

Interlanguage Speech Intelligibility Benefit and the Mental Representation of Second Language Speech Sounds

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The interlanguage speech intelligibility benefit is where non-native listeners are better at understanding non-native speech than native listeners. Whether this really occurs is unclear from previous research. We hypothesize that the benefit can only be found for words that are mispronounced phonologically as other words by non-native speakers (e.g., ‘thin’ mispronounced as ‘fin’ by Cantonese speakers). If such a mispronunciation is due to the non-native speaker’s inability to perceive second language (L2) phonemic contrasts (e.g., /θ-/f/), then L2 listeners with a Cantonese background may treat minimal pairs having these phonemic contrasts as homophones (e.g., ‘thin’ – ‘fin’). Therefore, when hearing the mispronounced version of the word ‘thin’ (i.e., ‘fin’), the L2 listeners may have an advantage over native listeners in understanding the intended word.

To test this, an English monosyllabic word transcription task was carried out for Cantonese and native English listeners. Target words which were expected to be confused and mispronounced by Cantonese speakers were included in two separate experiments (e.g., ‘thin’ in Experiment 1 and ‘fin’ in Experiment 2). Control items were also included where Cantonese speakers were not expected to produce any phonological errors (e.g., ‘low’). The words were produced either by a native English speaker or a Cantonese speaker.

Results from Experiment 1 showed that Cantonese listeners recognized more Cantonese-accented words than English listeners for target but not for control words. In addition, Cantonese listeners understood the intended word better for target words that had a higher frequency (e.g., ‘thin’) than the mispronounced word (e.g., ‘fin’) relative to words that had a lower frequency (e.g., ‘buzz’) than the mispronounced word (e.g., ‘bus’). Such an impact of word frequency suggests that the two languages are represented in a single phonological system for L2 listeners.

Across the two experiments, we compared the percent of baseword responses (e.g., ‘thin’) where Cantonese and English listeners heard ‘thin’ in Experiment 1 and ‘fin’ in Experiment 2. There were more baseword responses in Experiment 1 than Experiment 2 for Cantonese listeners, and the difference was larger for the speech produced by the native English speaker than the Cantonese speaker. This demonstrates that Cantonese speakers can perceive and produce second language speech contrasts (though in a non-native manner), suggesting that, in contrast with Experiment 1, the two languages are represented in separate phonological systems for L2 listeners. Theoretical issues regarding the mental representation of second language speech sounds in native and non-native listeners and the seemingly contradictory findings in the two experiments will be discussed in terms of the Speech Learning Model.