Situational learning?

2. Does learners’ non-native sound perception develop during cross-situational learning?

INTRODUCTION

- Adults have great difficulty learning non-native speech sounds in a second language.
- **Aim:** examine whether an implicit, cross-situational learning\(^1\) paradigm facilitates non-native sound acquisition.
- **Prediction:**
  - learners can keep track of linguistic information across various learning trials to learn novel words that contain non-native sounds, with no feedback or instructions on the new sounds;
  - presenting words in minimal pairs influences learning outcomes\(^2\), as phonologically similar words occur frequently in languages.
- Pre-registered study: https://osf.io/2j6pe/

RESEARCH QUESTIONS

1. Whether and how do non-native sounds and minimal pairs interfere with cross-situational learning?
2. Does learners’ non-native sound perception develop during cross-situational learning?

MATERIALS & METHODS

- \(N=56\)
- English native (\(N=28\))
- Mandarin native (\(N=28\))

<table>
<thead>
<tr>
<th>Consonantal set</th>
<th>Vocalic set</th>
</tr>
</thead>
<tbody>
<tr>
<td>pa1mi1</td>
<td>pa4mi1</td>
</tr>
<tr>
<td>li1fa1</td>
<td>li4fa1</td>
</tr>
<tr>
<td>ta1mi1</td>
<td>ta4mi1</td>
</tr>
<tr>
<td>lu1fa1</td>
<td>lu4fa1</td>
</tr>
<tr>
<td>ka1mi1</td>
<td>ka4mi1</td>
</tr>
<tr>
<td>lei1fa1</td>
<td>lei4fa1</td>
</tr>
</tbody>
</table>

Note: Numbers refer to Mandarin Tone 1 and Tone 4.

CROSS-SITUATIONAL LEARNING TASK

- Different types of learning trials (\(n=144\))
  - Consonantal minimal pair: pa1mi1, ta1mi1
  - Vocalic minimal pair: li1fa1, lu1fa1
  - Tonal minimal pair: pa1mi1, pa4mi1
  - Non minimal pair: pa1mi1, li4fa1

DISCUSSION

- Successful cross-situational learning of novel words with non-native sounds.
- The presence of minimal pairs and non-native sounds interferes with CSL outcomes.
- For English participants, the 10-min CSL exposure is not sufficient to improve tonal perception significantly.

FURTHER DIRECTIONS

- Perception-production link – measure tonal production
- Individual differences – what are the predictors of learners’ tonal performance?
  - Auditory processing ability
  - Pre-training perceptual ability
  - Working memory...
- Effect of explicit instructions

References