing experience spoken language only when their attention and eyes are focused upon the speaker. In addition lipread-speech does not provide an accurate visual reproduction of the speech pattern. Many speech sounds are not visible, several

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cannot be discriminated from each other, and there are countless words and expressions which present similar difficulties. Moreover, visually perceived speech does not depict as adequately the particular emphases and intonations which voice changes convey so readily.

These inadequacies in visually perceived speech are reflected in vocabulary deficiencies and in immature sentence structure. The child tends to imitate the visually perceived speech pattern, consequently numerous words and sounds are omitted or distorted. The hard of hearing or deaf voice lacks the expressive intonational changes which the hearing person so readily acquires through the hearing and imitating of others. The greater the dependence upon vision, the greater the retardation will be in the development of expressive language.

Speech intelligibility for the hearing-impaired is further reduced because of another aspect of the auditory impairment. Hearing not only acts as a distance sense providing us with information about the surrounding environment, it also informs us continuously about our own body sounds. Of foremost importance is the control it exercises over speech. Hearing guides and corrects speech efforts until they approximate the accepted standard. We match our own inflectional patterns to those used in our speech environment. We correct for too great or too little intensity. This auditory feed-back mechanism, when defective, must be replaced or supplemented by tactile, kinaesthetic and vibrational cues. But, like the compensatory use of vision for the reception of speech, these sensory stimuli have marked limitations for the monitoring of speech.

The chief limitation lies in the absence of an adequate speech model for the child to imitate. The reproduction of the auditorally and visually perceived aspects results in the defective speech typical of the hearing impaired. To produce good speech the child must add to and change the pattern he receives. Sounds which cannot be perceived must be interposed. Those which are distorted must be modified. Sounds and words, which appear identical visually, must be produced in a distinguishable manner. In order to do this experience must be had with a speech pattern which possesses good intelligibility. This experience can be provided only by the hard of hearing child himself. His own speech efforts under the direction of a speech therapist gradually approximate the accepted standard and supply the needed experience. The therapist presents speech to the child through the simultaneous stimulation of audition, vision and if necessary, touch. In the initial stages she corrects and modifies the child's efforts on the basis of the acoustical results. When a satisfactory reproduction is achieved, varied opportunity is provided so that the child may learn this pattern and be able to produce it at will. The memory of the sensation patterns resulting from speech sound production will then serve as the censor or monitor of future efforts. Inextricably interwoven with the sensory monitoring system is the child's knowledge of vocabulary, meaning and sentence structure.

The limitations of such speech reception and monitoring indicate that the correction or development of speech is not a simple matter of teaching the child how speech sounds are articulated. It involves consideration of the problems brought about by limited speech experience and by the shifted method of speech control. It requires the establishment and consistent use of the most efficient systems available.

Hearing and Articulation

Research has shown repeatedly that the maximal use of hearing contributes both to the improved speech comprehension and speech production. Fortunately for the majority of children hearing can make up an important part of the receiving and monitoring processes. In order for the auditory potential to be realized the amplification of sound is advisable except in special instances in which it is contra-indicated. Generally amplification brings at least a portion of the speech signal within the normal acuity range allowing audition to form an integral part of the understanding and monitoring systems.

In order for audition to become an integral part of the receiving and monitoring system it must form a consistent part of the communicative signal. It is not enough to give the child experience with audition during speech instruction periods alone. In fact, isolated experience with speech-hearing probably prevents the establishment of any one system of control. Rather it demands that the organism shift to different feed-back and receptive systems as audition is included or removed from the circuit. Under such circumstances there is the likelihood that neither method can achieve its full potential. This concept then, suggests that when amplification is indicated, its use throughout the day should be gradually adopted.

The accomplishment of the most adequate possible means of speech reception and monitoring is a fundamental criterion of speech instruction. The effective reception of speech (good ability to comprehend spoken language) is important to the growth of the vocabulary, the formulation of ideas and their expression in well-structured sentences. The greater accessibility of speech when the auditory cues are available enhances and accelerates total language development. The establishment and consistent use of a sensitive responsive mechanism for both speech reception and speech monitoring can be achieved through daily speech experiences. The speech instructor provides a graded series of experiences designed for simultaneous growth in various linguistic skills. Thus speech training involves the ability to comprehend speech and the acquisition of new vocabulary, particularly the more abstract concepts. It engages the child in various kinds of expressive skills; those designed to facilitate the use of coherent sentence patterns and those planned to achieve good acoustic results. It is planned further to develop an efficient monitoring system so that control of speech can become independent of the teacher's guidance.

Thus speech improvement for the hearing impaired evolves from growth in general communicative efficiency. Improved in the sensitivity and the fidelity of the self-speech and distance speech receiving mechanism is reflected in the more normal voice quality, articulation and inflectional patterns.