Sign language and deaf culture

*Approximately 2 children per 1000 are born with sensorineural hearing loss*

CL2207 Chinese Language and Culture
Week 7-8; 29 Feb & 7 Mar 2016
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Outline

- Spoken language acquisition by deaf children
  - without cochlear implants
  - with cochlear implants
- Sign vs. spoken language
  - similarities and differences
- ‘Critical period’ for language acquisition
  - ‘Sound and Fury: Six Years Later’
  - ‘The Heather World: Heather Artinian at TEDxGeorgetown’

Spoken language acquisition by deaf children without cochlear implants

- The kitchen scene with little Heather and her grandmother in ‘Sound and Fury’
  - Why do deaf people speak the way they speak?

- Recall what happened before the emergence of Nicaraguan Sign Language
  - How did the deaf children do with lip-reading and finger-spelling Spanish?

Cochlear Implants work differently from hearing aids

- Hearing aids amplify sounds so they may be detected by damaged ears
- Cochlear implants bypass damaged portions of the ear and directly stimulate the auditory nerve
- Signals generated by the implant are sent by way of the auditory nerve to the brain, which recognizes the signals as sound
- Hearing through a cochlear implant is different from normal hearing and takes time to learn or relearn
What does it sound like when heard through cochlear implants?

**Spectral resolution:**

**Language**
- original, 32, 16, 8, 4, 2, 1 channel

**Song**
- 4, 8, 16, 32 channels, original

**Instruments**
- 4, 8, 16, 32 channels, original

Find out more on: [http://ecs.utdallas.edu/loizou/cimplants/index.html](http://ecs.utdallas.edu/loizou/cimplants/index.html)

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What cochlear implants can/can’t do (1)

- It’s possible (for native speakers) to understand speech sentence down to 4 or 2 spectral channels. At 8 channels, words already have fairly good quality.
- However, it’s hard to recognize the music sequence even with 32 channels, although some melodic information is already available at 16 channels.

**Speech recognition involves top-down processing, which is tolerant of considerable degradation.**

Whereas, **music recognition requires fine details that are not accessible through cochlear implants.**

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**Hearing adult vs. children listening to cochlear implant simulations**

**Spectral resolution**

- 4 channels
- 6 channels
- 8 channels
- 10 channels
- 12 channels
- Original

Find out more on: [http://ecs.utdallas.edu/loizou/cimplants/index.html](http://ecs.utdallas.edu/loizou/cimplants/index.html)
Children have less ability to access lexical information from speech with degraded spectral cues. For implanted children, language doesn’t come as naturally as for hearing children.

It is extremely important to receive enough language exposure during the critical period of language development. Any example in Sound and Fury?

- Sign language can only convey simple, concrete meanings?
- Sign language is largely iconic?
- There is a universal sign language?
- Chinese Sign Language is a translation of Mandarin Chinese into signs?
- Deaf children have to go to school to learn sign language?

• Singapore National Pledge in signs
  https://www.youtube.com/watch?v=suyWcgMeAd4
• Singapore Sign Language for Sports
  https://www.youtube.com/watch?v=BFy2TxvLk8M
• Japanese vs. American vs. French Sign Language
  https://www.youtube.com/watch?v=5kqhrLAz2n8
• American Sign Language - Greetings and Introductions (4 parts, available on IVLE)

sign vs. spoken language

- **Modality**
  - Spoken language: Vocal-auditory mode
    - Articulator, the place of articulation, and the manner of articulation
  - Sign language: Manual-visual mode
    - Hand shape, palm orientation, location on signer’s body, and movement path

- **Simultaneity:** The extra bandwidth of the visuospatial modality compensates the slowness of the manual articulators.

Sounds in Mandarin Chinese

- **‘Critical period’ for cochlear implantation**
  - Best before age 3.5, no later than age 7
  - Recall that hearing children master their L1 by age 7

Heather’s spoken language development
- ‘Sound and Fury’ (6 years old)
- ‘Sound and Fury: Six Years Later’ (12 years old)
- ‘The Heather World: Heather Artinian at TEDxGeorgetown’ (college)