

A case study of childhood L2 learning of phonological contrasts

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50th
1963-2013



Background

Children acquiring L1 may go through a period of '*covert contrast*' Scobbie et al. 2000

- acoustic differences are not perceived by adults

Adults acquiring difficult L2 contrasts may never get past this stage Fliege, Muroe & Skelton, 1992

- Word final voicing in English for Spanish and Arabic L1 learners

Child L2 learners may successfully acquire new contrasts after only a few months Fokes, Bond & Steinburg, 1985

- Word final voicing in English for Arabic L1 children

Central questions

Do child L2 learners also go through a period of covert contrast?

Are all contrasts the same?

German L1 English L2

- word final voicing
- front mid-low vowels
- Both contrasts missing in German

Methods

Participants:

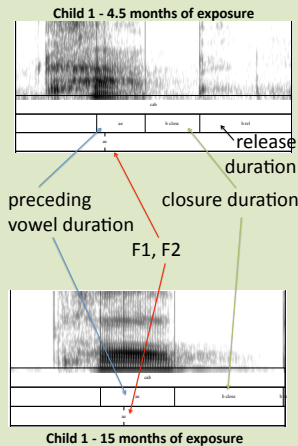
- Two native German speaking children
- Entered the UK at ages 8:10 (child 1) and 6:6 (child 2)
- no prior English exposure.

Production task:

- repeat 48 sentences "the next word is __ now"
- 18 words contained target word-final consonants (/p,b,t,d,k,g/) and vowels (/æ, e/)
- Followed for 15 months after arrival.
- Acoustic analysis of productions and adult native listener judgments

Production Experiment

"The next word is __ now"



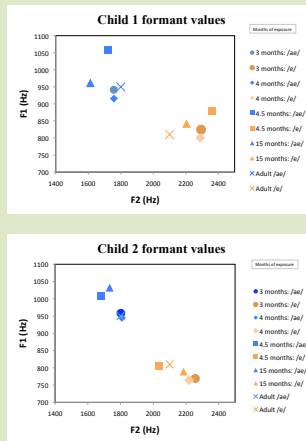
Word Final Consonants:
/p,b,t,d,k,g/

Vowels:
/æ, e/

back
neck
bag
ing
ring
net
pet
chat
shed
dad
step
tap
map
lap
web
cab
crab

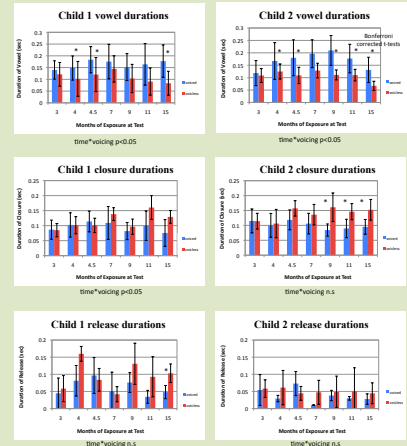
Vowels

native-like from earliest test date



Stops

acoustically neutralized at first test date
gradually become more distinct with exposure



Perception Experiment

12 Native Adult Listeners
4 word forced choice task

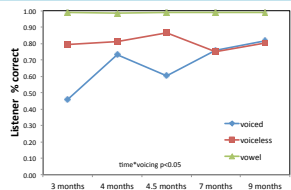
Please listen to these real and made up words
spoken by children learning English.
Choose the pronunciation that is most similar to what you hear.
Click to start.

The next word is... now

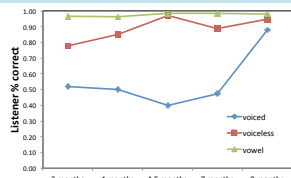
kab keb
kai kep

1 (good) 2 3 4 5 (good)

Child 1 Listener Scores



Child 2 Listener Scores



- Consonants and vowels follow different trajectories of learning.**

- Vowels:** native-like formant frequencies from as early as three months of exposure

- Perceptual tests confirmed that listeners made few errors of vowel quality

- Voiced and voiceless final consonants:** acoustically very similar after 3 months exposure. Gradually became more distinct (time*voicing interaction).

- Perceptual tests confirmed that listeners often confused voiced stops for voiceless ones for utterances produced within seven months of exposure to English, *even when the children were making acoustic distinctions between voiced and voiceless stops.*

- After 9 months of exposure, both children produced stops that were identified correctly (>80%).

- Both children went through a **stage of covert contrast of stop voicing** in line with the literature on first language acquisition.

Further Questions:

- Why is child 1 perceived more consistently despite less consistent productions?
- Why is the final voicing contrast more difficult to master?
- How is the speech of monolinguals perceived at this age, for this contrast?

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