

The contribution of speaking rate, talker and coarticulation to lexical tone processing: Effects of language background and training

Although listening to speech is typically an effortless task, the actual cues to speech sounds continually fluctuate due to context. A fundamental issue in the study of speech perception is how listeners are able to extract and integrate information from the variable speech signal. This project investigates how perceptual constancy is achieved by examining three fundamental sources of acoustic variability: changes in the rate at which an utterance is spoken, differences due to which talker produced the utterance, and variations resulting from the sentence context. Specifically, the project will provide data documenting the range of variation that occurs in the production of utterances and how native speakers adjust to this variation. The project will also examine how non-native listeners interpret these changes. A final training component will determine how training procedures can help to achieve successful second language learning. As such, the present proposal will contribute to understanding how both native and non-native listeners are able to adjust to changes in the speech signal such that proficient language processing is possible.

This research consists of a series of cross-linguistic studies involving the acquisition and training of cues to speech perception. The research focuses on Mandarin Chinese lexical tones as an ideal case for extending investigations beyond individual speech sounds. The project will foster collaborative contact between U.S. and Chinese institutions due to the international nature of the research. Findings from these experiments will have direct implications for the teaching of second languages and may highlight the need for specific phonetic training approaches in second language classrooms in which learners are systematically exposed to aspects of contextual variation (such as speaking rate, talker, and coarticulatory information) to aid in language learning.