ACQUISITION OF ARTICULATORY SKILLS IN KANNADA SPEAKING CHILDREN OF 3-7 YEARS§

N. P. NATARAJA,* ANIL K. BHARDWAJI AND M. S. MALINI

Articulatory patterns of speech develop as one aspect of physiological system, encompassing total growth and development of an individual in union with maturation and learning. Articulation depends upon a continuous process of development from a simple and homogenous medium to complex, modified differential level of growth. Articulatory acquisition or the learning of a system of sounds require the ability to produce different phonetic features such as voicing, aasality, etc., of the phonemes. These phonetic features are present in babbling stage itself. When one says that a child has learnt a sound, it not only means that the child has learnt the distinctive features necessary, but also that it is accepted by the child's linguistic community.

It is generally believed that the development of articulation of sounds is gradual and this development is found to follow a specific pattern in all the children. This specific pattern of development may be attributed to the neuromuscular development. Poole (1934) and Templin (1957) have given the general patterns of acquisition of phonemes in pre-school and primary school children. Their findings reveal that:

1. In the earlier years the order of most to least accurate production of sounds is that of diphthongs, vowels, consonant blends, 2. The accuracy of production of different consonants would be in the following order: nasals, plosives, fricatives combinations and semi-vowels, 3. Voiceless counterparts are articulated more accurately than the voiced, 4. By 8 years development of articulations is complete.

Jakobson (1941) opines that there is a universality in the acquisition of articulations. According to him the first sound to be acquired is /a:/ followed by (+anterior) and (+plosive) consonant, usually a bilabial. The first consonantal opposition made is that of oral nasal labials and dentals. These two oppositions are found to form the minimal system of the languages of the world.

The consonantal oppositions are followed by the contrasting of vowels first is that between a narrow and a wide vowel (e.g. :/i/and /a/). Following this is the splitting of the narrow vowel into a palatal and velar or a more central

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• Lecturer in Speech Pathology, A.I.I.S.H. +Students of A.I.I.S.H., Mysore.

degree of opening (i.e., between/a/ and /i/ remitting in the vowel /e/). The result of these two contrasts leaves the child with three vowels which is found to constitute the minimal vocalic system of languages in the world. Fricatives are found to be acquired after the acquisition of all the stops in all the languages of the world. The acquisitien of back consonants takes place after the acquisition of the front ones i.e., labials and dentals. Thus back orals and nasals are acquired after the acquisition of front orals and nasals. The back fricatives are acquired after the front fricatives. An affricate is found to be acquired after the fricatives of the same series. Till then, the child uses the corresponding stops or fricatives in place of the affricate (e.g.: t/ or ,/s/ for /tj/).

A differentiation of rounded vowels according to degree of aperture can arise in the child's language only after the same differentiation of unrounded vowels is completed or acquired. Therefore the differentiation of/u/ and /o/ occurs only after the differentiation of /i/ and /e/ Oppositions which occur rarely in the child's language are found to be the last to be acquired. Children are found to use the liquid /I/ alone for a long time and then comes the differentiation between /l/ and /r/.

According to Poole, (1934) by three and a half years the consonants /b/, /p/, /m/, /w/ and /h/ are well developed. By four and a half years the child articulates /d/, /t/, /g/, /k/, /l/ and /y/ also. By 5-1/2 years the sound /f/ is added up. Around 6i years of age he acquires a few more sounds viz., /v/, /J/, and /t/. By 7i years the development of articulation comes to an end after the acquisition of /s/,/z/,and/r/.

Even though the above studies have shown that there is a specific pattern of development followed by the children, it is found that some children deviate from them. Some of them may not follow the same sequence and some others may follow the sequence but not within the age limit. This is because articulation is dependent on many complex and multi-dimensional factors. They are:

1. Intelligence
2. Socio-economic group
3. Effect of siblings and birth order
4. Speech stimulation
5. Lexical and grammatical measures
6. Sex
7. Organic factors, auditory acuity, poor speech sound discrimination, abilities and auditory memory span
8. Kinesthetic senses

Aims of the present study

The present study intended to find out:

1. If there is a specific pattern of development in the acquisition of speech sounds in Kannada.

2. If yes, is there a difference in this pattern and that of the schedules given for the development of articulation in English.

3. If there is a sex difference in the acquisition of articulation.

4. If there is any influence of socio-economic group on the acquisition of articulation.

Hypotheses:

1. There is a specific pattern of development of articulation skills in Kannada.

2. There is a sex difference in the acquisition of speech sounds, and

3. S3cio-economic group or status plays no role in the acquisition of articulation.

Implications

1. To compare the findings of the articulation tests given to a child with the schedule which would aid in diagnosis.

2. To find out whether schedules of articulation development for English speaking children i« applicable to the Kannada speaking children also or not.

Limitations

1. Only a limited number of children were tested.

2. Socio-economic groups of the subjects were determined only on the basis of school reports.

Methodology

The following criteria were used in the selection of subjects:

1. Their age should be between 3-7 years.
2. Their mother-tongue should be Kannada.
3. They should have normal hearing. For this purpose the children were screened at 20 dBHL, at the frequencies 500-4000 Hz., using a Beltone 12-D audiometer calibrated to ISO (1964) standards in a room with minimum noise conditions.

