Effect of Native Language Experience on Audio-visual Perception of English Fricatives by Korean and Mandarin Natives

INTRODUCTION

Background

- Native (L1) speech perception is enhanced by visual information [1,2,3].
- Nonnative (L2) perceivers may be impeded in correct use of L2 visual cues non-existent in their L1, but perception may be affected by linguistic background [4,5].

Current study

- Examined audio-visual (AV) perception of the English fricatives by L2 perceivers with different L1 backgrounds: Chinese (no inter-dental in L1), & Koreans (no interdental or labiodental in L1)
- Questions addressed: how do Chinese & Koreans differ from the English natives, & from each other, in the AV perception of the L2 fricatives, given their different L1 experience?

METHOD

Participants

- English: 15 Canadian English young adults
- Korean: 15 native Korean young adults; Residence in Canada: < 5 yrs
- Chinese: 20 native Mandarin Chinese young adults; Residence in Canada: < 5 yrs

Stimuli & Procedure

- CV syllables produced by a native English speaker
- Modalities: A, V, AV-congruent, AV-incongruent
- Identification task

RESULTS

Summary

- All groups:
  - AV better than A or V (esp. for visually distinct labiodentals & interdentals (Fig.1)
  - A more dominant than V (Fig.2)
- Nonnatives compared to natives:
  - worse in interdental identification in all modalities (Fig.1)
  - adopted V info, but not accurate in perceiving L2 sounds (Fig.1)
  - more AV fusion → more vulnerability to this illusion (Fig.2)
- Korens compared to Chinese:
  - good A, poor V perception of labiodentals nonexistent in Korean (Fig.1)
  - more attention to A for labiodentals & interdentals (Chinese: more attention to V info) (Fig.1 & Fig.2)

Conclusions

Nonnatives AV processing in L2:

→ may attend to V, but unable to use L2 V cues natively
→ show evidence of AV benefit
→ may have a trade-off between either focusing on A or V info
→ AV perception of unfamiliar L2 sounds differentially influenced by L1 background

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