The Effects of Modified Input on the Perception of a Nonnative Vowel Contrast by Adult Chinese Learners of English

Qin Yuan & John Archibald

Email: qinyuan@uivc.ca

University of Victoria

1. Background and Reseach Question

- Ylinen et al. (2010) found that training (with altered durational contrasts) improved learners' L2 [i]/[ɪ] perception. The high variability phonetic training (HVPT) method using modified acoustic stimuli has been shown to help L2 learners to acquire nonnative vowel contrasts (e.g., Rato, 2014; Giannakopoulou & Ylinen, 2013).
- However, scant research has explored whether a modified input (HVPT) paradigm could improve Chinese EFL learners' vowel perception of an English tense/lax contrast ([i]/[ɪ]) or not.

Does modified durational input improve Chinese EFL learners' perception of the English spectral vowel contrast /i/-/ɪ/?

2. Methodology

- Participants: 56 native Chinese-speaking adults: Experimental group (EG) (n=28); control group (CG) (n=28).
- Tasks: This study employed two tasks:

(1) *Testing*

The forced-choice identification test comprised naturally spoken words with two target vowels (/i/-/ɪ/), and distractors (/æ/-/ɛ/). The inter-stimulus interval (ISI) was set to be a 1000 ms. The stimuli consisted of 30 monosyllabic minimal pairs (21 minimal pairs with /i/-/ɪ/ and 9 distractors with /æ/-/ɛ/). Words were presented in a randomized order;

(2) *Training*

The participants were taught the /i/-/ɪ/ contrast in six 15-minute classroom training sessions (over three weeks) including an ABX discrimination task. In this task, the EG and the CG were exposed to the same number of lexical [i]/[I] pairs.

Stimuli

- The EG heard natural stimuli, plus synthesized stimuli whose vowel lengths had been systematically altered as shown in Table 1.

  The stimulus vowels were either:

  (a) naturally occurring (i.e., unmodified),

  (b) lengthened (by a factor of two), or

  (c) shortened (by half).
- The CG trained using natural stimuli only.

Table 1. Duration Values for Naturally-Produced and Synthesized Vowel Sounds for *Sheep and Ship*

Sound	Duration (factor / in ms.)	Sound version
sheep [ʃip]	1.0 / 644	Natural production
	0.5 / 322	Modified short vowel duration
	2.0 / 1288	Modified long vowel duration
ship [ʃɪp]	1.0 / 584	Natural production
	0.5 / 292	Modified short vowelduration
	2.0 / 1168	Modified long vowel duration

A baseline pre-test identification task, and an identical post-test identification task determined if the exposure to high-variability vowel duration affected identification accuracy.

- Analysis: The effect of modified input training was evaluated by comparing the results obtained at the pre- and post-tests. An ANCOVA was conducted on the two groups.

3. Results

Table 2 presents the information of Number (N), Maxium (Max) score (out of 30), Mean (M), and Standard Deviation (SD) on participant's identification scores by the two groups in the pre- and post-tests.

Table 2. Descriptive Statistics for Identification Scores by the Two Groups in the Pre- and Post-tests

	Pre-test				Post-test			
Group	*N*	*Max*	*M*	*SD*	*N*	*Max*	*M*	*SD*
EG	28	19	11.61	4.272	28	21	15.39	4.701
CG	28	20	13.04	3.214	28	21	13.46	3.834

With the covariate of the pre-test scores taken into account, there was a significant difference (p = .003; ηp^2 = .159) indicating that the EG improved significantly (large effect size) more than the CG.

4. Discussion and Conclusion

- Modified durational input enhances Chinese EFL learners' perception of the English /i/ and /ɪ/ vowels. This could be because (a) the added duration allows time to for the listener to hear the spectral difference, or (b) the modified duration removes the reliability of the durational cue, so the listener must attend to the spectral properties.
- This has possibilities as a pedagogic technique.

References:

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