Introduction

- Second language (L2) learners often exhibit difficulties perceiving novel phonemic contrasts.
- It may be more difficult for learners to distinguish between novel contrasts when lexical access is required (Curtin et al. 1998, Hayes-Harb & Masuda 2008).
- On the other hand (Pater 2003), learners distinguished between novel contrasts equally well when lexical access was required as they did when not required.
- This was only the case when task was an AXB discrimination task consisting of sound-picture-sound (SPS) stimuli.
- When discrimination task consisted of picture-sound-picture (PSP) stimuli, discrimination was at-chance levels.
- This mixed finding suggests that the nature of the task is crucial.
- Hayes-Harb & Masuda (2008) speculate that learners may not initially store the relevant features of novel phonemes but instead may store them as being “strange” versions of familiar L1 phonemes.
- If this is the case, then the “strangeness” of the phones could be used to distinguish between the two phones in an auditory task.
- This relative strangeness account may explain Pater’s findings.
- When two auditory forms are presented, the learner could compare them for strangeness.
- When only one sound is presented, learners could not compare relative strangeness of the sounds.
- First research question: To what extent does task type affect learners’ ability to discriminate between novel contrasts?
- When both phones are presented in the task, are learners able to more accurately distinguish between the phones than when only one phone is presented?
- This study utilizes the Arabic /t/-/tˤ/ phonemes as the novel contrast.
- Vowel context has been found to affect learners’ ability to perceive pharyngeal contrasts (Bolewicz et al. 2009).
- The following vowel was found to have a significant effect on the perception of the contrast (i.e., /tˤa/> /tˤi/> /tˤu/).
- Vowel context may affect learners’ ability to perceive the contrast in SPS and PSP task types.
- Second research question: Does vowel context interact with task type to facilitate learners’ ability to perceive contrasts?

Participants

- 30 native English speakers (15 per task condition).
- No prior knowledge of Arabic, 18+ years old, recruited from courses at the University of Utah.
- Normal-hearing with no neurological disorders or medication affecting motor skills.

Stimuli

- Eighteen Arabic non-words consisting of six target and three filler minimal pairs.
- Each stimulus was associated with a distinct picture.

Procedure

- Six target pairs were distinguished only by pharyngealization (i.e. /tik/–/tˤik/).
- Three filler pairs distinguished by phonemes present in both Arabic and English (i.e. /baf/-/maf/).
- Three native Arabic speakers produced the stimuli.
- 54 unique non-word stimuli (18 non-words x 3 talkers= 54 non-words).

SPS Task

- Participants underwent a word learning phase: subjects learned to associate the Arabic non-words with pictures.
- Each word was presented six times.
- Criterion task: Participants were presented with an AXB discrimination task consisting of a sound-picture-sound (SPS).
- Sounds were not minimal pairs.
- Participants required to correctly associate word-picture pairings with at least 90% accuracy before proceeding with task.
- Participants registered their responses by pressing buttons on a keyboard.

Final task: Participants presented with an AXB task where A and B were minimal pairs and X was a picture associated with either A or B.

- In each of the AXB groups presented, A and B were produced by different talkers.
- The AXB items presented in random order in a block.
- Each AXB group was presented twice in the block and the block was presented four times, for a total of 144 trials.

PSP Task

- Identical SPS task, except the AXB tasks consisted of picture-sound-picture (PSP) items instead of sound-picture-sound.

Results

- Proportion correct calculated for each participant individually.
- Participants were significantly more accurate at discriminating familiar /m/-/b/ contrasts than novel /t/-/tˤ/ contrasts (Wilcoxon signed ranks test: z=-4.612, p<.005).
- No significant difference was found between task conditions (F(1,28)=1.939, p=.175).

Conclusions

- L2 learners did not replicate Pater’s findings in PSP and SPS conditions.
- Vowel context was not found to interact with task type.
- More follow up is needed to see if Pater’s results can be replicated.

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References


