Title: Benefits of a Time-Expansion Training Protocol for Recognition of Non-Native Speech by Older Listeners

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Abstract:

Previous studies have shown that listeners have more difficulty understanding speech produced by non-native talkers, and that this difficulty is exacerbated for older listeners with and without hearing loss. One of the features of non-native speech is an alteration in the rhythm or timing characteristics due to the influence of the talker's native language. Aging and age-related hearing loss are known to affect a listener's ability to understand speech that has been temporally distorted (i.e. time compressed or rapid speech), including non-native speech (e.g., Gordon-Salant et al., 2010, Bieber et al., 2017). If the reported difficulty of older listeners with non-native speech is related to an inability to adapt to these altered timing characteristics, then it is possible that slowing the non-native speech will allow listeners the time needed to successfully make this adaptation and improve speech recognition. The current study explored the effect of a training paradigm utilizing time-expansion and correct answer feedback on the ability of younger and older listeners to recognize non-native speech. Listeners heard IEEE sentences spoken by young adult male talkers whose native language was Spanish. These talkers were all originally from Latin America and were rated as having a moderately strong accent by young, normal-hearing listeners in a pilot study. Younger listeners with normal hearing, older listeners with normal hearing, and older listeners with hearing loss completed two sessions of training with the time-expanded sentences. Performance before and after training was compared for each visit, and a third visit tested retention of any training benefit. Additionally, generalization to unfamiliar stimuli and unfamiliar talkers was examined. Preliminary data indicate that younger and older listeners with normal hearing and older listeners with hearing loss improved over the course of a single visit, but the training benefit was not fully retained across training visits. Patterns of generalization to unfamiliar talkers and unfamiliar stimuli differed between visits and across listener groups. The results of this study provide evidence of a short-term training benefit for non-native speech using a time-expansion paradigm with feedback for older listeners. (clinicaltrials.gov ID: NCT03468660)

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None of the authors have a conflict of interest.