Second Language Speech Learning

A Comparison between Discrimination and Identification for Pronunciation of Novel Phonemic Contrasts

Perceptual Training

Identification Training and High Variability Pronunciation Training (HVPT)

- Focuses on classifying stimuli and identifying their similarities
- Learners are presented one member of a minimal pair (e.g. *rock* vs. *lock*) and asked to identify which one they were presented
- HVPT is a variant of identification training (Logan et al., 1990)
- In HVPT learners are presented stimuli which vary in terms of phonetic context and talker
- Japanese speakers who received HVPT focusing on the English /r/-/l/ phonemic contrast improved their perception of the words used in training (Logan et al., 1990)
  - Subsequent studies have found that these improvements:
    - Generalize to untrained words and untrained talkers (Lively et al., 1994)
    - Transfer to pronunciation of trained and untrained words (Bradlow et al., 1997)
    - Are retained long-term (Bradlow et al., 1997)
  - Similar results have also been obtained in the training of vowel contrasts (Lambacher et al., 2005)

Discrimination Training

- Focuses on the differences between stimuli
- In AX discrimination training learners are presented two stimuli and asked if they were the same or different
- While there is some evidence to support its use in language learning (Flege, 1995), its use has been rejected on the basis of a study by Strange and Dittmann (1984)
- Strange and Dittmann (1984) claim that discrimination training promotes fine-grained within-category discrimination which is not compatible with categorical perception
- It is true that discriminating adjacent pairs of stimuli on a synthetic continuum is inconsistent with categorical perception
- This is, however, not the only way to present discrimination training

A Comparison of Identification and Discrimination Training

- This study compares HVPT with oddity discrimination training using natural speech
- In oddity training, learners are presented three stimuli and asked to identify the 'odd one out'

A Comparison if Identification and Discrimination Training

Method

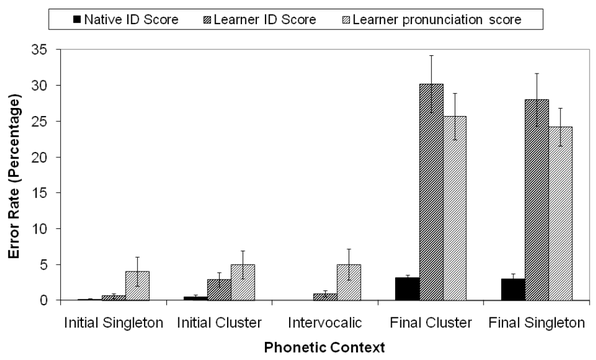
- **Participants**
  - The participants in this study were Mandarin-Chinese learners of English
  - Mandarin-Chinese learners of English have difficulty perceiving and pronouncing English /r/ and /l/ in word-final positions (Chen and Fon, 2007)

- **Design**
  - IV: Training (Identification vs. Oddity)
  - DVs: (1) Identification accuracy, (2) Pronunciation accuracy

Group 1 (N = 6)	**Group 2** (N = 6)
Pre-test Pronunciation accuracy Identification accuracy	
Oddity training 4 x 1 hour sessions 2 talkers per hour, 1 male and 1 female	**HVPT** 4 x 1 hour sessions 2 talkers per hour, 1 male and 1 female
Post-test Pronunciation accuracy Identification accuracy	

