

## Enhancing speech intervention through app-delivered biofeedback: Pilot testing

T. McAllister Byun, H. Campbell, H. Carey, J. Forsyth, W. Liang, T. Hong Park, T. Sanders, N. Steklov, M. Svirsky

In speech sound disorder (SSD), deficits in spoken communication pose a barrier to academic and social participation whose impact may be lifelong. Technology-enhanced interventions have the potential to revolutionize clinical management of SSD. Previous research (e.g., McAllister Byun & Hitchcock, 2012) has documented the efficacy of SSD treatment incorporating visual-acoustic biofeedback, where clients view a computer-generated image of the acoustic signal of their speech and attempt to match a model representing accurate production. However, translation of this research to clinical practice is currently limited by the cost of the technology. Our team is developing an iOS app to make visual-acoustic biofeedback intervention freely available to speech-language pathologists. This case study describes an adolescent who is currently receiving app-based biofeedback intervention targeting rhotic misarticulation, having previously completed one semester of biofeedback intervention in the laboratory setting. App-based treatment is provided within a "challenge point" framework, where task complexity is adaptively increased to promote generalization (Hitchcock & McAllister Byun, 2014). We will calculate effect sizes comparing the participant's rhotic production accuracy before and after treatment. We hypothesize that this effect size will exceed the level identified as the minimum clinically significant effect in previous SSD research (Maas & Farinella, 2012).