ABSTRACTS OF CONTRIBUTIONS TO BE PUBLISHED IN INTERNATIONAL JOURNALS

Acoustical analysis and perceptual evaluation of tracheoesophageal prosthetic voice

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Abstract of paper to be published in:
Journal of Voice

Voice analysis was performed on 21 "standard" laryngectomized, male patients with a Provox® voice prosthesis, along with an age and sex matched control group of 20 normal speakers, using acoustical analyses (MDVP and CSL, Kay Elemetrics Corp.), maximum phonation time measurements and perceptual evaluations. Comparison between MDVP and CSL revealed that the latter was not useful for the analysis of laryngectomized prosthetic voices. In contrast, MDVP seems suitable for this purpose, and contains a large number of parameters, which differentiate significantly between patient and control speakers, as did the perceptual ratings and the maximum phonation time. Fundamental frequency appeared to be comparable for patients and control speakers. A significant influence of stoma occlusion and age was found for some voice parameters. Factor analyses showed correlations between the different MDVP parameters, and correlations between the MDVP parameters and the perceptual ratings.

The contribution of intonation, segmental durations, and spectral features to the perception of a spontaneous and a read speaking style

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Speech Communication

The influence of pitch contour, segmental durations, and spectral features on the perception of two speaking styles was studied. For this purpose two male speakers each spoke 'spontaneously' to an interviewer and afterwards read out their own literally transcribed spontaneous text. Pairs of identical spontaneous and read utterances were selected that were fluently spoken in both speaking styles (no false starts, hesitations, etc.). Five test conditions were constructed in which the utterances had: (1) no manipulations; (2) phoneme durations from the opposite speaking style; (3) the pitch contour from the opposite speaking style; (4) a monotonous pitch contour; (5) the original spectral features combined with the prosodic features of the opposite speaking style. The stimuli were presented to 32 subjects in a listening experiment. Their task was to classify each utterance as either 'spontaneous' or 'read out' speech. All manipulations of the test utterances had a significant effect on the classification of the speaking style. We also analysed the original utterances with respect to several acoustic measures for intonation, duration, jitter and shimmer, and spectral vowel quality. Overall, read speech compared to spontaneous speech had: a lower articulation rate, more F_0 variation, more F_0 declination, less shimmer, more energy variation, and less vowel reduction. However, none of these acoustic features by itself can clearly discriminate between the two speaking styles. Above all it became clear that the performance of the speakers and the listeners varied enormously.