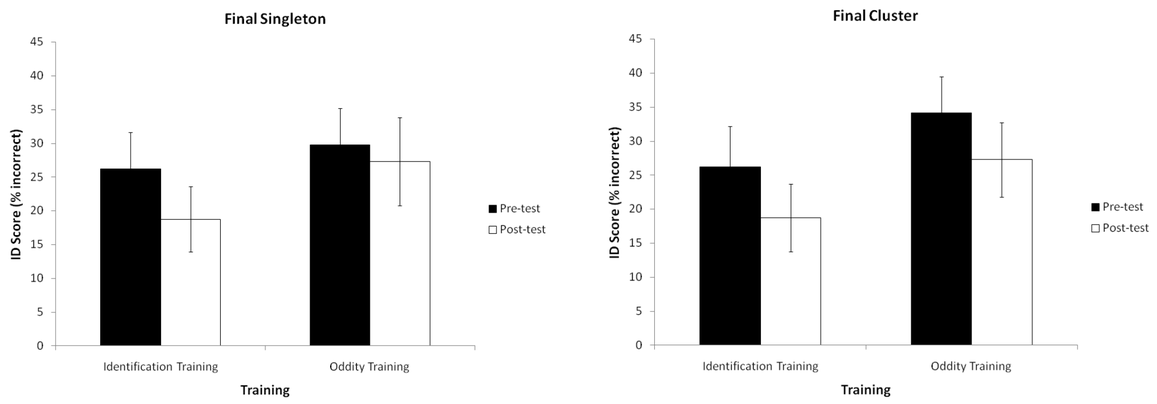
Results

- **Baseline Results**



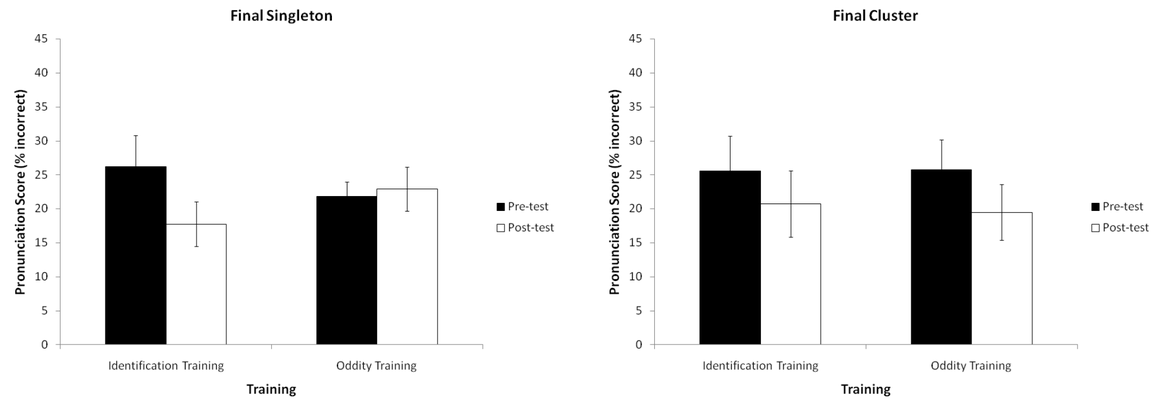
- Both learners and native speakers' identification (ID) scores differed across the five phonetic contexts, with both learners and native speakers having more difficulty perceiving the /r/-/l/ contrast in final cluster and final singleton positions and learners having more difficulty than native speakers.
- Learners' pronunciation scores differed across the five phonetic contexts and they had most difficulty in final cluster and final singleton positions

- **Results of Training: Perception**



- For learners who received identification training the improvement was significant in final cluster position
- For learners who received discrimination training the improvement was significant in
- final singleton position

- **Results of Training: Pronunciation**



- For learners who received identification training the improvement was significant in final singleton position
- The amount of improvement was greater than that achieved by the learners that received discrimination training

Discussion

- **There is some evidence to support the use of discrimination training in second language learning**
- **Possible explanations for this result s are**
  - Oddity discrimination training promotes classification as well as discrimination (Logan and Pruitt, 1995)
  - Exposure is more important than the task

Perceptual Training and Models of Second Language Speech Learning

Perceptual Assimilation Model

- **Non-native (L2) phonetic segments are perceived with respect to native (L1) phonetic segments, in terms of their assimilation, or degree of (dis)similarity, to native segments which are closest in the native phonological space. (Best, 1995)**
- **Does perceptual training alter the perceived (dis)similarity between non-native and native phonemes?**

Native Language Magnet Model

- **Infants build perceptual magnets through the analysis of the distributional properties of phonemes in their linguistic environment.**
- **Regarding second language speech learning:**
  - Target language phonetic contrasts which are similar to a native language magnet will be difficult to discriminate, and the nearer they are to a native language magnet, the more difficult they will be to discriminate.
  - Target language phonetic contrasts which are different to native language magnets will be easier to discriminate.
- **Does perceptual training alter learners' perceptual magnets?**

Zöe Handley
Department of Education
University of Oxford

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