Can audio-visual integration, adaptive learning, and explicit feedback improve the perception of noisy speech?

stephanie deschamps
McGill University, Montreal, Quebec, Canada

Hanna Zhang
University of Toronto, Toronto, Ontario, Canada

Blair Armstrong
University of Toronto, Toronto, Ontario, Canada

Abstract

The perception of degraded speech input is essential in everyday life and is a major challenge in a variety of clinical settings, including for cochlear implant users. We investigated English speakers perception of noisy speech via an audio-visual lexical decision paradigm that modulated cross-modal integration, adaptive modulation of task difficulty, and explicit feedback on response accuracy. We then tested whether proficiency with this task transferred to the perception of noisy audio stimuli in a post test. Although we observed a processing advantage for bimodal stimuli during training, particularly in the adaptive training condition, we did not observe any benefit from these conditions in the post test, nor a benefit associated with providing explicit feedback. These results are discussed in relation to other studies of audio-visual integration and learning to perceive noisy speech, which may have observed different results due to more extensive training and different baseline proficiency levels.