

The impact of face masks on the perception of L2 phonetic contrasts

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This study investigates the effect of mask-wearing on L1 Mandarin-L2 English speakers' ability to perceive and identify [f, v], [s, θ] and [z, ð] contrasts. During the peak of the COVID-19 pandemic, masks were required in multiple public settings, including educational institutions. However, the use of masks reduces the amount of visual language cues available to second language learners, thus leading to potential difficulties in perception, especially of contrasts involving segments not found in the L1, such as English [v, θ, ð] for speakers of Mandarin. Previous studies on Japanese (Gota, 1971), Spanish (Hazan et al., 2006), and English focused on the perception of non-native phonetic contrasts, and several studies (e.g., Hazan et al., 2006; Shea 2013; Tsunemoto et al., 2021) suggest that visual input is crucial for learners' perception of L2-specific phonemes. However, a gap in the literature remains with respect to Mandarin learners of English and the impact of mask-wearing on the perception of L2 phonetic contrasts.

In this study, a total of 36 participants are recruited and assigned equally into low, intermediate, and high proficiency groups based on their C-test score of English (Karimi, 2011). Participants are asked to complete a perception task, consisting of 156 minimal pairs in video clips recorded by a native English speaker in two conditions: (a) an unmasked condition where participants have full access to the visual information and (b) a masked condition where participants receive only partial facial visibility (i.e., a face with a mask). All the contrast pairs are presented in pseudo-words to avoid frequency effects, and every pair appears in each of the word positions (initial, medial, final). Potential factors to be analysed for their effect on the perception of consonant contrasts include masked vs. unmasked condition, place of articulation, and word position.

Preliminary results will be collected in February following ethics approval. Based on the literature review, I expect the results of the current study to align with those of previous studies (e.g., Hazan et al., 2006; Tsunemoto et al., 2021), with the high proficiency group outperforming the other groups (Hardison, 2007). I also expect participants to perform better in identifying phonetic contrasts in word-initial positions rather than word-final positions in both conditions, with potential difficulties in word-medial positions. The effect of place of articulation suggests that in the unmasked condition, labiodental phonemes /f, v/ should be more visually salient than interdental /θ, ð/, followed by alveolars /s, z/. I predict that participants will be better at identifying /θ, ð/ than /s, z/ in [s, θ] and [z, ð] contrast pairs in the unmasked visual condition.

This study sheds light on the significance of accessing visual information for language learners and explores the effects of word position and place of articulation in consonant perception, particularly when participants only have access to auditory speech signals (for example, by phone). The expected results would show that the effect of word position remains stable across conditions (masked and unmasked). A modulated place of articulation effect in English phonetic contrast perception may be found, resulting in a more noticeable effect in the mask-off condition than in mask-on condition as perception of place of articulation (POA) is more sensitive to visual information than perception of other phonemic contrasts.

References

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