THE VOWEL SPACE OF MANDARIN-SPEAKING CHILDREN WITH COCHLEAR IMPLANT

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ABSTRACT

This preliminary study aimed to describe the development and changes of the vowel space for Mandarin-speaking cochlear implanted children with implant experience ranging from 1;0 to 4;11 old. A total of 11 subjects were involved in this study, in which they were recruited from the Universiti Kebangsaan Malaysia (UKM) Cochlear Implant Programme. Speech samples for each subject were recorded and the vowels /a/, /i/ and /u/ were segmented from the speech samples by using PRAAT software. The first two formant frequencies, F1 and F2 were measured and the triangular vowel space for the three corner vowels were plotted on the F2/F1 graph. Vowel spaces of 11 subjects were described and compared with three adult female subjects. Results of the study revealed that the changes of the vowel space could not be explained by the duration of implant experience alone. Vowel space areas obtained were not consistent but fluctuating across duration of implant experience. Two subjects in the age groups 1;0 to 1;11 and 4;0 to 4;11 had the closest vowel space to that of adults, in terms of vowel space area, range of F1 and F2 and the distances between vowels with adults. The vowel /a/ was the closest sound with the vowel of adults. In conclusion, the changes of the vowel space were influenced by many factors and it could not be explained solely based on the duration of implant experience. Implication of this study towards speech therapy in terms of vowel production was discussed.

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