# Stress - Development in Tamil Speaking Children (2-8 years)

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Learning the phonology of a language involves not only segmental aspects, but suprasegmental aspects as well. Suprasegmental features include intonatin, rhythm and stress. Stress referes to increased effort and it is found to be affected in many speech and language disorders like autism, hearing impaired, learning disabled, mentally retarded etc. It would be important to consider the parameter-effort-when one wants to understand these disorders. In this context, the present study ws planned, it aims at studying the development of stress in the age range of two to eight years old normal children who were native Tamil speakers.

As the study consisted of three age groups of children, materials appropriate for each group was developed. Bisyllabic words for 2-4 years, pahrases for 4-6 years and sentences for 6-8 years were selected considering the grammatical development and voabulary in that particular age group.

Initially 18 words (15 + 3 repeated), 52 phrases (47 + 5 repeated) and 59 sentences (54 + 5 repeated) were spoken by a 22 year old female Tamil speaker. She was instructed to utter these with stress on the word underlined. The items were written on cards and they were vsually presented on after another. These were audio-recorded. The recorded sample was then given to ten listeners who had to identify the stressed word and to indicate the perceptual cues for stress on each word.

Those items which were judged to have the key word stressed by more than 80% of listeners were considered for the study. Totally 18 words, 45 phrasses and 50 sentences were taken (from these 3 words, 4 phrases and 5 sentences were repeated).

The material was further analysed to identify the acoustic correlates; $F_o$. Intensity and Duration of stress in Tamil.

The material was audio presented to 12 children (6 males and 6 females) each in the age group of 2-8 years in one year interval. The children were tested individually and were instructed to imitate or repeat the recorded version which they heard. The children's imitation with the model was audio recorded. This audo recording of the model and imitation were played to two listeners who had to indicate whether the imitated version was similar to that of the model or not for stress. Then the mean percentage of correct responses were calculated for each age group, "t" test was applied to find out the difference betwen the age groups in the development of stress and between males and females. Product moment correlation was used to find out the correlation between the ratings of two judges.

The perceptual cues for stress identified were :- increased duration, increased loudness, raised frequency, clear articulation, shortening of stressed word end or shortening of the preceding or following word, pause before or after the stressed word and stress undefined. Of these, increased duraion and loudness were the two major perceptual cues.

Acoustic analysis revealed increase in loudness and duration as major cues for words and increase in loudness and fundamental frequency as major cues for phrases and sentences (for which duration was not measured).

The results of the product moment correlation test indicted that there was high correlation between the judges (r = 0.97 for sentences, r = 0.96 for phrasss and r = 0.64 for words) indicating that both the judges agreed on the imitation of children. The results revealed that the production of stress increased from 2 years to 8 years. No significant difference between males and females were observed. However, there was a significant difference noticed between the age groups of 2-4 years and 4-6 years and 204 years and 6-8 years. No significant difference was found between 4-6 years and 6-8 years. The scores revealed that even at 8 years, children did not achieve 100% score.

This development could be attributed to the physiological development in the speech production mechanism - the increasing vital capacity and the increasig intra oral breath pressure in children.