

Difference in perceived speech signal quality assessment among monolingual and bilingual teenage students as well as young adults

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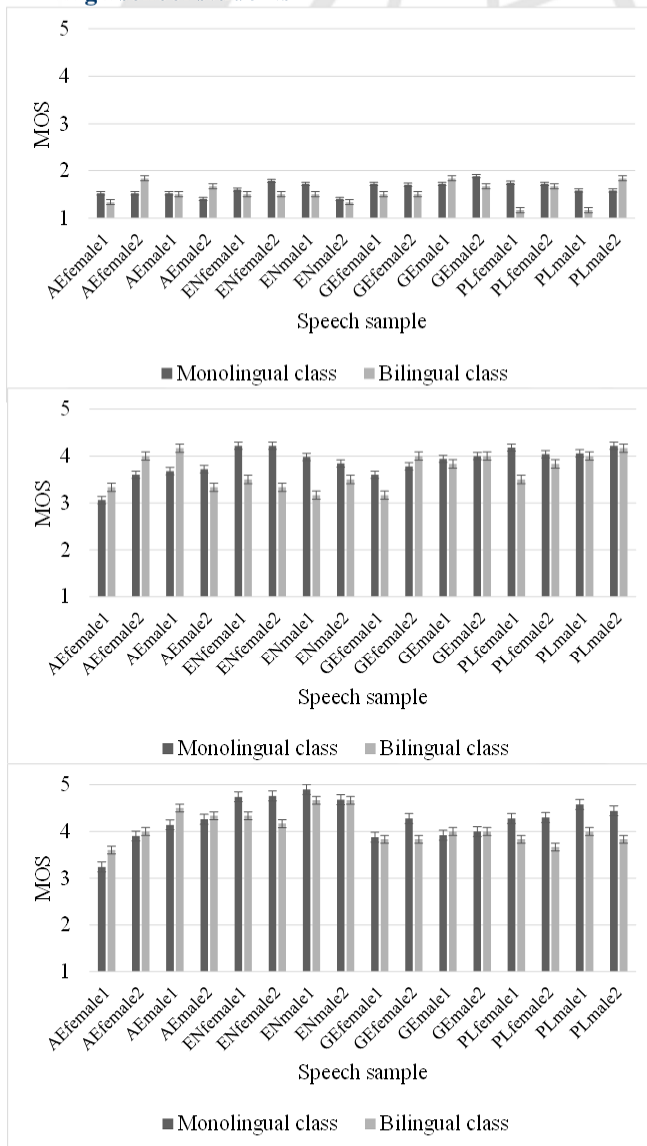
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ABSTRACT

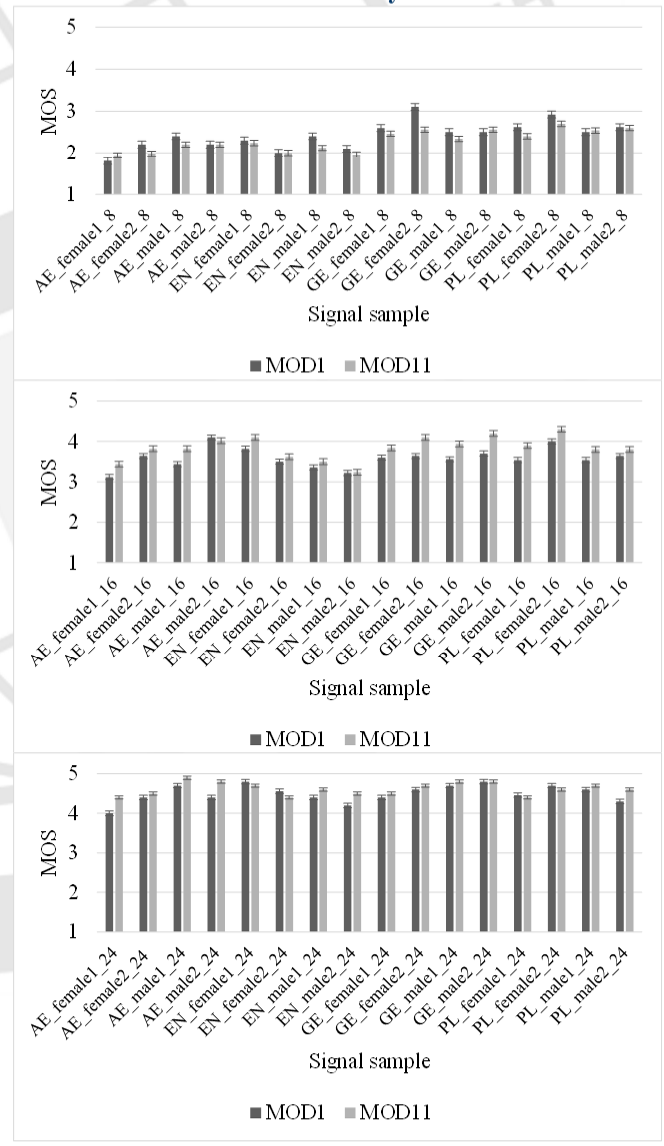
The user perceived quality is a mixture of factors, including the background of an individual. The process of auditory perception is discussed in a wide variety of fields, ranging from engineering to medicine. Many studies examine the difference between musicians and non-musicians. Since musical training develops musical hearing and other various auditory capabilities, similar enhancements should be observable in case of bilingual people. On the other hand, cochlear hearing loss, related with ageing and harmful working conditions, is linked with the impairment of the active, nonlinear mechanisms in the inner ear. This paper examines the difference in perceived speech signal quality between students from monolingual and bilingual classes as well as young adults. The subjective study was carried out on a group of 60 people, with 30 high school students including 15 individuals in both monolingual and bilingual class (aged 16-18 years old) as well as 30 university students (aged 19-35 years old), considering three languages: English, German, and Polish. Results of this study may aid researchers as well as professionals active in the field of auditory perception, hearing loss related with ageing, and of course designing, maintaining and evaluating mobile applications, networks and services.

RESULTS

High school students



University students



CONCLUSIONS

When listening to speech, the listener's attention is spread over a long time interval, which is required to extract the semantic message conveyed by sound. Bilingual people are more demanding users. They are more sensitive to distortions related with lossy coding and processing of audio content. Monolinguals can appreciate quality content, as their subjective judgements were most often higher. When it comes to learning English, monolingual people prefer the British dialect, whereas bilinguals prefer the American dialect. This remark is valuable not only for teachers from schools and universities, but also content creators and distributors, voice assistant test engineers, as well as other interested third parties.