

Comparison of the acoustic parameters obtained with different smartphones and a professional microphone

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Abstract

Smartphones allow good quality recordings; however, it cannot be claimed that the acoustic parameters obtained from them are comparable to those obtained with a professional microphone. The objective of this study is to establish whether there are significant differences when comparing the values of six acoustic parameters obtained from recordings using four smartphones and a professional microphone. The Praat programme was used to obtain the acoustic parameters: f_0 , Jitter, Shimmer, HNR, Alpha Ratio and $L_1 - L_0$ of the recording of a sustained vowel /a/ using iPhone SE, iPhone 6, Samsung S8, Huawei Y7 and the Behringer ECM8000 microphone. The sample was made up of 26 men and 26 women, from 18 to 26 years old without declared voice pathology. The repeated sample ANOVA test was used to compare the values. All the equipment show reproducibility between consecutive repeated measurements. The parameters f_0 and Jitter were the only ones that did not show significant differences between the smartphones and the professional microphone. None of the smartphones studied can replace the professional microphone in voice recording for the evaluation of the six parameters analysed, except for f_0 and Jitter.

Author keywords

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