



ARTICULATION TEST AMONG ASSAMESE SPEAKING HEARING IMPAIRED CHILDREN WITH SPEECH DISABILITIES.

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ABSTRACT

The objective of the present study is to conduct formal test of articulation of speech sounds among Assamese speaking hearing impaired children for the purpose of evaluation, identification and management of speech errors for improving communication skill and learning in the school etc,

KEYWORDS

The objective of the present study is to conduct formal test of articulation of speech sounds among Assamese speaking hearing impaired children for the purpose of evaluation, identification and management of speech errors for improving communication skill and learning in the school etc,. About 240 children in the age range of 2 to 8 years were selected from schools and tested to obtain norms for the acquisition of Assamese Speech Sound in and around Guwahati in the District of Kamrup. The age range of 2 to 8 years was divided into 6 sub-groups with one year interval as 2-3, 3-4, 4-5, 5- 6, 6-7 and 7-8. Each sub-group had 40 children, comprising of both boys and girls. A total of 240 children were tested. Like normal subjects, the selection was done on hearing impaired children.

About 89 picturable words were given to "familiarity raters" out of which the highly familiar picturable words representing vowels and consonants in Assamese were selected for the test. The 35 phonemes of 89 positions includes 8 vowels, 6 diphthongs, 5 bilabial, 9 alveolar and 5 velar, 1 pharyngeal and 1 glottal. For each selected phonemes in Assamese, pictured words were constructed for three positions (initial, medial and final position). Whenever it was not possible then a word was selected which was used as 'repeat after me'. For correct production it is marked as '1' and for incorrect it is marked as '0'. The test was made in a form of a booklet. The pass percentage of children above 3-4 is 100% as shown in Table-1. In normal children most of the speech sounds are acquired around 4 years of age.

Table-1 : Articulation score of normal children

Category	2-3 yrs	3-4 yrs	4-5 yrs	5-6 yrs	6-7 yrs	7-8 yrs
Normal	80.05	87.875	88.45	89	89	89

FINDING AND CONCLUSION.

Analysis of the speech of the 240 hearing Impaired children between 2-8 years of age, it was found that 90% of 240 hearing impaired children that is 216 children could produce 9 phoneme positions as maximum out of 89 positions as shown in Table-11. The 35 phonemes of 89 positions includes 8 vowels, 6 diphthongs, 5 bilabial, 9 alveolar and 5 velar, 1 pharyngeal and 1 glottal. 24 hearing impaired that is 10% of the subjects could not produce even these 7 positions of the phonemes correctly.

Sequence of articulation development in hearing impaired children:

In hearing impaired children it has been found that alveolar /t/, /d/, /n/, and /l/ speech sounds are acquired before velar speech sounds like /k/, /g/ / / and / / . This is because of depending on visual clues (looking movement and place of contact of articulators) in the production of speech sounds. Children with severe to profound congenital hearing loss have difficulties in the production of velar speech sounds like /k/, /g/, / / , / / and / / where the movement of articulators (back of the tongue has to be in contact with soft palate) are not visible during speech production. Children with severe to profound congenital hearing impaired depend on visual cues than normal hearing in learning to produce speech sounds.

Errors in production of speech sounds in hearing impaired children:

The errors in the production of speech sounds observed in this study are, substitution and omissions etc. of sounds. They do omission of /s/ when they produce /--ooli/ for /sagoli/ and substitute /t/ for /k/ as /tan/ for /kan/. There is greater difficulties in correct production of fricatives /s/ due to hearing loss with high frequencies.

Correct production of speech sounds in hearing impaired children:

90% (216) of 240 hearing impaired children could produce the visible speech sounds like /p/, /b/, /m/, alveolar speech sounds /t/, /d/, /l/ glottal /h/, vowels /a/, /u/, /o/ and diphthongs /eu/, /ɛu/ and /ai/. 10% of them could not even produce speech sounds like /p/, /b/, /m/, alveolar speech sounds /t/, /d/, /l/ glottal /h/, vowels /a/, /u/, /o/ and diphthongs /eu/, /ɛu/ and /ai/ properly. 90% of these children could acquire alveolar speech sounds like /t/ in /ɔto (auto)/, /d/ in /deuta (father)/ and bilabial /b/ in /bɛl (wood apple)/ before the velar speech sounds. Out of 89 positions of 35 phonemes 9 positions were correctly produced. These are : /a/ in /am (mango)/, /u/ in /ut (camel)/, /ai/ in /aita (mother)/, /eu/ in /deuta (father)/, /ɛ/ in /ɔto (auto)/, /ɛ/ in /bɛl (wood apple)/, /ɛu/ in /nɛɔta (numerical table)/, /n/ in /nad (well)/ and /h/ in /hat (hand)/.

Errors in the production of voice in hearing impaired:

All the 240 hearing impaired children have been found to have voice problems of one or more parameters of voice. The parameters of voice are pitch, loudness and quality. The pitch disorders found in this study are:- (a) 50% (120) of them have high pitch (not appropriate to age and sex of the speaker), mono pitch (limited range) and pitch breaks (sudden change of pitch with breaks). (b) 30% (26) of them have loudness problems. Loudness problems observed in this study are characterized by soft voice and mono loudness. (c) 20% (17) of them have quality disorders. Quality observed in this study are characterized by excessive use of nasality and mild hoarseness of voice. In this study all children with hearing impaired were observed as having problems in supra segmental aspect of speech. These are: improper stress like excessive stress in articulation and lack of intonation.

From this statistical analysis it is concluded that the rate of articulation development between male and female is more or less the same in hearing impaired children. There is no significant difference between the male and female in terms of mean articulation score as shown in the Table-11.

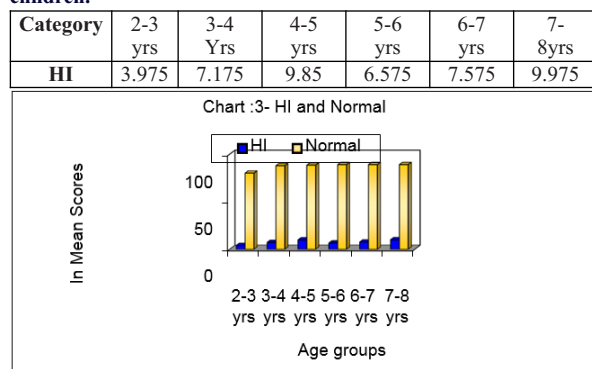
Table- 11: Genderwise mean articulation scores of the Hearing Impaired children (Significant Level is at P<.05)

Categories	Sex				Sig. (2-tailed)
	Male		Female		
	Mean	SD	Mean	SD	
HI	7.59	7.018	7.45	7.097	.877

There is a difference between the normal and hearing impaired in terms of age related change in the articulation score. Male and female mean articulation score are higher in normal than hearing impaired as shown in the Table 111.

As the result obtained from the statistical analysis it was concluded that mean articulation score of normal children was significantly higher than hearing impaired children that means hearing impaired children have delayed phonological development compared to the normal.

Table-111 Chart: 3 Mean Articulation scores of the HI and normal children.



There is an age related change in the articulation score among the following age groups except a slight lower score in 5- 6, 6-7 years as shown in the Table-111. This could be due to environmental factors like lack of stimulation or exposure. In this study, hearing impaired children have been found having articulation problems even after 4 years to 8 years unlike normal children where all speech sounds are acquired at the age of 4 years. These identified errors of speech in hearing impaired children need to be corrected by training so that they can communicate and learn normally in the class or in the environment.

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