SOME BASIC COMPONENTS OF PERCEPTION OF SPEECH SOUNDS

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The practice in teaching deaf children to speak and understand speech, and hard of hearing children to speak and hear enables us to get a broader view of the formation classification and the interrelated attitudes of the physical and psycholinguistic distinctive features in the phonemic systems of different languages and in determining the basic components of the speech sounds i.e. the perception of speech.

The scientific separation of the problems of communication from the problems of information, although in the cybernetic phonoautitive cycle they are an indivisible whole, appears to be a strong necessity in practice because the state of these human beings deprived of the ability of normal phonoauditive communication, to receive and send information, requires a careful and complete theoretical and practical approach and solving.

While with the child with severe impairment of hearing caused during the period before the speech was learnt we can have an easier approach, because its phonoauditive „Tabula rasa" does not lead him to the alternative choice of „yes" or "not", with the child with much bigger residual of hearing whose impairment had been caused after speech has been learnt, the difficulties are far greater because with the arising of the problems at the physiological level of the speech chain at the same time there happen the appropriate problems at the linguistic and physical levels i.e. there arise problems in the relation of the phonologic phenomena and the sound. And not only that. If we analyze the levels of the two halves of the speech chain separately in these cases we will realise that they are not only conditioned and interdependent, but that the problems of the one level are reflected on the other levels and by studying this phenomenon we shall clarify quite a few problems in normal conditions of communication and information.

In the first case the problem is being solved in such a way that we intervene by technical means in order to exploit the latent physiological abilities for reception of the physical stimula and transmission of the nerve impulses to the utmost in order to provide a complete sensory—motor arc. Here we use as many chanels as possible without restricting ourselves only to the auditory chanel, such as visual, tactile, kinestaetic and proprioreceptive channels.

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At the linguistic level, from the phono-auditive aspect maturity is conditioned by the state of the physiological level. Because the listener receives known messages in the way he had learnt them, maturity in the period of optimal biological and psychological possibilities and in changed physiological and physical conditions is almost identical, if all the necessary conditions are provided in this period of maturation for speech and hearing and if they are adjusted to the specific needs, as it is with the normal child, with the difference that he learns to distinguish the prosodic and inherent distinctive features in accordance with the state of hearing sense and ability for reception of impressions with regards to pitch, loudnes and duration of the sound, phoneme or phonological structure, which are correlates of the physical dimensions of the sound. The child speaker, whose speech organs performs such movements to produce such a sound which possesses the distinctive features he is accustomed to, he controls with his own phonoauditive feed-back link and adjusts his own acoustic outcome to the distinctive features he had learnt to discriminate from complex sound waves. That means he enables himself (according to the acoustic features of his mother language) to code and recode the messages. Once the physical dimensions are changed it causes difficultes in perception so that he begins to decypher, but if the changes are greater in the physical structure, they cause changes, and in the linguistic structure he is unable to recode the message.

This rule is much more evident in the process of auditive correction and rehabilitation of children with hearing troubles which they got after they had learnt to speak. In this case the changed relation between the phonological phenomenon and the sound is more prominent because the disturbances at the physiological level of the speech chain cause impairment in the prosodic and inherent distinctive features to the extent that they distort the perception and make the speech incoherent.

While with the first technical means ought to help make maximum use of the latent auditive residual of hearing, with the second technical means should help the adjustment of the characteristics of the impressions on our senses for loudness, intensity and the subjective duration of the speech sound with the physical dimensions: frequency, intensity and time as the closest correlates of these characteristics. The quantity and quality of the distinctive features are distorted to the extent that the perception of the sounds is not possible and the speech is made incomprehensible.

This is not only because of the lack of the physical dimensions because onesided dimensional intervention in the work with such patients did not give any results in the auditive correction and rehabilitation just because the problem was approached purely physicaly, tending to increase only some of the dimensions without paying attention to the dimensional structure and to the component whole at all levels of the speech chain and in accordance with the already accepted way and accustomed manner of discrimination and perception, gradually adapting distorted auditive system and enabling it in changed physiological and physical circumstances to make further use of the existing perceptice structure at the linguistic level.

It is not only necessary to satisfy the required quantitatively physical conditions

necessary for causing the stimulation to the auditive sense, but also there must be qualitative physical stimulation which through the physiological and linguistic l evel would provide an adequate response to the messages. It does not mean that it is necessary to provide absolutely identical structure, because it is impossible, but to provide modified structure being so close to the one he is accustomed to so that he is able to respond to the distinctive features and types of structural elements which participate in the transmission of the information according to the principles of the code. It is those elements which every member of a linguistic community is taught to manipulate and which constitute the linguistic specifics, because phonemes in one language are not the speech sounds themselves but the elements of those sounds which are in a certain way realised in the appropriate contexts and which these children and adults learnt how to pronounce and recognize in different combinations of phonemic sequences.

That means the perception of speech sounds i.e. phonemes is very complex and conditioned by the presence of the physical, physiological, psychological and linguistic components which constitute its whole and specifics and makes the proces of coding and recoding of the information possible. Therefore it should be observed and studied as a whole, which cannot be easily simplified as is often done.

DISCUSSION

De Grève:

Approving, of course, Mr. Keramitchievski's distinction between a structural dimension and a mere physical dimension, which he opposes to each other, I would like to know how he operates to fix the structural dimension. On the other hand, I would like to know whether Mr. Keramitchievski distinguishes between different kinds of non-normal hearing, being the distinction between a normal ear and a non-normal ear.

Keramitchievsky:

The psycho-linguistic structure of the phonemes in many languages in the world is determined in such a way thatas a basic criterion of discrimination, identification and verification of the information is not considered only the ear as a consistant organ which reacts physiologically to a fixed physical dimension or dimensional context, but also the hearing which at the psycho-linguistic level of the speech range represents a condition and means for linguistic communication within the same linguistic area. This means that in order to determine the structural basis of the phonemes in a given language the sound is not taken either as a simple addition of the physical dimensions nor simply the articulated sound which in order to be a real sound ought to posess linguistic structure, but also the sound (phoneme) itself, belonging to the phonetic system of a given language and in which the dimensional parameters are specific; and their interrelation forms the distinctive phonological structure, the only difference being between the mere physical and structural dimensions. In connection with the second part of Mr. Grève's question I can only say that the normal ear is normal with the subjects of both linguistic areas, while the same type of impairment was taken in the two groups.