The subjects were students of a school in Mysore city.

The children thus selected were divided into three socio-economic groups based on the annual income and education of the parents. They were divided into 4 age groups of 1 year interval. The number of subjects in each age group was as follows:

Materials used for testing

The Kannada diagnostic articulation test by Babu, R. M. *et at,* (1972) was administered to all the Ss. Part I of the test includes items to test vowels, diphthongs and consonants. Sounds tested in part f I are the same as that in part I but the words used were different. Part III was used for blends. All the consonants except /n/ and /l/ were tested in initial and medial positions since Kannada has got no consonants in final positions. The consonants */n/* and /l/ were tested for the medial positions alone since these sounds do not occur in the initial position. Only one sound was tested using one picture.

The Ss. were instructed as follows:

'I will show you some pictures, You will have to name them. Whenever you feel some difficulty let me know of it'.

If the intended response was not obtained the Ss was asked to repeat after the tester. All the Ss. were tested in a room with minimum distractions and the responses were recorded using a Philips N-2218/Automatic recorder.

Analysis of the data

The recorded data was presented to 3 trained listeners (students of B.Sc. in Speech and Hearing). Some time later the same data was presented to the same listeners to check the reliability and the responses were found to be the same. Each observer was also allowed to listen to the same part of the data until he clearly heard the response of the Ss.

Results

The vowels /a/, /a:/, /i/, /i:/, /u/, /u:/, e/, /e:/, ,/o/ and /o:/ were acquired by both the males and females of 3-4 years. The consonants /k/, /g/, /t/, /tj/, */d/, /t/, /d/, /n/*. /P/. /b/, /m/ /j/ /y/ /s/ and /h/ were acquired by both the male and female Ss. in both the initial and in the medial positions by the same age. /n/ and /l/ were acquired by both the groups, Male Ss. articulated the sound /dz/ in the initial as well as in the medial positions, while the females could articulate this in only the initial position. Female Ss.

of this group had acquired the consonant /r/ in both the positions but the males had not. The females had acquired both the diphthongs bested, i.e., /ai/ and /au/ whereas males substituted the sound /au/ by /o/. The acquisition of the blends had just begun. The female Ss. articulated the blend /sk/ while the acquisition of blends had not yet begun in any of the male Ss.

In the 4-5 years group, it was noted that the boys had acquired all the vowels and diphthongs including /au/. They had acquired only one blend viz., /bl/. Female Ss. of this group had acquired the consonant /ʃ/in both the positions when the male Ss. continued with the error.

In the 5-6 years group, male Ss. were found to have acquired /r/ and /ʃ/. Girls were found to articulate triple consonant blends correctly by 6 years.

Only 60 per cent of the male Ss. of 7 years had acquired the articulation of triple consonant blends.

Conclusions

The findings are in agreement with the first hypothesis that there is a definite pattern in the acquisition of articulation in Kannada.

The findings are also in favour of the second hypothesis i.e., there is a sex difference in the acquisition of articulatory skills. Female Ss. are found to be faster in the acquisition of the speech sounds than the males.

Socio-economic status seems to affect the acquisition of articulation.

Summary

36 school children in the age range of 3-7 years were tested using 'Kannada Diagnostic Articulation Test' by Babu R.M. *et ah,* (1972). The data was analysed separately for the 4 age groups viz., 3-4, 4-5, 5-6,6-7 years for the two sexes and also for the socio-economic groups.

Findings reveal that there is a definite pattern in the development of articulation in Kannada. The Kannada speaking children were found to be ahead of the English speaking children in the acquisition of articulation.

Girls are found to be faster than the boys in the articulatory acquisition.

Children of higher socio-economic groups are found to be quicker than that of the lower and middle socio-economic groups in the acquisition of articulation.

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REFERENCES

1. Babu,R. M., *et al.,'* Test of articulation in Kannada ' *Journal of All India Institutt of Speech and Hearing,* Vol. 3, 1972, pp. 7-9.
2. Berry, M. F. and Eisenson, J., Ed. *Speech Disorders,* (N.Y. Appleton-Century Crofts, INC, 1956).
3. Carrel, J. A., *Disorders of Articulation,* New Jersy Prentice Hall, 1968.
4. Singh, Sadanand, *Distinctive features: Theory and Validation:* Baltimore. University Park Press, 1976.
5. Sridevi, S. V., ' Aspects of acquisition of Kannada Language by 2 plus year old children ', (Unpublished Master's thesis, University of Mysore, India, 1976).
6. Tasneem Banu, ' Articulatory acquisition in Kannada', A study of normal children 3-6. 6 years (Unpublished Master's thesis, University of Mysore, India, 1977).
7. Travis, L. E., Ed. *Handbook of Speech Pathology and Audiology,* (N.Y. Appleton Century Crofts, INC 1971),
8. V«n Riper, C. and Irwin, J., *Voice and Articulation,* Prentice Hall, 1968.
9. Winitz, H., *Articulatory acquisition and Behaviour,* (N.Y. Appleton Century-Croft*, INC 1969).